After School:
Detroit Historic Vacant School Property Study

Appendix 2:
Building Envelope and Structural Assessment Reports

April 2021

District 1

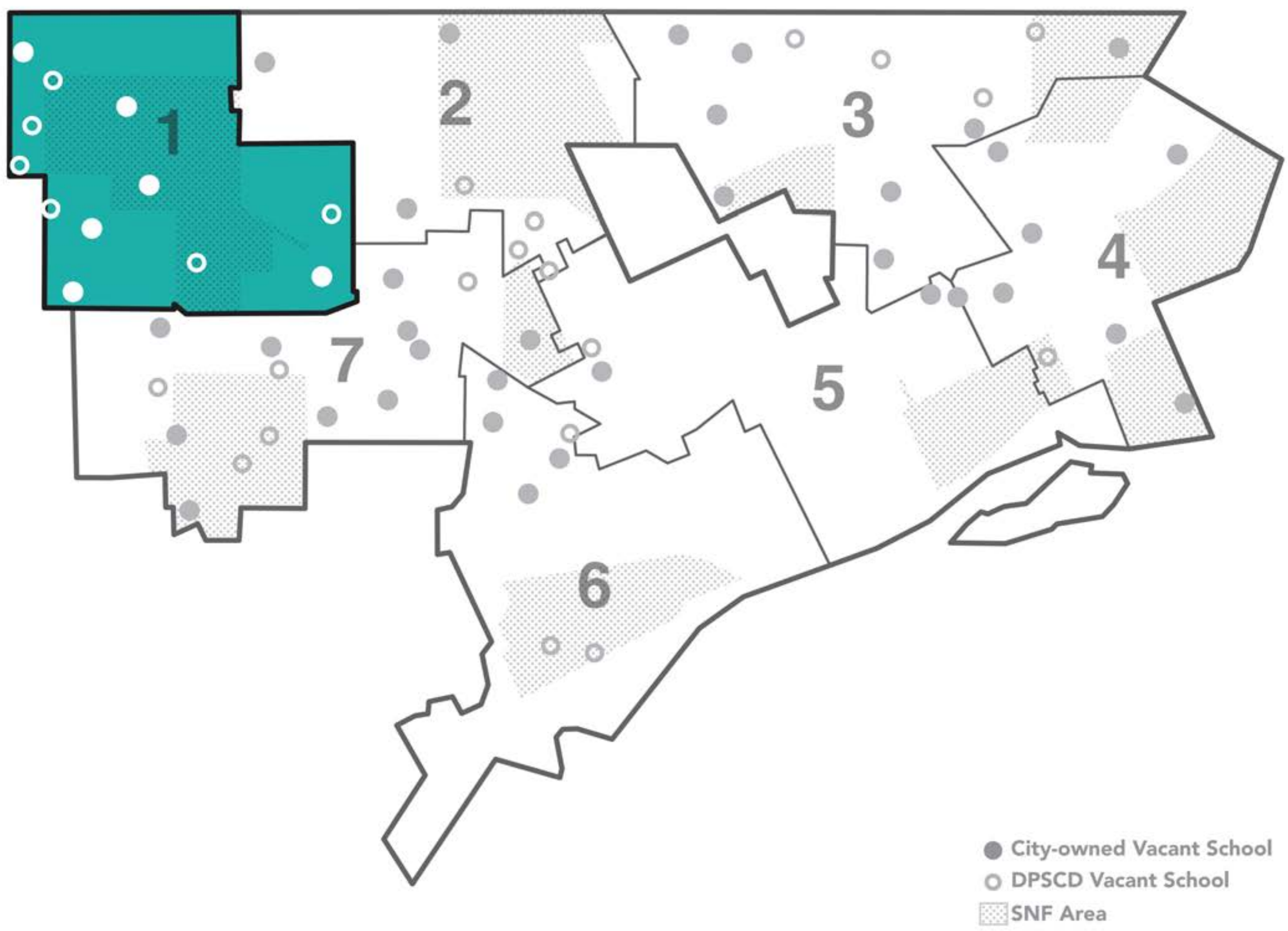
City of Detroit Schools:

Burt
Detroit Open
Healy
Holcomb
Hubert

DPSCD Schools:

Cooley
Larned
Lodge
Murphy
Vetal
Yost

Detroit
City Council District 1



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Bingham Farms, Michigan 48025
248.593.0900 tel
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Burt Elementary School

Basic Property Information: COD 1-Burt-20710 Pilgrim

Short Name:	Burt
Address:	20710 Pilgrim Avenue, Detroit, Michigan 48223
Year Built:	1925
Additions Built:	1946,1959
Outbuildings:	None
Year Vacated:	2010
Building Footprint:	180 feet x 180 feet
Square Footage:	46,196 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU ▪ Structural Steel ▪ Wood
City Council District:	1	**Exterior Wall System:**	▪ Brick ▪ Cast Stone (painted typ) ▪ Limestone
SNF District:	NWGR	**Window System(s):**	▪ Steel-framed ▪ Glass block infill
		Roofing System(s):	▪ Built-up Roof ▪ Granular cap sheet base flashing ▪ Slag Surfacing ▪ Internal Drains

Assessment Summary

Assessment Date:	March 17, 2020
WJE Inspector(s):	Cheryl Early; Justin Barden
Report Date:	October 26, 2020
Building Risk Index:	**84.99**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,999,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,695,680
Sub-Total	$6,594,680
Contingency (25%):	$1,648,670
Sub-Total	$8,243,350
Overhead and Profit (15-18%):	$1,236,502
Sub-Total	$9,479,852
Escalation (6% for 2 years)	$568,791
Sub-Total	$10,048,643
Architectural and Engineering Design Services (20%):	$2,009,728
TOTAL COST ESTIMATE:	$12,058,372

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The basement level is partially flooded, and thus, was only partially accessed. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($800/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original 1925 building fronts Pilgrim Street and is generally symmetrical about the center of the southern facade. The 1940s and 1950s additions were constructed to the north of the building, housing additional classrooms in the eastern wing and the gymnasium and auditorium in the western wing. The mechanical spaces are located primarily below grade in the central courtyard created by the east and west wings.

The building facade generally consists of a clay brick masonry laid in running bond with a seven-course header bond and concrete masonry (CMU) backup. At the original portion of the building, painted cast stone accent units frame the entrances, window sills, and horizontal bands with clay tile coping units and steel-framed windows. The front, south facade of this original building portion also contains ornate brick coursework. At the building additions, limestone accent units are present at the entrance surrounds and coping. Punched wall openings contain glass block infill with operable steel-framed windows within lower lites. Limestone units frame the lower, operable units, as well as the glass block infill. The building entrances generally consist of conventional steel doors. The internally drained, low-slope roof assembly consists of a slag surfaced, bituminous built-up roofing (BUR) system with granulated cap sheet base flashing.

The structural systems are similar between the original building and its additions. The first floor of both the original portion and the additions are primarily of slab-on-ground construction, excepting the mechanical spaces. The structure over the boiler and coal room are of concrete slab and beam construction. The second-floor structures are primarily concrete tee joist-slab systems with stay-in-place corrugated metal forms used in the original portion and stay-in-place clay tile forms used in the additions. A reinforced concrete beam and column system supports the second-floor tee joist-slab construction in the original portion; structural steel encased in concrete supports the second floor and roof structure of the additions. The roof structure of the original building consists of wood decking and dimension lumber spanning to structural steel members. The roof structure of the east classroom addition is primarily the same concrete tee joist-slab system used to construct the second-floor framing of this addition. The roof structure over the gymnasium is constructed with a perforated metal ceiling spanning between built-up steel box beams that are bearing on the CMU walls, or steel columns located within the CMU walls. Structural steel and metal decking form the roof structure of the auditorium space.

In general, the building is in fair condition with many of the interior finishes intact. The windows require replacement. Water infiltration within the wall assemblies due to failed drains, missing roof flashings, and missing and deteriorated coping units has resulted in significant masonry distress and corrosion of embedded steel support elements within the facade. Many of the cast stone and limestone decorative units are distressed and require replacement, especially at the main north entrances and window surrounds. The roofing is recommended for replacement, though repairs may be possible in some regions. With the exception of isolated areas of concrete distress, the structure is in good condition with isolated areas of concern. Further detail of the observed distress is provided below.

Facade

The facade is generally in fair-to-poor condition. Localized cracking and brick masonry displacement were observed, which is primarily attributed to water infiltration and corrosion of the embedded steel support elements. Previous masonry repairs have been performed at the building, including rebuilding of localized areas of masonry. These past repairs are generally in poor condition. At the ends of the parapet walls on the newer building additions, previous rebuilt areas are cracked, likely attributed to corrosion of the embedded steel support elements and/or a lack of expansion joints in the masonry wall. Where readily exposed and visible, several of the limestone and cast stone units at the windows and entrances are missing or are spalled due to corrosion of the embedded steel anchors and lintels and will require replacement. Rehabilitation of the building should include repair of the distressed masonry elements to mitigate further distress.

Some areas of the clay tile coping units within the original building portion have been removed and are now resting on lower roof levels or grade, largely damaged. Removal of these units has been attributed to vandalism to access flashing elements previously located below. Rehabilitation of the building should include resetting undamaged and replacing damaged coping units in coordination with the recommended roofing replacement work. Alternative coping materials may also be considered during the schematic design phase.

The steel-framed windows and areas of glass block infill are significantly distressed or missing and require replacement. The existing plywood coverings over the window openings should be maintained to mitigate further water infiltration-related distress and deter vandalism. The exterior steel doors are typically corroded and should be replaced.

Roofing

The roofing assembly is generally in poor condition largely due to missing rooftop mechanical units, failed drains, missing flashing elements, and deferred maintenance. Cracking, seam failures, ponded water and organic growth were observed on the roof surface. The flashing terminations at the perimeter parapets are generally cracked or separated from the parapet, and most of the metal flashing at vertical roof terminations is missing, permitting water to enter the roofing assembly. Evidence of water infiltration was observed within localized areas of the building interior in these areas of roof distress. Rehabilitation of the building should consider removal and replacement of the existing roofing assemblies, localized parapet repairs, and replacement of the drain and drain pipe systems. Repairs may be possible in some areas to extend the service-life of the existing roof assembly, though further investigation would be required to determine if repairs are a viable option in lieu of replacement.

Structure

In the original structure, the greatest distress is the deterioration of a second-floor concrete beam in the southwestern corner of the building. The deterioration is related to a failed internal roof drain which has also caused the gypsum block partition wall below the concrete beam to collapse. The concrete beam can likely be repaired with partial depth concrete repairs, pending the remaining concrete material is in sound condition. Additionally, concrete distress was observed on the underside of the concrete tee joist-slab system for the lower roof over the bay window of the south, central kindergarten room. Concrete roof deck repairs are also anticipated within this region, which should be performed in coordination with the roofing work.

Water stained wood decking and framing was observed at localized locations near roof drains. The decayed wood members should be reinforced or replaced as appropriate, coordinating efforts with the roofing repairs. At areas where the copings have been removed, the bearings of the roof structural members were not exposed during the assessment but should be further investigated as part of a rehabilitation effort of the building considering the exposure of the top of the wall assembly.

Over the north stair of the west wing, the flat slab roof is cracked in a crazed pattern on its underside. This portion of the roof, and potentially a portion of the roof of the classrooms on each side of this stair, are anticipated to require replacement after further investigation.

The CMU in the east addition is significantly cracked at the edge of a window opening in classroom 213. The cracking may be related to the removal of the window or water penetrating the wall assembly and is also suspected to be related to the stone displacement observed on the facade at this location. In this same classroom, a horizontal crack has occurred in the joint below the uppermost course of CMU that is constructed tight to the concrete beam above. The exterior facade has been rebuilt and recracked in the region of the interior horizontal crack. Further investigation to determine if there is embedded steel in this area that requires cleaning and reinforcement is recommended to mitigate recracking of future repairs.

At the built-up box beams of the roof structure of the gymnasium, the CMU walls are vertically cracked. The steel beams may be supported on steel columns that are embedded within the CMU walls and the cracking of the CMU may be the result of steel corrosion of the columns. Further investigation of the bearing of the box beams at the CMU is recommended. Any embedded steel discovered should be cleaned, assessed and reinforced if necessary prior to re-coating with a rust inhibiting coating. This work can be coordinated with exterior facade and roofing repairs.

In the gymnasium and auditorium spaces, the perforated metal ceiling and metal deck is corroded on the underside. Further assessment of the metal panels and decking, and the roof structural members, is recommended.

Approximately three feet of ponded water was observed in the basement level preventing access to all of the basement spaces. At the portions of the basement that were accessed, the walls and underside of the first-floor structure visible are in good condition with no readily visible distress observed. The basement should be dewatered allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged resulting from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Cracks have occurred in many of the interior walls. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to vandalism, water infiltration occurring, and thermal or volumetric changes in the wall materials. Cracking within select walls, such as stairwell walls and interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

BURT SCHOOL

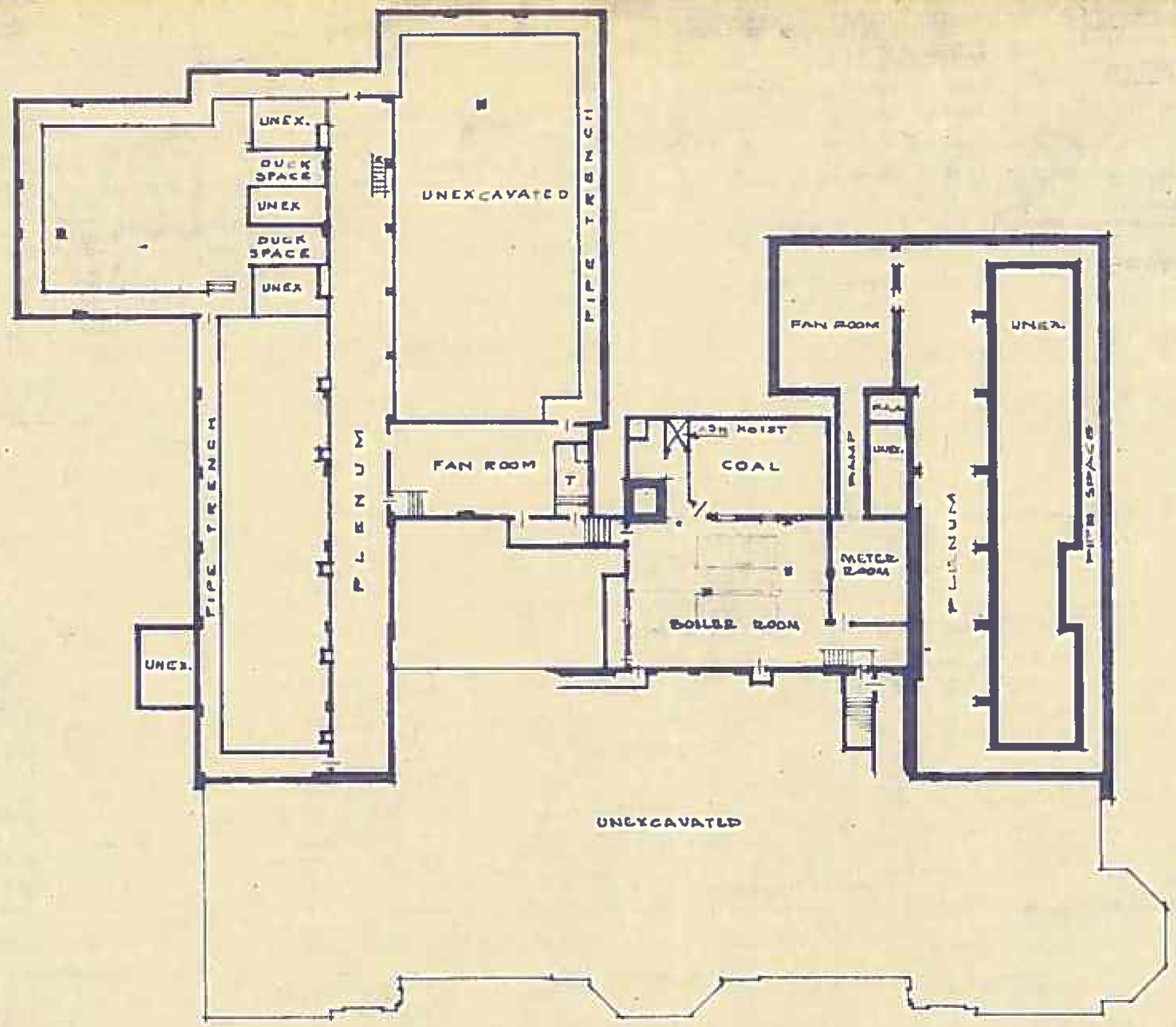
ARCHITECTURAL PLANNING DEP'T

BOARD of EDUCATION

DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.R.F. J.J.	5-20-26 9-2-48	G.L.S.	5-20-26		

REVISED 9/20/46
REVISED 6/20/53



BASEMENT FLOOR PLAN

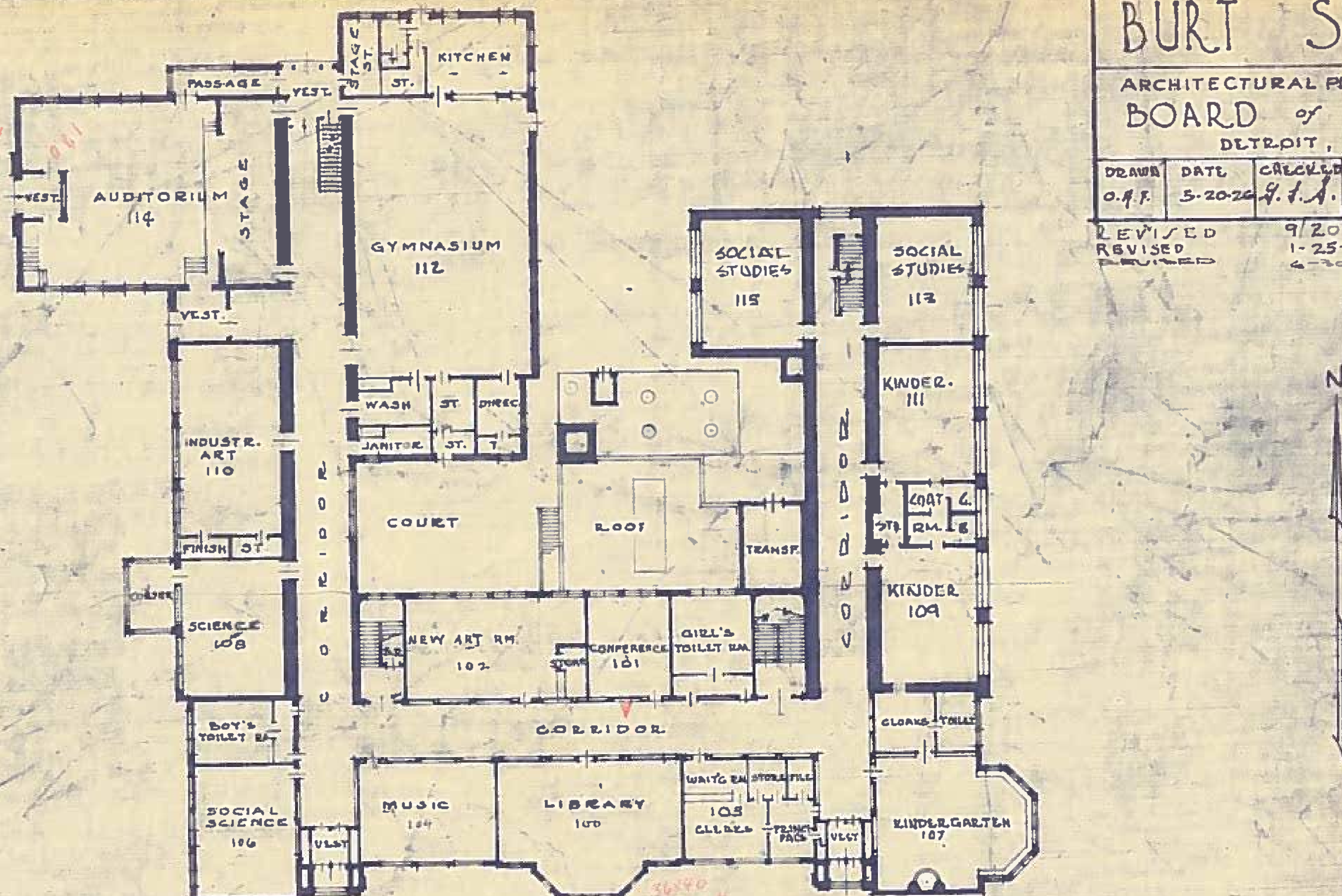
SCALE 1/32"=1'0"

BURT SCHOOL

ARCHITECTURAL PLANNING DEP'T
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F.	5-20-26	G.J.A.	5-20-26		

REVISED 9/20/46 G.H.M.
REVISED 1-25-50 Gar.
REVISED



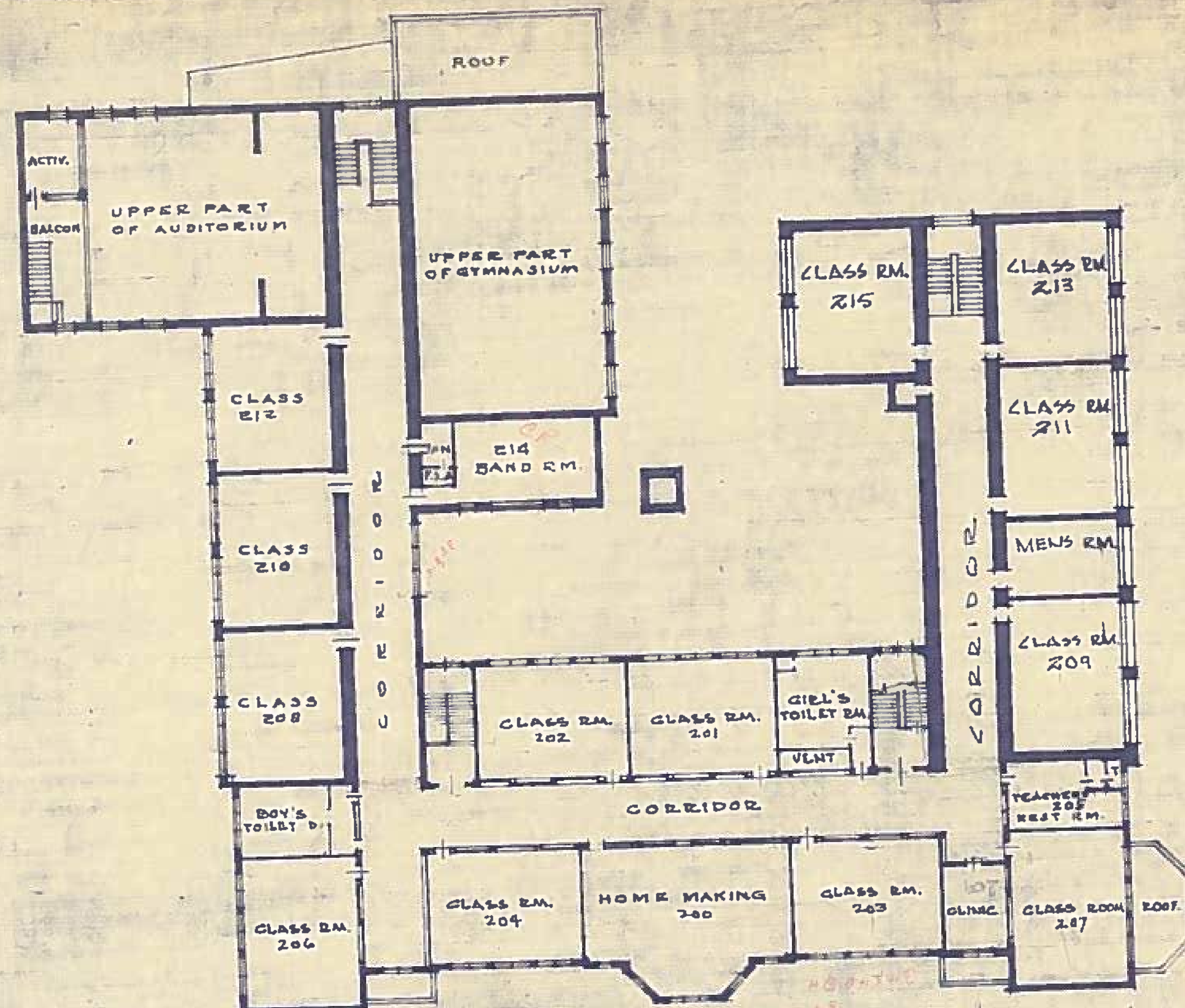
FIRST FLOOR PLAN
SCALE 1/32"=1'-0"

BURT SCHOOL

ARCHITECTURAL PLANNING DEP'T
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F	5-20-26	[illegible]	5-20-26		

REVISED 9/20/46 G.H.M.
REVISED 1-25-50 Ger.
REVISED 6-20-53



SECOND FLOOR PLAN
SCALE 1/32" = 1'-0"

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Detroit Open School

Basic Property Information: COD 1-Detroit Open-24601 Frisbee

Short Name:	Detroit Open
Address:	24601 Frisbee Street, Detroit, Michigan 48219
Year Built:	1924
Additions Built:	1955
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	200 feet x 215 feet
Square Footage:	35,253 sq. ft.
Number of Stories:	1
Building Height:	20 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU ▪ Structural Steel ▪ Wood
City Council District:	1	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Metal ▪ Wood ▪ Glass Block
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	March 12, 2020
WJE Inspector(s):	Cheryl Early; Andrew Lobbestael
Report Date:	November 12, 2020
Building Risk Index:	**57.60**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,885,900
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,820,240
Sub-Total	$5,606,140
Contingency (25%):	$1,401,535
Sub-Total	$7,007,675
Overhead and Profit (15-18%):	$1,051,151
Sub-Total	$8,058,826
Escalation (6% for 2 years)	$483,529
Sub-Total	$8,542,355
Architectural and Engineering Design Services (20%):	$1,708,471
TOTAL COST ESTIMATE:	$10,250,826

ASSESSMENT METHODS

Visual Survey

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Recommendations

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The single-story "U" shaped footprint of the building was created with an addition in 1954 which more than quadrupled the footprint of the original 1925 schoolhouse. The original construction is located at the south end of the east wing of the building. A central garden space opens to the playground along the south facade. The powerhouse is constructed integral with the 1954 addition and is located at the southern end of the east wing.

The building facade is clad with clay brick masonry. The addition has concrete masonry unit (CMU) backup and the original building has mass masonry walls. The brick masonry is laid in running bond with header courses every seventh masonry course. Limestone accent units are present at entrance surrounds, window sills and mullions, and copings. Punched wall openings with perimeter steel frames contain glass block infill above operable, single-pane metal windows. Aluminum-framed doors are located within punched entrance openings in the masonry facade. The building has a low-slope roof area that is covered with a smooth surface built-up roofing (BUR) and features internal drains.

The roof structure of the original building is of dimension lumber spanning between the exterior, composite masonry walls and interior steel beam and column lines aligned with the central east-west corridor walls. In the 1954 addition, the floor slabs consist of a concrete tee joist-slab system formed with a long span metal deck, which spans between concrete, or concrete encased steel, beams and columns. The columns are located at the exterior walls and within the walls of the central corridors.

Overall, the building is in fair condition with localized areas of distress. The wood roof structure of the original building is water stained and visibly decaying; rebuilding the original roof structure is recommended. The roof structure of the 1954 addition, being of more durable materials, exhibits signs of water infiltration into the roof structure, though only localized repairs are anticipated. The water infiltration of both the original building and the 1954 addition is primarily related to the poor condition of the roofing, which should be replaced. Replacement of the operable single-pane windows and glass block infill are anticipated to address significant corrosion of the perimeter steel frames and the resulting distress at the surrounding limestone units. The exterior doors are anticipated for replacement. Localized areas of the brick and stone masonry facade elements also require repair.

Facade

The window openings typically consist of glass block infill above metal-framed operable lower windows; both assemblies are set in perimeter steel frames. The windows are currently covered with temporary protective enclosures on the exterior. Round nosed limestone units are present at the perimeter of the window openings and between the upper and lower windows. The lower, operable, single-pane windows are generally intact, but contain localized distress including missing sashes, displaced frames, missing hardware, cracked and missing glass lites, and the sealant at the perimeter joints typically exhibited weathering and bond failure. The upper glass block infill areas are typically in good condition with isolated cracked units including units that were damaged during the installation of the temporary protective closures. Perhaps the most significant distress is the severe corrosion of the perimeter steel frames. We anticipate that replacement of the steel frames with the incidental replacement of the operable windows and glass block infill will be necessary to prevent additional distress to the limestone. The numerous spalls and cracks in the limestone can then be addressed appropriately; this will likely include localized Dutchman repairs, replacement of select units, and repointing. Alternatively, near-term maintenance repairs can be completed to slow the rate of corrosion and defer replacement of the glass block and windows, though the steel corrosion and stone distress would be anticipated to continue.

Cracking and spalling of the brick masonry was observed at some of the powerhouse window heads and above the penthouse roof access door due to corrosion of the steel lintels caused by prolonged water infiltration. We recommend removal and replacement of the brick masonry; cleaning and painting of embedded steel lintels, or replacement if the steel exhibits severe deflection and/or section loss; and installation of through-wall flashing. Debonded mortar and step cracks were also observed in isolated locations throughout the facade, warranting repointing repairs.

Isolated limestone coping units are missing, exposing the masonry wall to moisture penetration. Some of the coping units that are resting on the roof levels are cracked and broken. Replacement of the missing coping units is recommended to mitigate further distress. Isolated limestone header units are also displaced on the west building wing. The cause of the displacement is unknown, but may be attributed to corrosion of the steel window lintels. We recommend further investigation to determine the cause prior to, or during, repair and resetting of the displaced units.

Localized cracking and eroded mortar were observed near the top of the brick masonry chimney. We recommend repointing the joints within the upper three feet of the chimney, performing crack repairs at the localized vertical cracks, and repairing the limestone copings with new through-wall flashing.

The barricaded exterior doors are generally intact, with the exception of the missing door between the courtyard and art room, with minor distress conditions including cracked or missing glass and missing hardware. Holes are also present in the doors from barricading measures. Rehabilitation of the building should consider replacement of the exterior doors, though restoration may be possible in some regions.

Roofing

The roofing assembly is severely deteriorated with vegetation growth, localized seam failures, and displaced perimeter flashings, plugged drains, open penetrations, and areas of standing water. Active leaks, more concentrated at roof penetrations, and indications of prolonged moisture infiltration, including peeled paint, moisture staining, and damage to the interior finishes, were observed at the interior of the building in multiple locations. Additionally, the fascia along the roof perimeter was missing which may be due to vandalism. Remnants of the fascia in a few areas are copper which suggest the original fascia was copper clad. The underlying exposed wood sub-fascia was decayed in multiple locations, and water was actively dripping from behind the fascia. We recommend removal and replacement of the roof assembly and drainage systems, as well as replacement of the missing and damaged fascia elements as a part of the building rehabilitation.

Structure

The roof structure of the original building is water damaged and visibly decayed. The dimensional wood rafters of the low-slope roof are black in color and white fungal growth is present near the central steel beam bearings. Replacement of the decayed roof decking and reinforcement or replacement of the existing deteriorated wood rafters is recommended. The steel beam and column system at the interior corridor walls should be cleaned, further assessed, and recoated. The corroded steel bolts securing the wood framing to the steel beams are to be replaced.

Throughout the 1954 addition, varying degrees of corrosion is present on the long span metal deck and ceiling systems[1] of the roof structure, especially along the rooms fronting the central garden space. Corrosion of the metal deck is not a structural concern if it was used as a form deck but could be a structural concern if is behaving compositely with the concrete. Additional investigation would be required to determine if the deck is composite. At a minimum, the exposed steel is recommended to be cleaned and re-coated with a rust inhibiting paint as part of the rehabilitation effort. Further investigation into the condition of the concrete above the corroded metal ceilings is also recommended and can be coordinated with the development of roofing repairs.

Consistent with the water infiltration through the roof assembly, the second-floor corridor ceiling, composed of gypsum planks spanning between structural steel members, is wet and deteriorated or missing in some locations. Once saturated, gypsum planks are typically not salvageable, therefore the second-floor corridor ceiling is recommended to be replaced with a new attic floor/plenum structural system, if required for the new use of the building.

Where the gypsum plank has failed, the underside of the concrete flat roof slab is visible. The slab is cracked and water is migrating through the crack; corrosion staining is present. The crack may not require repair providing appropriate roofing repairs are completed to mitigate the water infiltration.

Approximately four feet of ponded water was observed in the lowest level of the basement space at the southeast corner of the building. The visible portions of the basement walls and underside of the first-floor structure are in good condition with no distress observed. The basement should be dewatered and the foundation walls assessed.

Miscellaneous

Many of the CMU walls are cracked at exterior wall corners, near beam bearings, and along interior walls. Repairs had been attempted at some of the crack locations and have re-cracked. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

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[1] Initial review of the 1950s era long span metal deck system indicates the decking is acting non-compositely with the concrete tee joist-slab, that the decking was used as a stay-in-place form for the cast-in-place concrete. However, a non-technical, marketing brochure from this era was noted to advertise the decking as a “composite” concrete floor system.

The granite steps and landings at some of the building entrances are displaced and the joints are missing mortar or sealant. Some of the granite units are missing. We recommend rebuilding the steps and landings and salvaging or repairing the existing granite units.

PLOT PLAN

BURGESS SCHOOL

BOARD OF EDUCATION

DETROIT

Dept of Building & Grounds

Drawn by P.R.M. 5-5-29

Checked by

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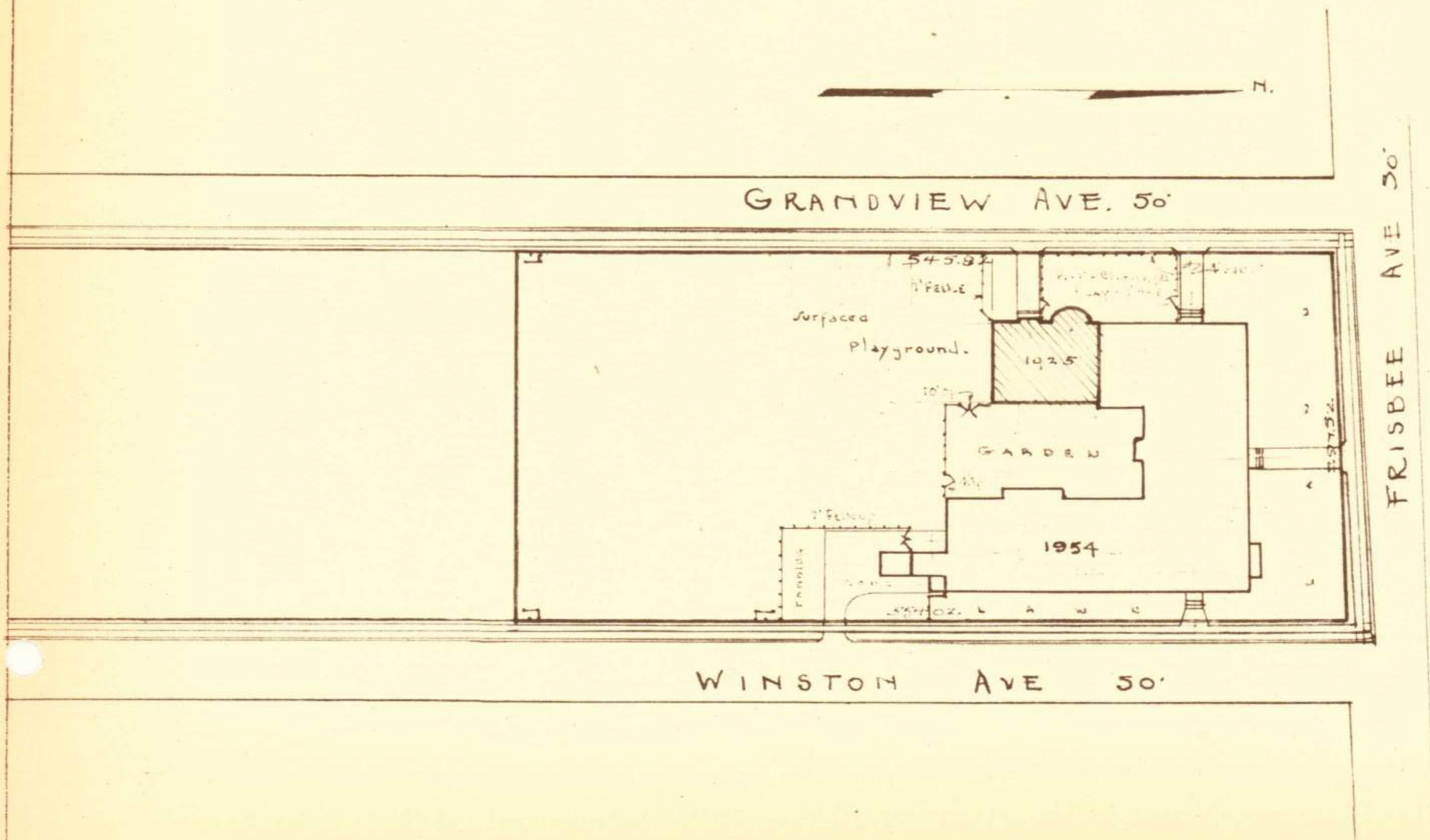

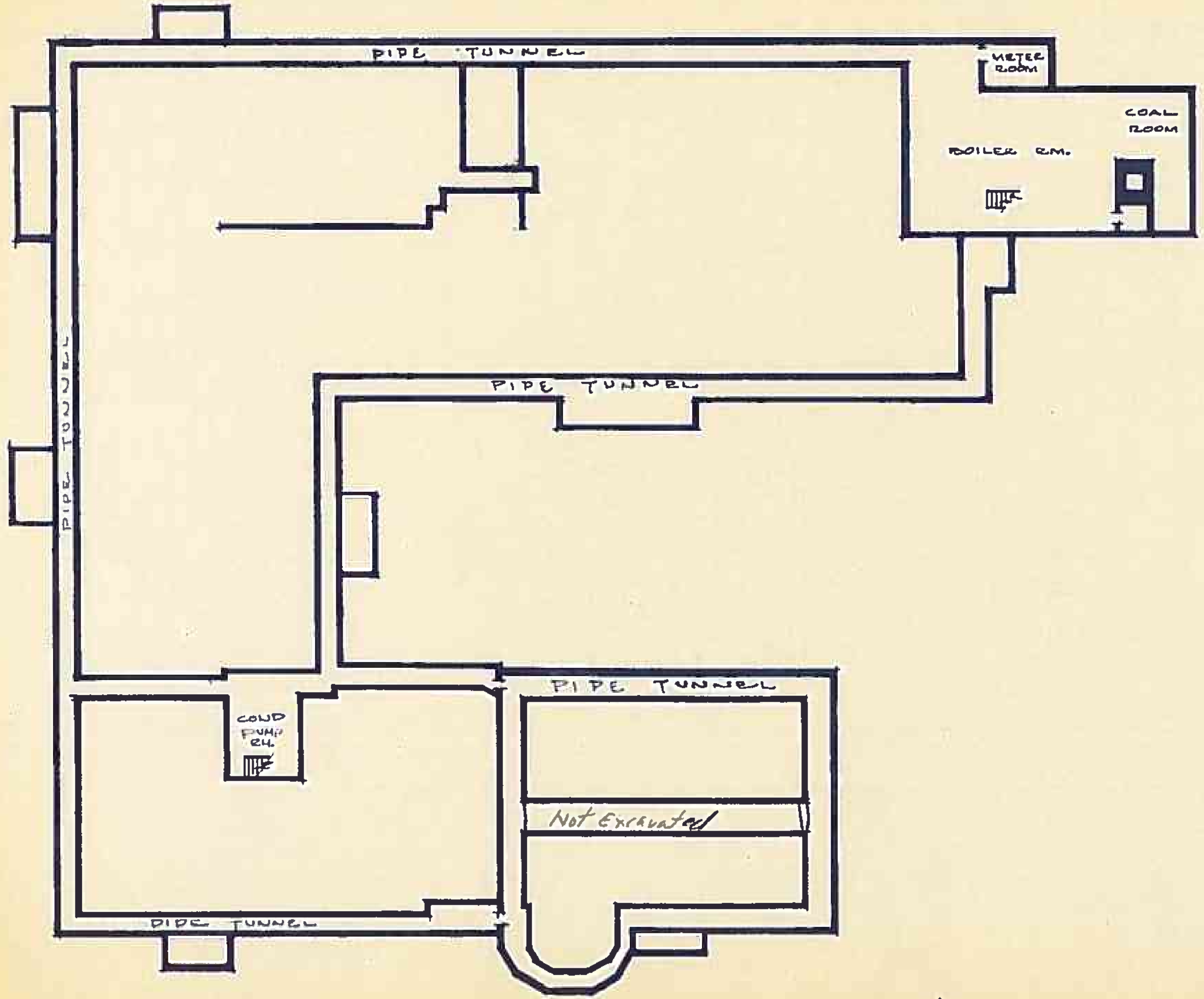

BURGESS SCHOOL
ELEMENTARY SCHOOL
~~BASEMENT~~ PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
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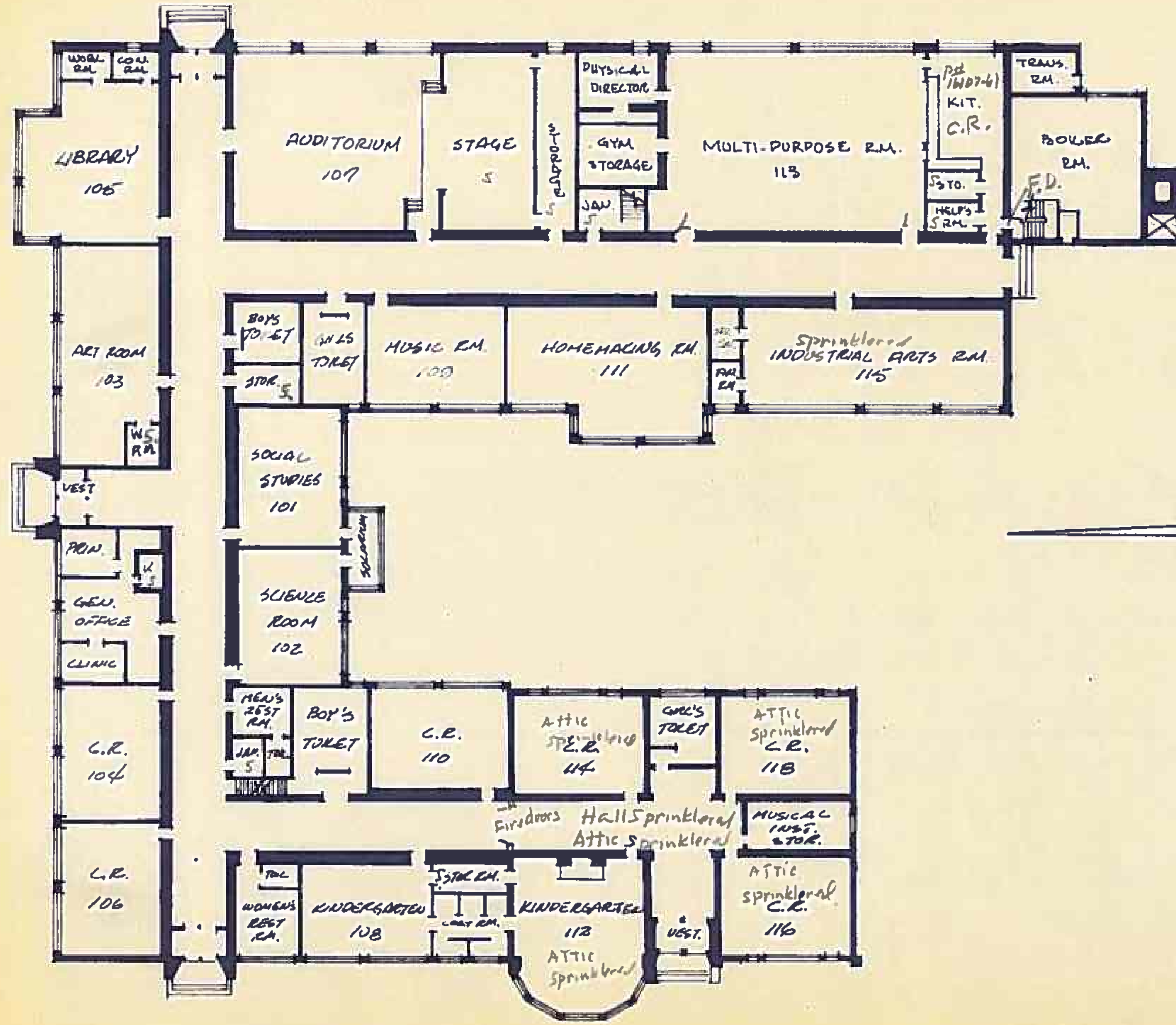


BURGESS SCHOOL
ELEMENTARY SCHOOL
FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
DC.	6/24/54				

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Healy International School

Basic Property Information: COD 1-Healy-12834 West Parkway

Short Name:	Healy
Address:	12834 West Parkway Street, Detroit, Michigan 48223
Year Built:	1950
Additions Built:	None
Outbuildings:	Powerhouse
Year Vacated:	2007
Building Footprint:	80 feet x 125 feet
Square Footage:	16,732 sq. ft.
Number of Stories:	2
Building Height:	25 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ CMU
City Council District:	1	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Steel-framed ▪ Glass Block Infill
		Roofing System(s):	▪ Built-up Roofing ▪ Flood coat ▪ Aluminum coating ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	March 05, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush; Justin Barden, Meredith Crouch
Report Date:	November 10, 2020
Building Risk Index:	**23.77**

Cost Estimate

Base Rehabilitation Cost Estimate:	$485,050
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$1,338,560
Sub-Total	$2,696,610
Contingency (25%):	$674,152
Sub-Total	$3,370,762
Overhead and Profit (15-18%):	$606,737
Sub-Total	$3,977,499
Escalation (6% for 2 years)	$238,649
Sub-Total	$4,216,149
Architectural and Engineering Design Services (20%):	$843,229
TOTAL COST ESTIMATE:	$5,059,379

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the buildings. Limited access to the attic was obtained near the roof hatch. The basement level is flooded, and thus, was not accessed. The interior finishes are in sound condition, exposing the structural framing systems only in isolated locations. The interior of the powerhouse could not be accessed during our assessment. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story main school building is rectangular in plan. The first floor is a slab-on-ground construction excepting the plenum and fan room basement-level spaces. A single story, freestanding powerhouse with an adjoining chimney is located to the west of the main building. The interior of the powerhouse could not be accessed during the assessment.

The building facades generally consist of clay brick masonry veneer with concrete masonry (CMU) backup, while the north-half portion of the east facade on the main building consists of exposed CMU only. Punched wall openings contain glass block infill with operable steel-framed windows within lower lites. Limestone mullions frame the lower, operable units. Fiberglass panels have been installed on the exterior surfaces to protect the glass block infill. The building entrances generally consist of steel doors. The low-slope roofing consists of an internally drained, bituminous built-up roof with a flood coat and aluminum surface coating.

The roof and second floor structure are of cast-in-place concrete tee joist-slab construction with stay-in-place concrete masonry forms. The floor joists span between concrete beams oriented perpendicular to the corridor walls. Concrete columns are visible in the attic plenum space and align with the corridor walls below. A concrete beam and column system is exposed in the southeastern kindergarten room. The roof structure over the attic plenum space is a flat concrete slab bearing on CMU walls; the attic plenum concrete floor structure is suspended from the flat roof slab with tension wire.

Overall, the building is in good condition with localized areas of water damage primarily affecting the ceiling finishes. Multiple cracks, primarily vertical in nature, were observed throughout the interior CMU walls that may warrant further assessment. The facade is generally in good condition with only localized areas of maintenance or repair required, though the upper regions of the masonry chimney are in need of repair. Many of the existing windows can be restored. Removal and replacement of the existing roof assemblies should be considered, though near-term maintenance repairs in localized areas are feasible to extend the service life of the roof if needed. Further detail of the observed distress is provided below.

Facade

The facade is generally in good condition. Minor localized cracking within the brick and exposed CMU elements is attributed to water infiltration, corrosion of embedded steel elements, and confined thermal movement due to a lack of expansion joints. Limestone mullions that surround the lower lites are generally in good condition; however, minor localized distress such as cracked and spalled units and deteriorated mortar require repair. Paint on the exposed CMU surfaces has failed and should be replaced to mitigate further water penetration and masonry damage. Similarly, exposed surfaces of the painted concrete soffits at the building roof perimeter and entrances contain water staining, paint failure, and localized minor spalling of concrete materials and require repair. Rehabilitation of the building should include repair of these elements to mitigate further distress.

The glass block infill within the upper lites of the punched wall openings are mortared in place. A majority of the perimeter mortar joints were observed to be debonded from the CMU substrates and many of the glass block assemblies are displaced outward slightly, creating openings between the glass block infill and the CMU at the window jambs. The observed distress is attributed to differences in thermal movement and constraint between the glass block and CMU and corrosion of the steel lintels above. Debonded mortar and open joints should be repointed to obtain a watertight and airtight condition, and a perimeter sealant joint detail may be considered in the repair effort to improve the repair durability. Displaced glass block units may be reset, if desired, for improved aesthetic. Localized glass block units are cracked or missing and require replacement.

The steel-framed windows contain minor deterioration such as paint failure, minor surface corrosion, perimeter sealant failure, and displacement of localized operable components. The exterior steel doors are typically corroded. Rehabilitation of the building should include restoration of the existing window assemblies and replacement or repair of the exterior doors.

Significant masonry cracking, displacement, and spalling was observed within the freestanding clay masonry chimney stack, which is attributed to water penetration within the chimney walls and subsequent freeze-thaw damage. A large area of the chimney has previously been repointed, though a majority of these areas are currently cracked and debonded. The chimney, as a whole, also appears slightly out of plumb. Although the observed deformation is not yet structurally significant, the apparent out of plumb condition coupled with horizontal cracking located at approximately two-third of the chimney height elevation, may indicate that the cyclic deterioration processes are causing shifting and movements within the chimney. The chimney should be monitored on a regular basis for additional movements until repairs can be made. Restoration of the chimney should include rebuilding the upper six feet where the majority of the spalling and freeze-thaw damage was observed. Below this region, localized repointing of distressed mortar joints is recommended. The cap should be repaired with improved flashing to mitigate further water penetration and masonry distress. Following repair, the chimney should be monitored to determine if distress recurs.

The powerhouse facade is in similar condition to that of the main building. On the south elevation of the powerhouse, cracked, spalled, and displaced brick elements were observed near corroded wall-mounted vehicle barriers and the adjacent door frame.

Roofing

The roofing assembly of both buildings is generally in fair-to-poor condition. Observed roofing deterioration included ponded water, organic growth, seam failures, cracking, and crushing of insulation; however, only minimal water damage was observed within the building interior. Rehabilitation of the building should consider removal and replacement of the existing roofing based on its limited remaining service life overall, though near-term maintenance repairs in localized areas may be performed to extend the service life of the roof.

Structure

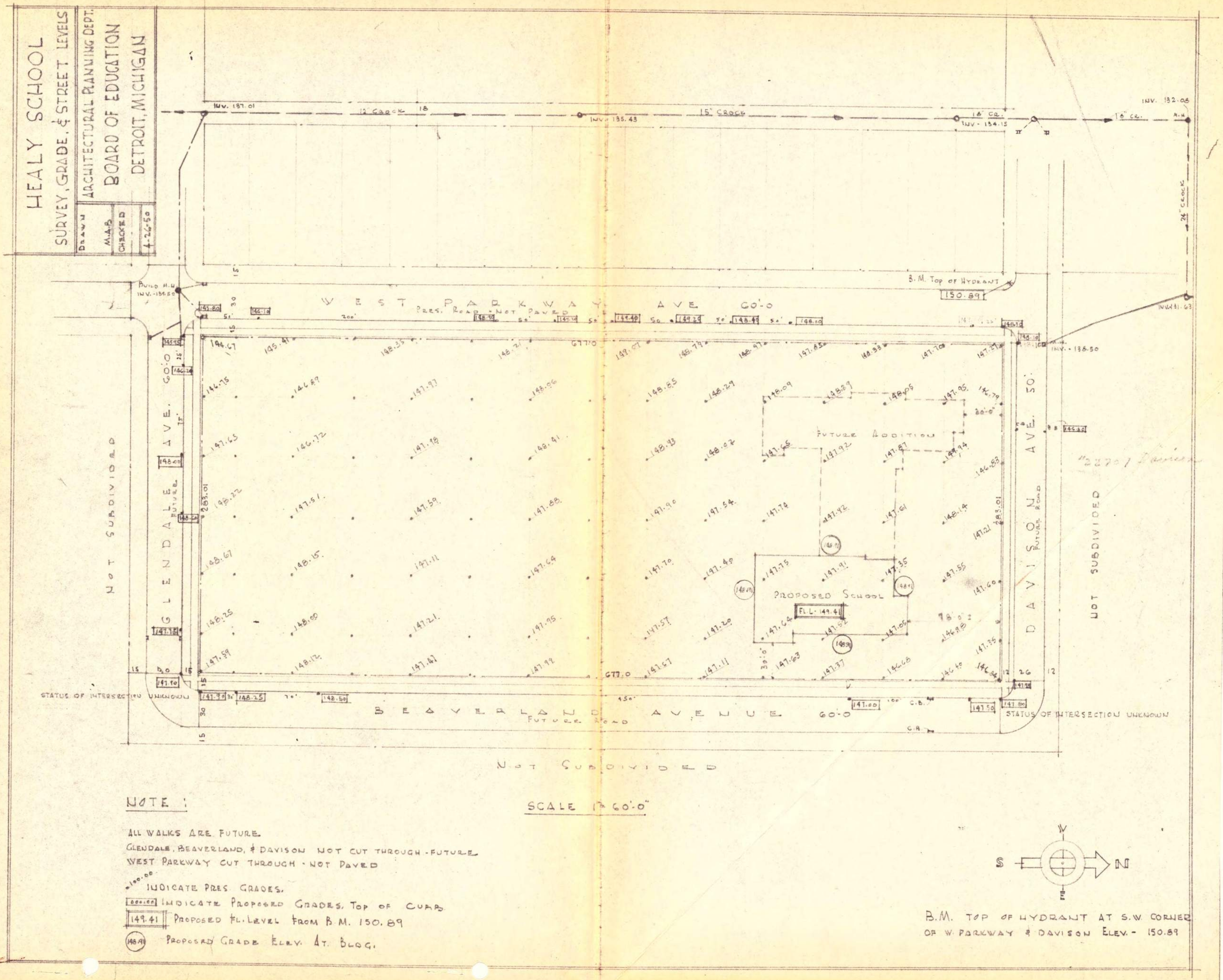
The structure is in excellent condition with no readily visible significant distress observed. Water is infiltrating through the roof structure and stalactites have formed in isolated locations at the joints between the concrete joist and the concrete masonry form. Addressing the water infiltration through the roof with effective repairs will prevent significant deterioration of the concrete roof structure. Where exposed for the roofing repairs, the condition of the top surface of the concrete roof should be reviewed for cracked locations that may require repair.

Ponded water, approximately 4 feet in depth, was observed in the basement level preventing access to the basement spaces. The basement should be dewatered, allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

Miscellaneous

Many of the interior CMU walls are cracked, including over built-in arches over the drinking fountains, within the length of the walls, and at corners of walls. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.


HEALY SCHOOL
SURVEY, GRADE, & STREET LEVELS
ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT, MICHIGAN
DRAWN
M.A.B.
CHECKED
4-26-50
WEST PARKWAY AVE 60'-0
PRES. ROAD - NOT PAVED
B.M. TOP OF HYDRANT
150.89
GLENDALE AVE. 60'-0
DAVISON AVE. 50'
BEAVERLAND AVENUE 60'-0
FUTURE ROAD
NOT SUBDIVIDED
NOT SUBDIVIDED
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STATUS OF INTERSECTION UNKNOWN
STATUS OF INTERSECTION UNKNOWN
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PROPOSED SCHOOL
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677.0
677.0
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15" CROCK
18" CR.
24" CROCK
INV. 137.01
INV. 135.43
INV. 134.15
INV. 132.08
INV. 131.63
INV. 138.50
SCALE 1" = 60'-0"
NOTE:
ALL WALKS ARE FUTURE.
GLENDALE, BEAVERLAND, & DAVISON NOT CUT THROUGH - FUTURE.
WEST PARKWAY CUT THROUGH - NOT PAVED
100.00 INDICATE PRES. GRADES.
000.00 INDICATE PROPOSED GRADES. TOP OF CURBS
149.41 PROPOSED FL. LEVEL FROM B.M. 150.89
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B.M. TOP OF HYDRANT AT S.W. CORNER OF W. PARKWAY & DAVISON ELEV. - 150.89
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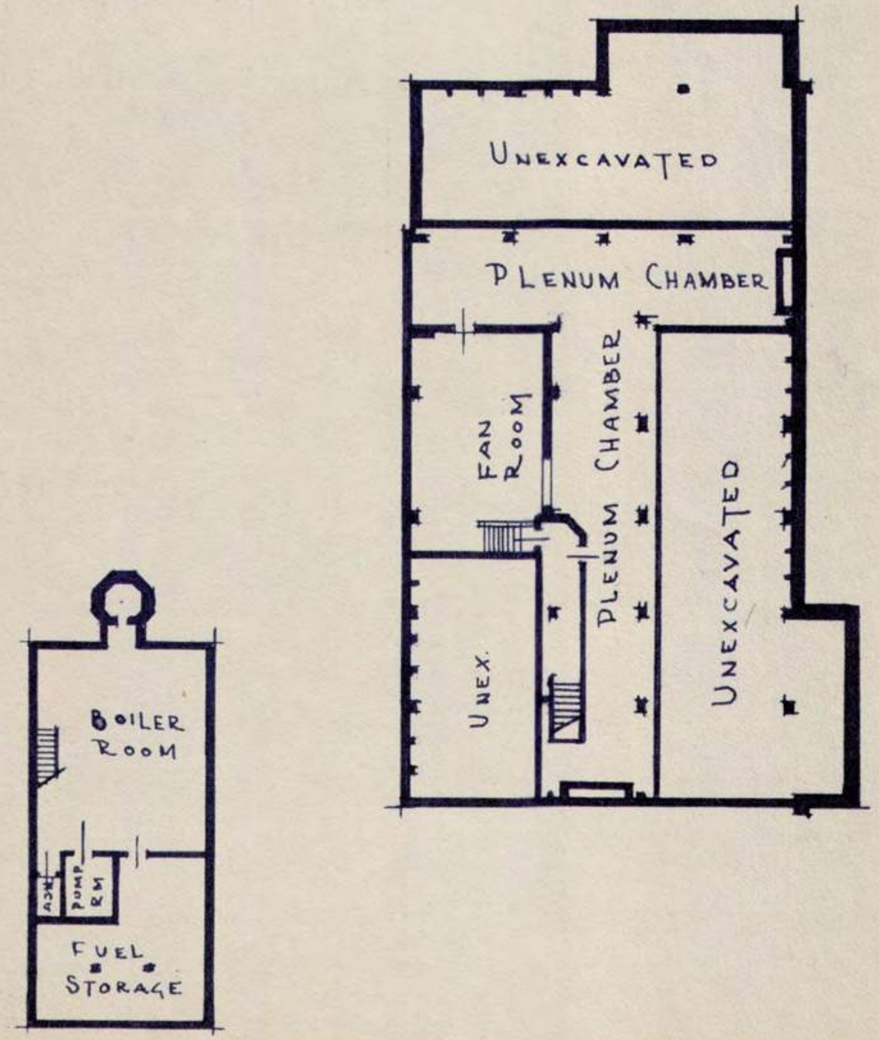
DANIEL J. HEALY
BASEMENT PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT—MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROV'D	DATE
L. C.	7/28/50				

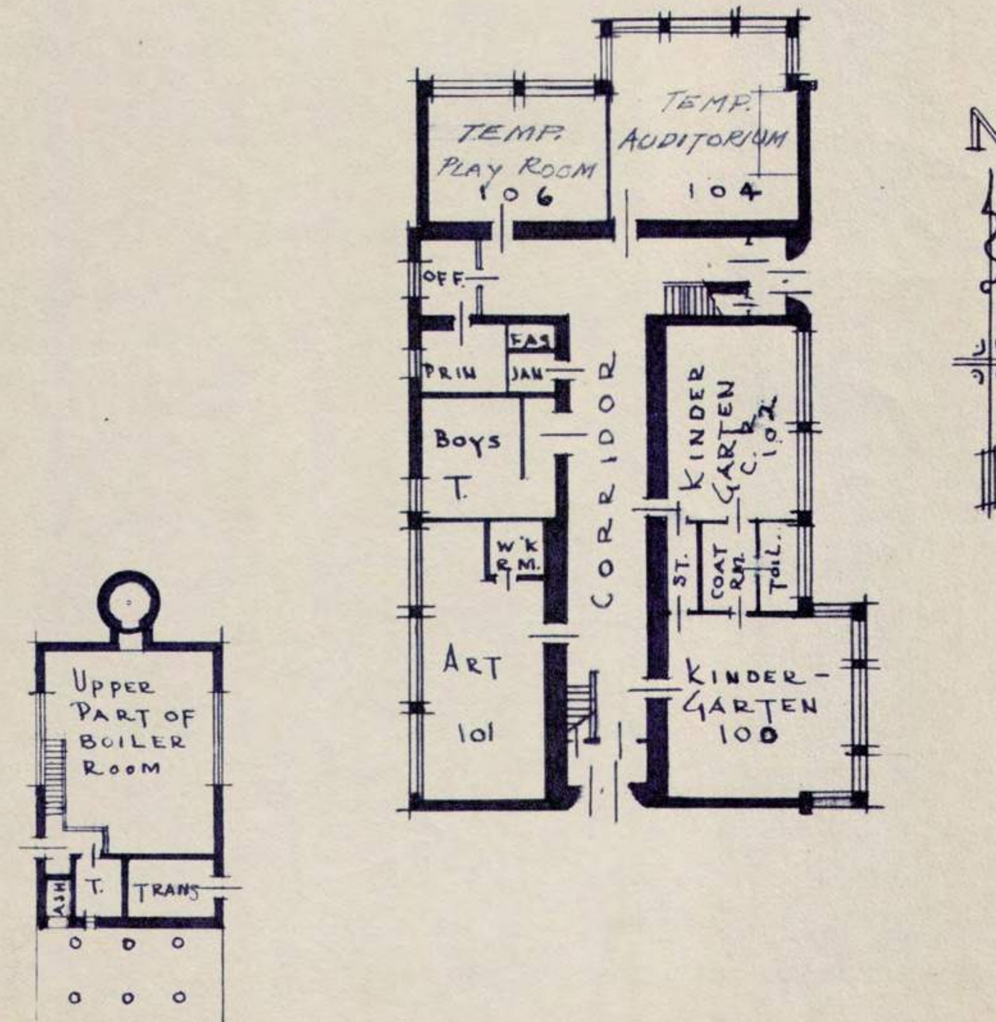
SCALE $\frac{1}{32}$ = 1'-0"



DANIEL J. HEALY
FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT–MICHIGAN

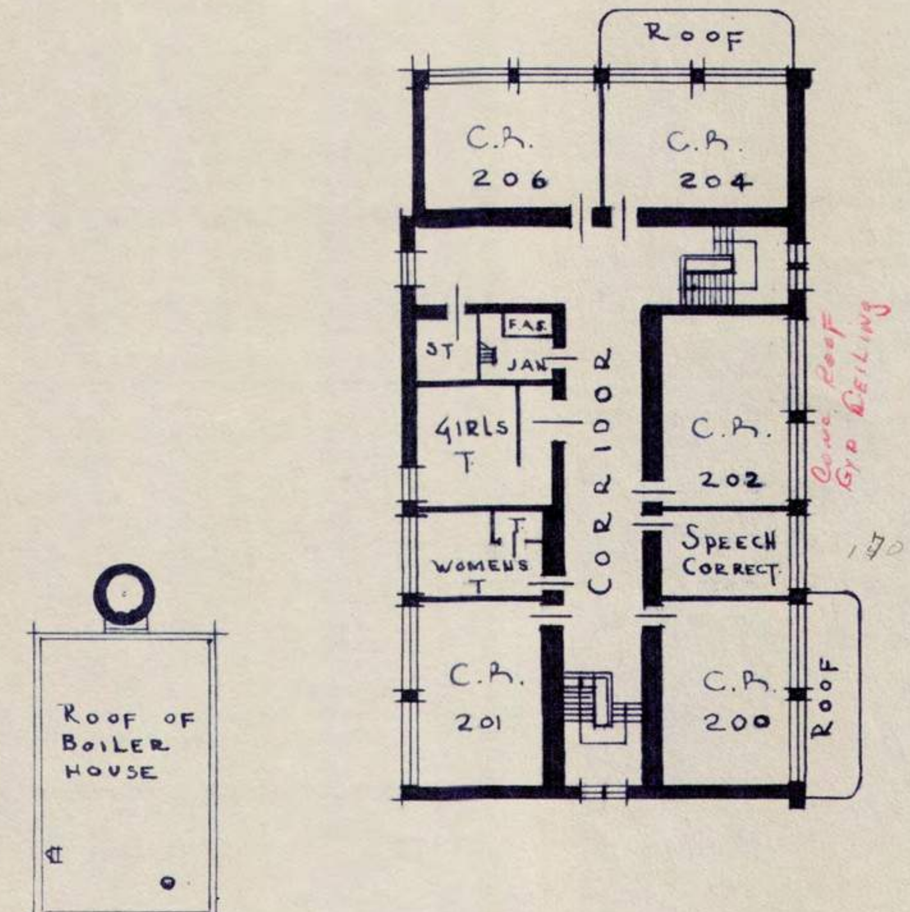
DRAWN	DATE	CHECKED	DATE	APPROV'D	DATE
L.C.	7/28/50				



DANIEL J. HEALY
SECOND FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT-MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROV'D	DATE
J. C.	7/28/59				



Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Holcomb Elementary School

Basic Property Information: COD 1-Holcomb-18100 Bentler

Short Name:	Holcomb
Address:	18100 Bentler Street, Detroit, Michigan 48219
Year Built:	1925
Additions Built:	1928, 1948
Outbuildings:	None
Year Vacated:	2010
Building Footprint:	180 feet x 325 feet
Square Footage:	44,173 sq. ft.
Number of Stories:	1
Building Height:	29 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU ▪ Wood
City Council District:	1	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Cast Stone
SNF District:	NWGR	**Window System(s):**	▪ Metal ▪ Wood ▪ Glass Block
		Roofing System(s):	▪ Built-Up Roof ▪ Asphalt Shingles ▪ Gutters ▪ Internal Roof Drains ▪ Slag Surface

Assessment Summary

Assessment Date:	March 12, 2020
WJE Inspector(s):	Cheryl Early; Andrew Lobbestael
Report Date:	November 10, 2020
Building Risk Index:	**52.71**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,061,100
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,533,840
Sub-Total	$5,494,940
Contingency (25%)	$1,373,735
Sub-Total	$6,868,675
Overhead and Profit (15-18%):	$1,030,301
Sub-Total	$7,898,976
Escalation (6% for 2 years)	$473,938
Sub-Total	$8,372,914
Architectural and Engineering Design Services (20%):	$1,674,582
TOTAL COST ESTIMATE:	$10,047,497

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is mainly flooded, and thus, was only partially accessed. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form
- "Holcomb School Adaptive Reuse Request for Proposals" dated October 20, 2017

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original 1925 building has a "T" shaped footprint which occupies the west and central wings of the current building layout. A 1929 addition to the north and east created a courtyard space between the original portion and addition. A second addition was constructed in 1948 to the south and east, again creating a courtyard space between the original and new addition. The building is generally a single-story, while the gymnasium and auditorium are two-story spaces. Mechanical spaces are located at the basement level of the additions; the original building is a slab-on-ground construction.

The facade is primarily clad with red-brown brick with areas of limestone and cast stone accents. The stone accents include mullioned bay windows bearing a stone cartouche at the library and art room, limestone mullioned windows at the gymnasium, cast stone surrounds at entrances on the street facing facades, and at setbacks in the pilasters. The 1946 addition features a more utilitarian facade with minimal ornamentation. The fenestrations at the original building and the 1929 addition include wood framed windows and wood framed doors with transom windows. The fenestration at the 1946 addition generally consists of conventional steel doors and window openings with glass block infill above operable steel-framed lower lites. Steel frames surround the lower, operable lites and support the weight of the glass block above, while the glass block infill is mortared in place. The windows have mostly been boarded up with a combination of painted sheathing and corrugated translucent panels.

The building includes steep-slope gable roofs and low-slope roof areas. The gable roofs are present along the west and north sides of the building in the original structure and the 1929 addition. The gable roofs intersect with a hip roof at the northwest corner of the building and feature over-framed hip roofs at entrances. The steep-slope gable roofs are covered with asphaltic shingles and copper flashings and are interrupted by multiwythe brick masonry walls that extend above the roof. These steep-slope roof areas drain to the rear low-slope roof areas and an internal drainage channel at the base of the parapets.

The low-sloped roof areas are covered with slag-surfaced bituminous built-up roofing (BUR). The bitumen type is unknown. The base flashings are granular surfaced cap sheets. These roof areas are general sloped to interior drains and are surrounded by parapet walls or rising walls. The parapet walls are covered with a combination of terra cotta coping pieces and pre-finished metal coping. The elevated slab over the boiler room is covered with a smooth surfaced BUR.

The gabled roof areas are framed with wood plank decking and particle board spanning between steel purlin members which are supported on built-up steel trusses. The steel trusses are supported on the exterior masonry walls and interior steel columns located within the corridor walls. The low-slope roof areas of the original building are framed with wood plank decking and dimension lumber rafters. The low-slope area above the corridor of the 1929 addition is framed with shallow, open web steel joists spanning the width of the corridor. The 1948 roof structure was unverified due to the intact condition of the finishes in this wing. The perimeter masonry wall construction is of brick masonry, composite CMU and brick masonry, and CMU masonry, respective of the chronology of construction. The supported first floor structure over the mechanical spaces is of cast-in-place concrete construction with flat slabs over the utility tunnels and tee joist-slab and beam systems over mechanical rooms and crawl space areas.

Overall, the building is in good condition with localized distress noted in the envelope and structure. The roofing is generally in serviceable condition and can be repaired and maintained to extend its service life, though more significant repairs are anticipated in isolated regions, including areas of missing flashings, copings, and over the boiler room. Localized masonry distress is present on the facades and repairs are warranted. Replacement and repair of the windows should be anticipated given the deteriorated conditions. The supported concrete floor over the storage room at the basement level of the 1929 addition is spalled, exposing corroded reinforcement in the bottom of the tee joist-slab structure. Wood roof decking decay and corrosion of the structural steel roof members are both related to water infiltration into the building. Further detail of the observed distress is provided below.

Facade

The masonry is in serviceable condition with localized areas of distress and deterioration, largely resulting from water penetration into the wall assembly and subsequent corrosion of the embedded steel support elements. The most significant conditions include deteriorated cast stone materials and corroding steel lintels at window and door openings.

Several of the cast stone accent features on the original building are significantly deteriorated. The distress includes craze cracking, spalls, erosion and eroded mortar around the masonry units, primarily occurring at the pilasters. We recommend that the deteriorated cast stone units be removed and replaced, as well as repointing of the eroded mortar. Repointing is also appropriate at miscellaneous cracks and areas of eroded mortar at the base of the building and at top of masonry wall that extends past the roof at the corridors. The limestone accent units are generally in good, serviceable condition.

The steel lintels above the windows and louvers of the original building and 1929 addition are corroded. The corrosion is causing distress to the adjacent masonry such as cracking of the mortar and brick. We recommend repairing or replacing the corroded lintels and incorporating flashing into the repairs. The steel lintels above the window openings in the 1946 addition are in better condition than in the other parts of the building, though sealant was added at the toe of the lintels on the east elevation of the 1946 addition and should be removed. We recommend cleaning and painting the exposed steel surfaces throughout the building.

The masonry chimney has a rectangular base that transitions to a tapered octagon shape in plan. The chimney exhibits localized erosion of the mortar and loose brick units at the top several feet of the chimney. The cast stone accent pieces at the transition exhibits localized distress, including cracked and eroded stone units with eroded mortar. We recommend repairs including repointing and localized stone and brick replacement to address the observed deterioration.

The windows and louvers in the original building and 1929 addition are wood framed. The majority of these windows are missing, decayed or damaged. New windows will be required in the original building and 1929 addition.

The windows on the 1946 addition are typically a combination of glass block infill with steel-framed lower lights. The steel frame around the lower lites support the weight of the glass block units above. The lower lights have been boarded up, but where exposed from the interior and exterior, the perimeter steel frames contain minor corrosion with peeling paint. A few of the lower steel-framed windows are still operable and in serviceable condition, which may be restored, but others are missing and will require replacement.

The observed distress within the operable windows that remain intact include paint failure, minor surface corrosion, isolated cracked or missing glass, and failed perimeter sealant materials. Many of the glass blocks are broken or missing or have been repaired with mismatch glass block units. At a minimum, it would be appropriate to install new windows where the lower lites are missing, clean and paint the corroded steel windows and perimeter frames, replace damaged glass and sealant, and replace isolated units within the glass block infill. Replacement of all steel-framed windows may also be considered during the schematic design phase in lieu of repair for improved thermal performance and for a relative cost comparison.

The doors on the 1946 addition are steel framed with steel leaves and wood framed transom windows above. The doors on the original building and 1929 addition are wood framed and are in various stages of disrepair with decayed wood leaves and frames. We recommend that the doors and frames be replaced on the original building and 1929 addition. The frames may be salvageable on the 1946 addition, but the leaves warrant replacement.

Roofing

The low-slope roofs are generally in good, serviceable condition. Minor damage or distress within the field of the roof includes missing drain strainers and isolated cracking at seams. Notable distress includes one area of ponding water over Room 108 where the wood joists are deflected. Coordinate the roofing work in this area with the anticipated structural repairs (discuss below). About half of the prefinished aluminum coping is missing, presumably by vandals, which will require replacement. Where the coping is missing, the continuous galvanized cleat used to secure the coping is still present. The base flashing for the roof runs up and over the parapet thus the missing coping is not an immediate waterproofing concern. The interior spaces below these low-slope roof areas are largely dry. Based on the observed conditions, the low-slope roof areas likely require only maintenance-type repairs to extend the service life of the existing roof assembly.

The field of the asphalt shingle roofs are generally in serviceable condition, though distress is concentrated at areas where copper flashing has been removed, presumably by vandals. This includes valleys and step flashing at rising walls as well as a copper copula that is now missing. Some the areas with missing copper have been covered with tarps and some of the missing step flashing has been replaced with continuous piece of membrane adhered to the roof and wall; this repair has left many of the mortar joints open where the flashing had previously been let into the wall. Even with the temporary repairs, the missing step flashing is actively permitting water into the building and installation of new step flashing is warranted with localized repairs anticipated at the adjacent shingles and wood decking, as discussed in further detail below. The area of missing copula can be roofed over level with the adjacent roofing. There is one area above the corridor adjacent to the Library where the shingles at the eave were missing and the decking was covered with rolled roofing; we recommend a more permanent and appropriate repair at this location to provide more durable watertight construction.

The roofing over the boiler room near grade is in general disrepair with open seams, failed base flashings, and exposed reinforcement. It is beyond its useful service life and replacement is warranted.

Structure

The structure is in good condition. Areas of distress are generally isolated or are of minor structural concern.

Water infiltration into the building, related to vandalism of the copper flashings and roofing, is causing decay in the wood decking and corrosion of the structural steel roof members. The decayed wood decking is to be replaced and the steel cleaned, assessed and re-coated with a rust-inhibiting coating, coordinating the structural repairs with the roofing repairs. Water was observed to be ponding on the low-slope, wood-framed roof of the original building during the assessment, over Room 108. The rafters in this area were visibly deflected when observed from the exterior, but minimal distress was observed in the plaster ceiling finish on the interior. In the kindergarten coat room, the plaster ceiling finish had failed exposing the dimensional wood roof rafters and wood decking. Both the rafters and wood decking are water stained with fungal growth present in this area. Further assessment of this roof structure is recommended as part of a building rehabilitation effort and may require reinforcement of the roof rafters above Classroom 108 and the adjacent ancillary rooms.

The base of two interior steel columns in the north corridor are corroded where water was observed to be ponded on the corridor floor, and require cleaning, further assessment and re-coating. At the base of the masonry columns or piers along these same corridor walls, the brick is soft and powdery (friable) at the bottom eight courses above the first-floor level. These bricks were soap cut in an "unclean" fashion giving the appearance of a spalled surface but may have just been modified to fit the lockers between the masonry piers. The deteriorated bricks, assumed to be the outermost wythe of the pier, are recommended to be replaced. The source of the water for the corrosion is most likely related to failed roof drainage assemblies.

Cracking observed in the CMU walls of the 1948 addition relate to the water infiltration through the building envelope. Several of the cracks are occurring in joints which have been previously repointed based on the color differences of the repointing mortar. The cracked mortar joints can be repointed again and cracked units replaced after the envelope is made water tight, however, it may be prudent to investigate the wall assembly for potential corroded steel elements which may be embedded in the wall, and repair those elements as needed in conjunction with the CMU repointing effort to mitigate re-cracking of the masonry repairs.

The supported first floor structure over the basement level storage room of the north 1929 addition is of concrete tee joist-slab construction spanning to concrete basement walls and a concrete beam and column system. The concrete in this area has spalled and exposed corroded steel reinforcement bars in the bottom of the joists and beams. Partial depth concrete repairs are recommended for this area. No other readily visible distress was observed within the areas accessed in the partially flooded basement level.

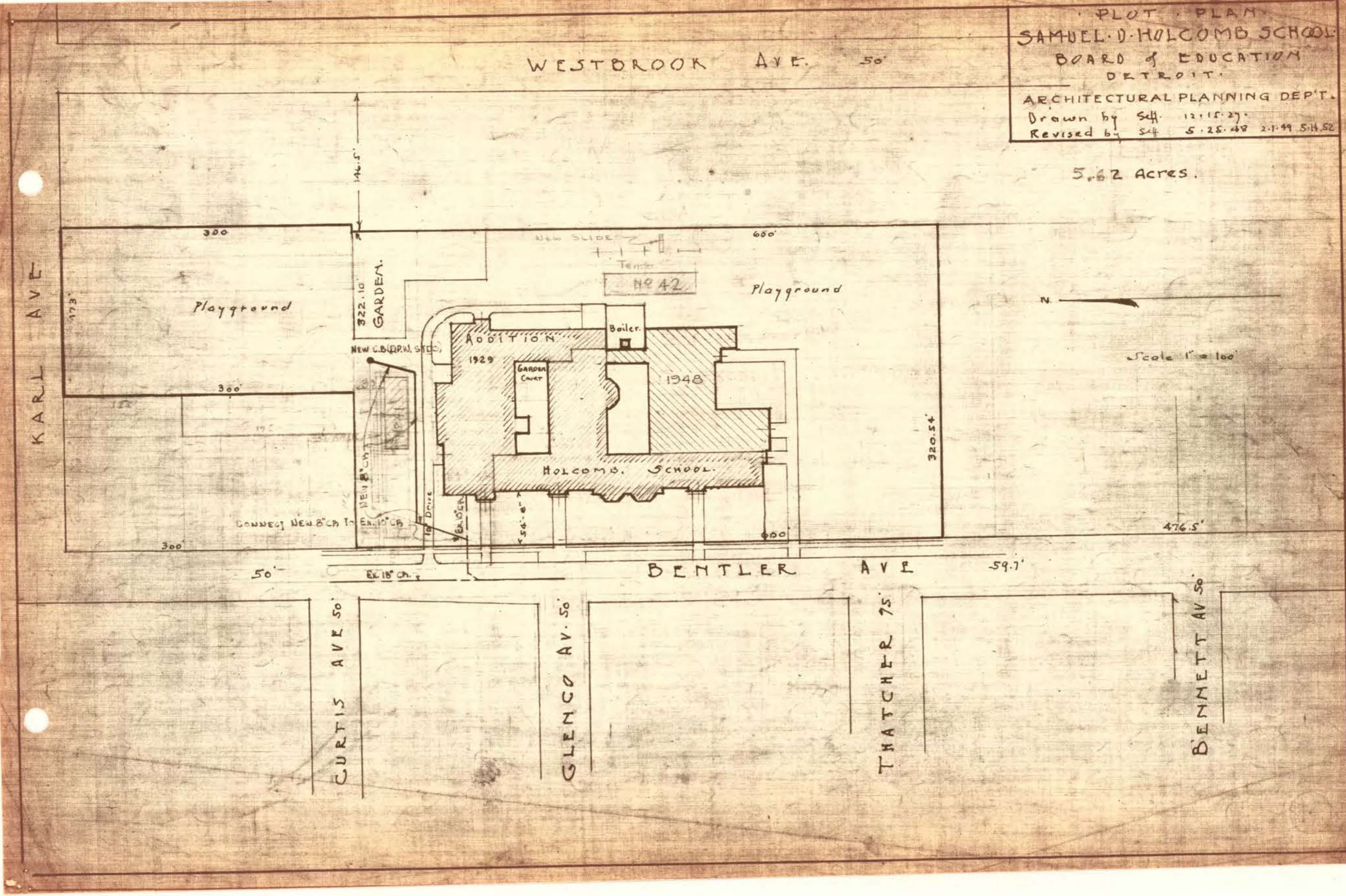
Miscellaneous

Localized areas of the concrete slab-on-ground throughout the building are cracked and the concrete is scaling, indicating potential freeze-thaw damage of the concrete material. Although not a significant structural concern, the distressed areas may warrant spot replacement or repair of the slab for proper application of any finish materials.

Many of the interior walls are cracked at corners, vertically at midspan, and diagonally near corners. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

The extant attic catwalk over the second-floor corridors consists of nominal 2x boards laid flat and supported on steel ceiling framing members. Water staining and fungal growth were common on these boards. Consideration to replace the catwalk to meet current code requirements as required for potential new building use is recommended; however, replacement of the decayed boards and recoating of the steel support may be sufficient.

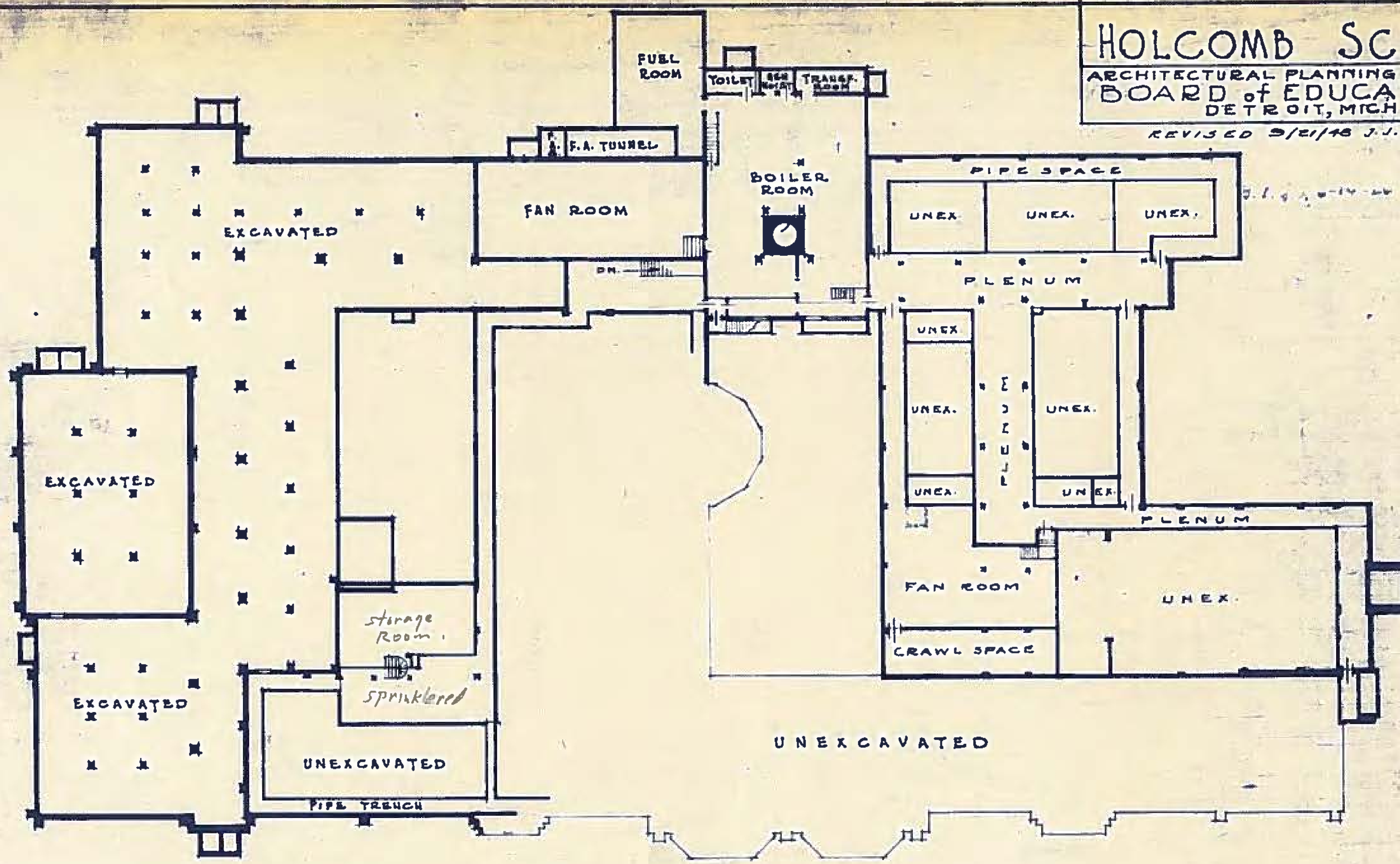


PLOT · PLAN
SAMUEL · D · HOLCOMB SCHOOL
BOARD of EDUCATION
DETROIT
ARCHITECTURAL PLANNING DEP'T.
Drawn by S.H. 12·15·27
Revised by S.H. 5·25·48 2·1·49 5·14·52
5.62 Acres.
WESTBROOK AVE. 50'
KARL AVE
BENTLER AVE
CURTIS AVE 50'
GLENCO AV. 50'
THATCHER 75'
BENNETT AV 50'
Playground
Playground
GARDEN
ADDITION
1929
1948
GARDEN COURT
Boiler
HOLCOMB. SCHOOL.
No 42
NEW SLIDE
NEW C.B.(D.P.W. STD.)
CONNECT NEW 8" CR TO EX. 15" CR
Ex. 18" CR.
10' Drive
Scale 1" = 100'
N.
300
300
300'
300'
146.5'
173'
322.10'
320.54'
650'
650'
476.5'
59.7'
54'-6"
50'

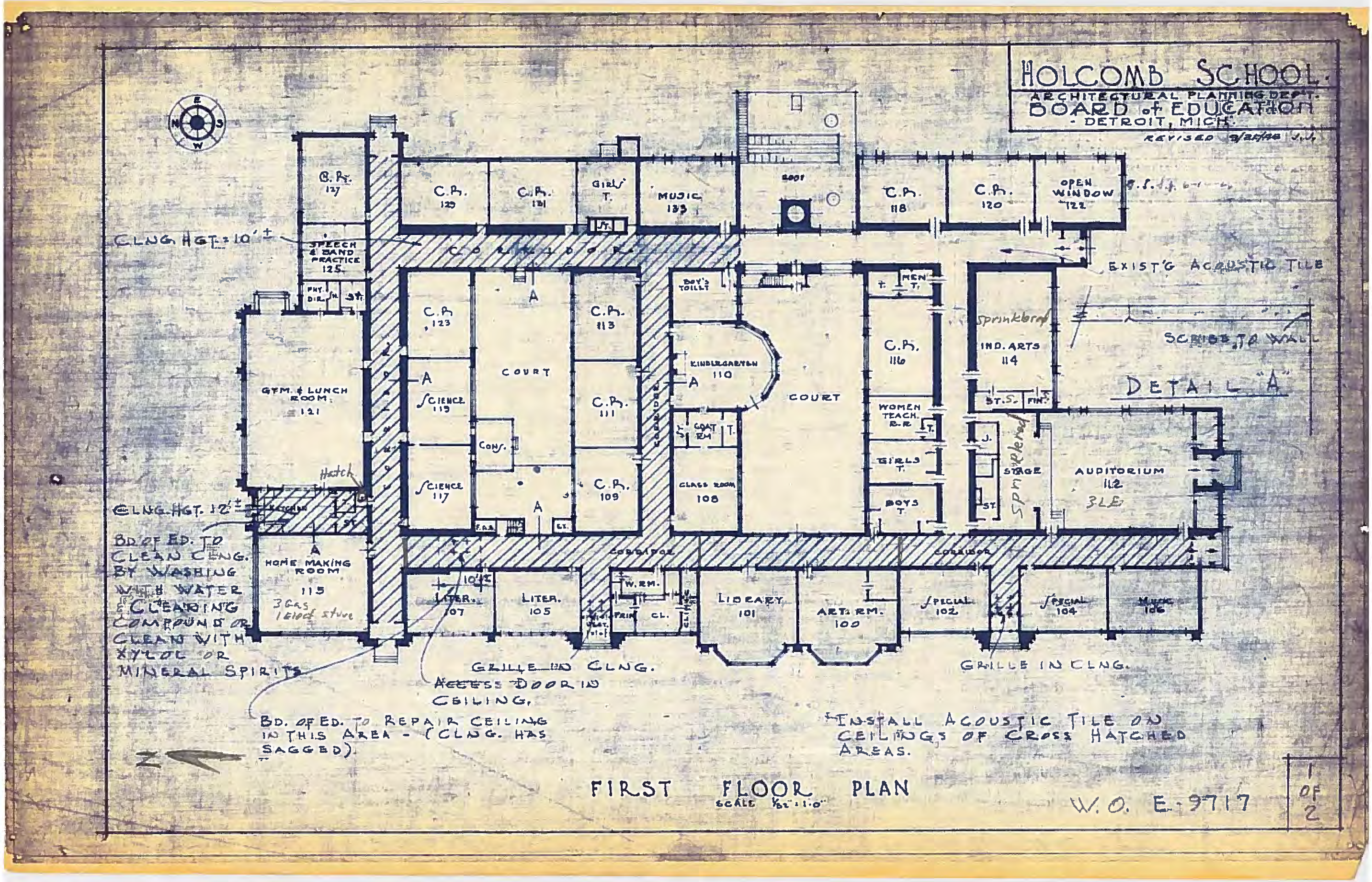
HOLCOMB SCHOOL

ARCHITECTURAL PLANNING DEP'T.
BOARD of EDUCATION
DETROIT, MICH.

REVISED 9/21/48 J.J.



BASEMENT PLAN
SCALE 1/32" = 1'0"


HOLCOMB SCHOOL.
ARCHITECTURAL PLANNING DEP'T.
BOARD of EDUCATION
- DETROIT, MICH.
REVISED
C.R. 129
C.R. 131
GIRLS' T.
MUSIC 133
C.R. 118
C.R. 120
OPEN WINDOW 122
B.R. 127
SPEECH & BAND PRACTICE 125
CLNG. HGT. = 10' ±
CORRIDOR
GYM. & LUNCH ROOM 121
C.R. 123
SCIENCE 119
SCIENCE 117
COURT
CONS.
C.R. 113
C.R. 111
C.R. 109
BOY'S TOILET
KINDERGARTEN 110
CLASS ROOM 108
COURT
C.R. 116
MEN T.
WOMEN TEACH. R.R.
GIRLS T.
BOYS T.
IND. ARTS 114
Sprinklered
STAGE
AUDITORIUM 112
EXIST'G ACOUSTIC TILE
SCRIBE TO WALL
DETAIL "A"
CLNG. HGT. 12' ±
Hatch
KITCHEN
HOME MAKING ROOM 115
3 Gas 1 elect stove
BD. OF ED. TO CLEAN CLNG. BY WASHING WITH WATER & CLEANING COMPOUND OR CLEAN WITH XYLOL OR MINERAL SPIRITS
LITER. 107
LITER. 105
W. RM.
CL.
LIBRARY 101
ART RM. 100
SPECIAL 102
SPECIAL 104
MUSIC 106
GRILLE IN CLNG.
ACCESS DOOR IN CEILING.
GRILLE IN CLNG.
BD. OF ED. TO REPAIR CEILING IN THIS AREA - (CLNG. HAS SAGGED).
INSTALL ACOUSTIC TILE ON CEILINGS OF CROSS HATCHED AREAS.
FIRST FLOOR PLAN
SCALE 1/32" = 1'-0"
W.O. E-9717
1 OF 2

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Hubert Elementary School

Basic Property Information: COD 1-Hubert-14825 Lamphere

Short Name:	Hubert
Address:	14825 Lamphere Street, Detroit, Michigan 48223
Year Built:	1925
Additions Built:	1926, 1930, 1953
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	270 feet x 375 feet
Square Footage:	59,911 sq. ft.
Number of Stories:	2
Building Height:	27 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	■ Cast-in-Place Concrete ■ Precast Concrete ■ Brick Masonry ■ CMU ■ Wood
City Council District:	1	**Exterior Wall System:**	■ Brick Masonry ■ CMU ■ Cast Stone ■ Limestone
SNF District:	NA	**Window System(s):**	■ Metal ■ Wood
		Roofing System(s):	■ Built-up Roof ■ Slag Surfacing ■ Asphalt Shingles ■ Gutters ■ Internal Roof Drains

Assessment Summary

Assessment Date:	March 10, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 10, 2020
Building Risk Index:	**113.92**

Cost Estimate

Base Rehabilitation Cost Estimate:	$2,592,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,792,880
Sub-Total	$8,284,880
Contingency (25%):	$2,071,220
Sub-Total	$10,356,100
Overhead and Profit (15-18%):	$1,035,610
Sub-Total	$11,391,710
Escalation (6% for 2 years)	$683,502
Sub-Total	$12,075,212
Architectural and Engineering Design Services (20%):	$2,415,042
TOTAL COST ESTIMATE:	$14,490,255

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and accessible roof levels, using binoculars as needed. The main roof levels were inaccessible due to limited roof access. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including accessible areas of the basement. Limited access to the attic was obtained near the roof hatch. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original school, located in the northwest portion of the current building layout, was originally constructed in the early-1920s as a small, single-story building with what might be an addition extending to the east behind the gabled roof front section of the school. These 1920s structures largely make up the north wing of the current building footprint that is oriented east to west. Another single-story addition was constructed in 1930 to the south of and parallel to the original structures. This 1930s era addition comprises a majority of the central wing of the current building footprint and its construction created a central courtyard space between the 1920s and 1930s wings. In 1953, another addition was constructed, which included both a single-story wing at the northeast corner of the current building layout and a two-story wing that extends to the south of the previously constructed original building and additions. The construction varies between the original building and each of the subsequent additions. Below is a summary of the building enclosure and structure for each of the construction vintages.

Original 1920s Construction

The 1920s portions of the existing building, at the north wing, are of similar construction. The facade consists of multi-wythe clay brick masonry with various types of masonry backup including clay tile, concrete brick, and clay brick masonry. Cast stone units accent the entrances, window sills, and copings, which are typically surface treated or painted. Aluminum covers were installed over the original wood frames and the original sashes were replaced with aluminum replacement inserts. The main west entrance door of the original 1920s building is wood-framed, while the entrances elsewhere at the building (including all additions) are conventional steel doors.

The majority of the roof consists of an internally drained, slag surfaced, bituminous built-up roofing (BUR) system with granular cap sheet base flashing. The gable roof at the west end of the north wing is covered with asphalt shingles, which have been installed over a previous asphalt shingle roof system.

The finishes, especially on the western end of this portion of the building are deteriorated, exposing the roof structural systems. The structure in the gabled region consists of a wood plank roof deck supported by built-up, dimensional lumber trusses which bear on brick and clay tile composite masonry walls and a steel beam that spans the opening in the east wall to the adjacent low slope roof area. The low slope roof area is framed with dimension lumber rafters bearing on the composite brick and clay tile masonry exterior walls and a steel beam and column line located within the corridor walls. The floor consists of concrete slab-on-ground construction over a partial basement space for mechanical rooms.

1930s Addition

The building envelope of the 1930 addition is similar in construction to the 1920s construction of the existing north wing. The structure that houses the multi-purpose room at the east end of the 1930s addition has a gable roof that is covered with asphalt shingles.

Water and fire have caused damage to the interior finishes exposing the structure in numerous locations. The structure differs from the 1920s construction and consists of precast concrete planks supported by steel beams and columns. The exterior walls consist of multiwythe brick masonry construction and the interior walls consist of gypsum block construction. The floor is concrete slab-on-ground, except in the mechanical room spaces connecting the 1930 addition to the original construction, which consist of a concrete tee joist-slab system spanning between concrete beams, columns, and foundation walls.

1953 Additions

The facade of the single-story 1953 addition at the northeast corner of the site consists of brick masonry veneer over concrete masonry unit (CMU) backup. Limestone units are present at window sills, entrances, and copings. Windows, consisting of operable steel-framed windows with glass block infill above, are located within punched openings in the exterior walls. The lower operable lites are framed with limestone that support the weight of the glass block infill above. The low-slope roofing system is similar to the north and center wings.

The roof structure is visible and soot covered due to a past fire event. The roof deck consists of gypsum planks spanning between open web steel joists which frame into a steel beam and girder system. The steel beams and girders bear on CMU walls. There are utility tunnels located below portions of the concrete slab floor, but the majority of the floor is a concrete slab-on-ground.

The two-story 1953 addition at the south portion of the site is similar in construction to the northeast 1953 addition with respect to the building envelope; however, a portion of the west facade consists of single-wythe CMU with large painted murals, and a region of the clay brick veneer on the first floor of the west facade has also been painted.

The interior finishes are constructed of more durable materials and are thus relatively intact, however, the structural system is exposed in isolated areas that have been vandalized or damaged from water infiltration. The structural system consists of a concrete tee joist-slab system, formed with stay-in-place concrete masonry forms, spanning to concrete beams and columns which may be a concrete-encased steel frame system. Flat concrete slabs are located at the corridors and toilet rooms. The first-floor structure is constructed over mechanical and crawl space areas.

Overall Condition

Overall, the building is in fair condition. The observed distress within the building interior is largely related to water and fire damage. The windows and roofing will require replacement. Significant masonry repairs will be required within the 1920s, 1930s, and northeast 1953 building areas. Various structural members throughout the building may require repair or replacement. Most notably, the wood roof framing of the 1920s portion of the building is exposed to the elements and will most likely require replacement. Further investigation is needed to fully understand the extent of distress of the precast and gypsum plank roof decks, the open web steel joists, and other exposed steel members. Further detail of the observed distress is provided below.

Facade

The 1920s and 1930 facades are generally in poor condition. Masonry cracking, displacement, and bulging was observed, which is primarily attributed to water infiltration within the wall assembly and corrosion of the steel lintels. The observed masonry distress is mainly concentrated at the piers located between punched wall openings, above lintels, and at building corners. A surface treatment appears to have been applied to the cast stone units surrounding the main west entrance of the 1920s wing and a painted parge coating has been applied to the cast stone sills and window surrounds during a past repair attempt. The parge coating over several cast stone units is spalled. Coping units above the library alcove within the 1930s addition have been removed, resulting in significant water related distress within the wall assembly below the roof level. Previous repairs within the 1920s and 1930s wings appear to include only localized repointing beyond the localized parge coat patch repairs at the cast stone units. Rehabilitation should include repair of the masonry elements to mitigate water penetration and further masonry distress. This would include repair or replacement of the corroded steel lintels with appropriate flashing details, as well as substantial rebuild of brick masonry at displaced wall areas below lintels and replacement of isolated cast stone units.

The 1953 facades are generally in fair condition, though the limestone elements on the northeast addition are significantly distressed. Localized brick masonry cracking and spalling was observed, which is generally concentrated at building corners and near the roof level. Previous repairs are present and include localized areas of rebuilt masonry, some of which have re-cracked. The observed cracking and spalling distress is largely attributed to water penetration into the wall assembly, freeze-thaw damage, and corrosion of the steel lintels, though a lack of expansion joints and the presence of mortar with higher material strengths than the individual brick units may also be contributing to these distressed regions. Within the northeast addition, significant distress was observed within the limestone mullions that surround the lower lites of the punched wall openings, which is attributed to water and fire related damage. A majority of these limestone units will require replacement. The limestone coping units have generally been covered with sheet metal caps and the condition of the stone units is unknown at this time. Rehabilitation should include repair of the masonry elements to mitigate water penetration and further masonry distress. This would include replacement of spalled brick units, rebuilding areas of displaced masonry with appropriate detailing, grinding and pointing of distressed mortar joints, repair or replacement of the corroded steel lintels with appropriate flashing details, and replacement of isolated limestone units.

The windows and doors throughout the building are generally missing or significantly distressed and require replacement. Restoration of the wood framed doors on the main west entrance may be possible, though the repairs are anticipated to be significant. Repair of the glass block units, where present, may also be possible in lieu of replacement.

Roofing

The roof assemblies are in poor condition. At the original 1920s gable roof area on the northwest corner of the building, significant distress was observed including large areas of missing asphalt shingles and wood sheathing, exposing the building interior to the elements, and flashings, gutters, and downspouts were missing or damaged. Elsewhere in the 1920s addition, water infiltration within the building interior was observed to be a result of failed internal roof drains and drain conductors, which are generally located along the main corridor. The 1930s gable roof area on the east end of the building is in better condition, though some areas of missing shingles and flashing were observed. The main low-slope roof levels were not accessed at the time of this assessment due to limited roof ladder access. Where visible from grade, lower roof levels, and interior spaces, the low-slope roofing assemblies exhibit significant distress including weathering, cracking, organic growth, ponded water, failed drains, and missing rooftop mechanical units. Rehabilitation of the building should include removal and replacement of all existing roof assemblies and drainage systems.

Structure

Overall, the structural systems are in serviceable condition, however localized areas of significant distress are located throughout and require further evaluation to determine severity and extent of the concerns.

The structures of the gabled roof and classroom low slope roof immediately east of the gable roof in the original 1920s portion are in poor condition where the roofing and decking are missing. Exposure of the structure due to continued water infiltration has resulted in decay of the wood framing. At least two trusses at the southwest corner of the gable roof are no longer intact and are susceptible to collapse if not temporarily shored. The wood member bearings and the bearings of the steel beam supporting the gable roof may be compromised due to the amount of water infiltration into the top of the walls. Additionally, the low-slope roof over the southern classroom immediately east of the west gable roof is fire-damaged. Both the west gable and low-slope roof structures over these areas may be able to be reinforced/repaired in-place, but it may be more cost effective to completely replace these distressed areas of roof. Masonry repairs required at the tops of the walls and bearing locations should be coordinated with the facade and roofing repairs.

The roof structure of the 1930 addition also exhibits localized distress. The precast planks, especially near roof drains and of the lower, sloped roofs of the bays projecting into the courtyard, are cracked and the reinforcement is exposed and corroded, significantly reducing the capacity of the roof planks. The structural steel elements supporting these planks are corroded. The interior wythes of brick masonry at the steel beam bearings have open, cracked joints; the units are displaced and several units are disintegrating. Areas of these roofs with concrete planks with exposed reinforcement and extensive cracking should not be accessed without temporary shoring placed below. Localized reinforcement of some structural steel beams may be necessary, and bearings of these beams on masonry walls that exhibit corresponding corrosion-related distress should be exposed and further assessed. Full restructuring of these small areas of roof may be most cost effective. Repair of the masonry is to be coordinated with the facade and roofing repairs.

Fire damage has exposed the structure in the science rooms located on the south side of this wing. CMU within the composite masonry wall shared with the play and lunch room appears to be discolored, indicating a potential loss of strength of the concrete material. Although it may not be of great concern, the wall should be cleaned and further evaluated.

A fire event in the northern 1953 addition has fully exposed the underside of the gypsum roof deck and the open web steel joist roof structure. Distress of the structure was not visibly evident beyond the soot deposits from the fire. However, based on the amount of water infiltration into the building, in addition to the fire event, further evaluation of this roof structure is warranted. The CMU pier supporting a structural steel girder beam at the reentrant corner located in Classroom 120 is cracked at the girder bearing. Further investigation of the beam bearing is recommended, with repointing of the cracked joints and replacement of the cracked units of the masonry pier anticipated. Based on corrosion of the embedded steel elements in the gypsum roof deck and corrosion of the open web steel joists, the small area of roof structure over the gymnasium office will require replacement of the decking and potential reinforcement or replacement of the open web steel joists.

The structure at the southern 1953 two-story portion of the building is in better condition than the other areas of the building, mainly due to the more durable construction materials used. The undersides of the concrete tee joist-slab and flat slab roof structures are wet in numerous locations, with some areas of efflorescence and water staining occurring at crack locations of the flat slabs. The cracks may not require repair pending appropriate roofing repairs are completed to mitigate the water infiltration through the concrete slab.

Vertical cracks exist in the CMU piers between windows in multiple locations and at interior wall intersections. Steel columns may be embedded within the CMU and the cracking may be related to the relative rigidity of the columns in relation to the CMU; the stacked bond construction detailing of the pier, thermal and volumetric movements, or water infiltration. Repointing of the cracks is a minimum solution, but the cracks may recur and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

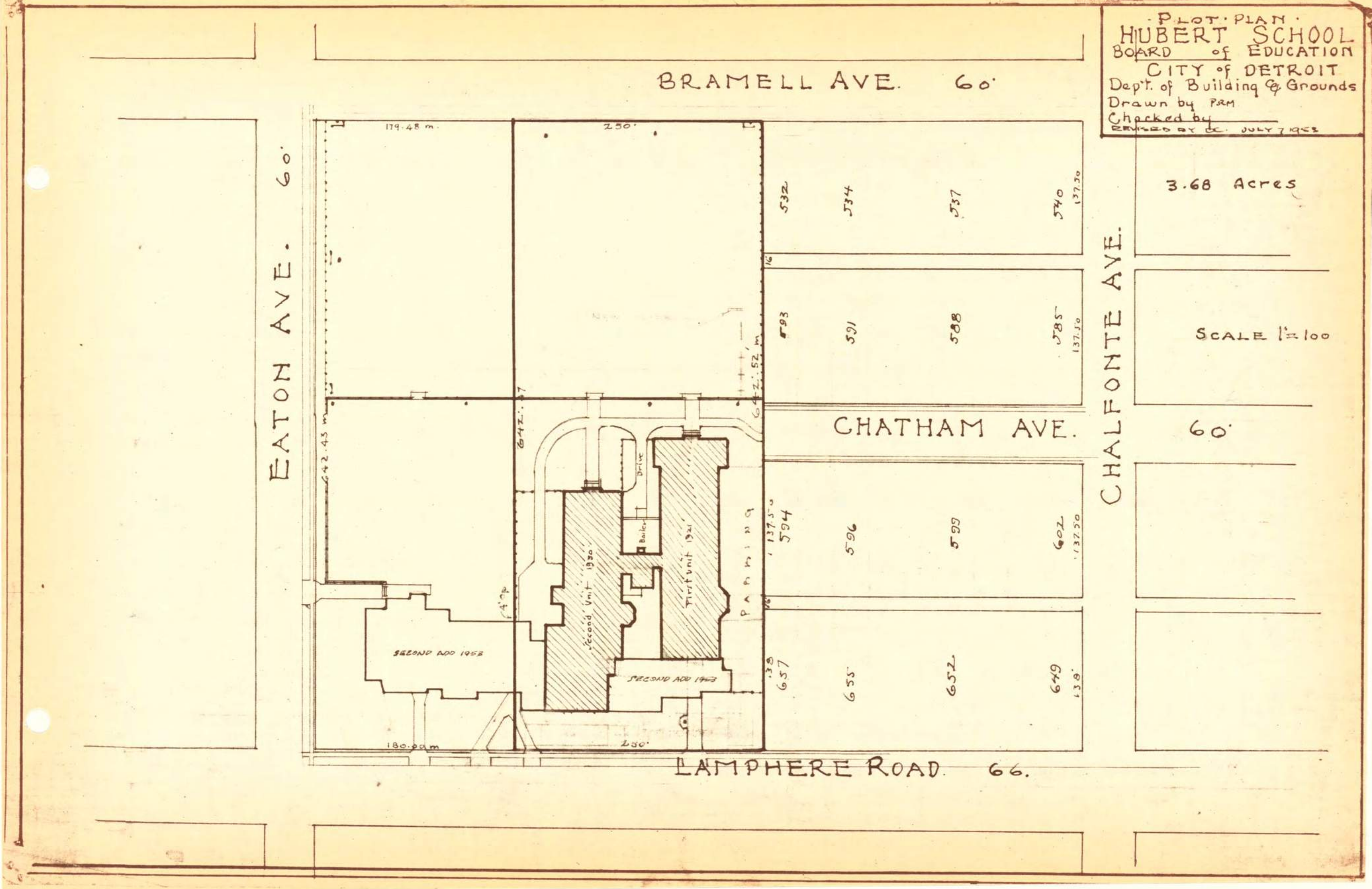
At the southernmost stair, a masonry beam supports the second-floor landing and the bottom of the flight of stairs up to the second floor. The bottom of the masonry has spalled exposing the corroded reinforcing bars. Repairs may be similar to a partial depth concrete repair but further assessment is needed to confirm.

The basement level of the building is of concrete construction. The first-floor structure consists of concrete tee joist-slabs formed with corrugated metal forms which have been removed, or flat slabs, depending upon the area of the building. The slab systems span between the foundation walls and interior concrete beam and column systems. The concrete is spalling, exposing corroded reinforcement of the joists in one of the basement rooms and of beams in the boiler room. Stalactites have formed on the underside of the flat slab and concrete beams in the southern basement plenum space. Select beams are cracked with a crazed pattern on the side and underside of the beam. Partial depth repairs are recommended for the joists and beams; however, beyond removing the stalactites and pending the water infiltration into the building is mitigated, concrete repair is not anticipated of the flat slab and beam areas.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

The fan room in the 1953 southern addition is flooded preventing full access, but where visible from the stairwell, the underside of the first-floor concrete structure is in good condition with no distress observed. This room is recommended to be dewatered to allow for assessment of the foundation walls and remaining area of the first-floor structure.



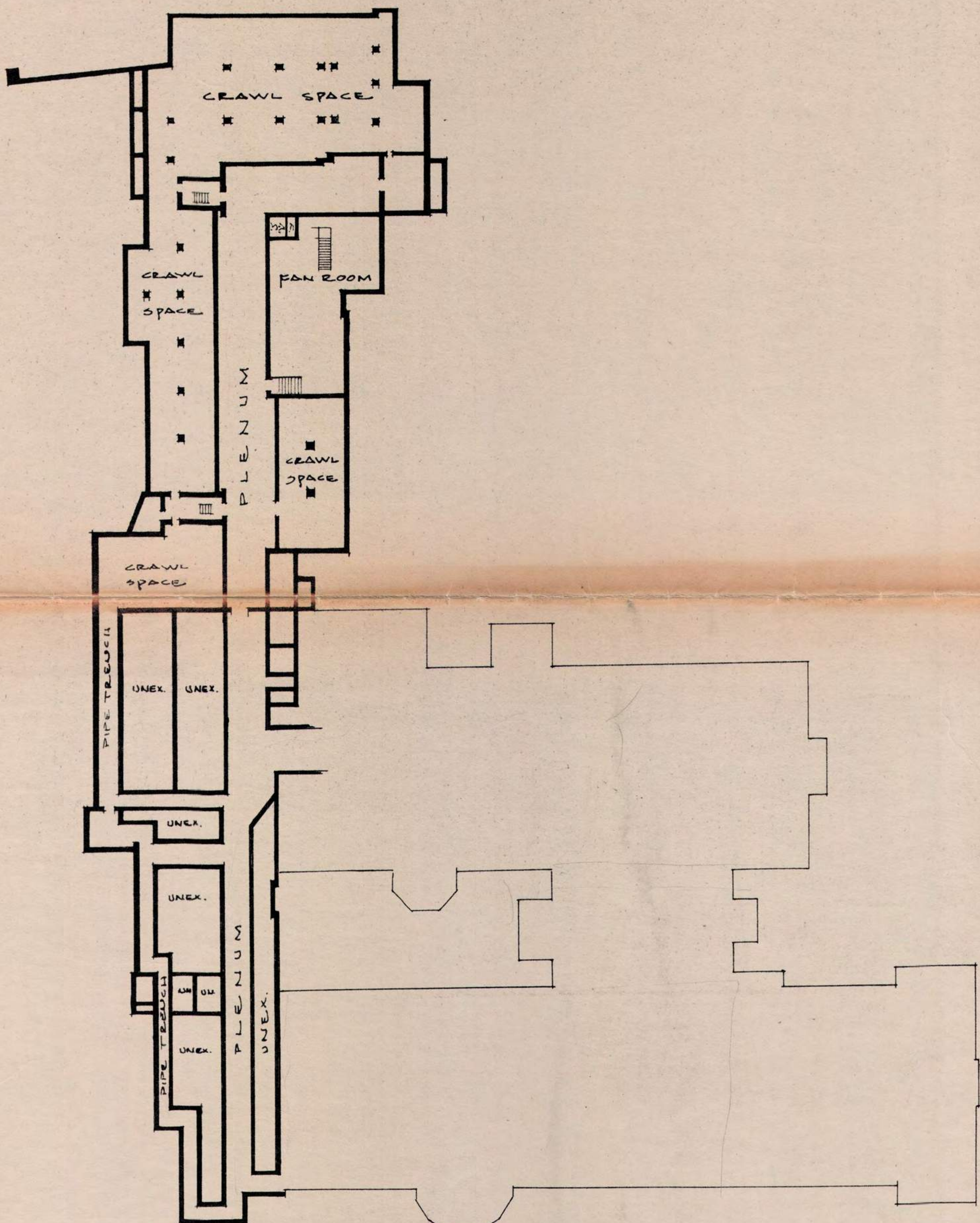
·PLOT·PLAN·
HUBERT SCHOOL
BOARD of EDUCATION
CITY of DETROIT
Dep't. of Building & Grounds
Drawn by PRM
Checked by
REVISED BY CC. JULY 7 1953
BRAMELL AVE. 60'
EATON AVE. 60'
CHALFONTE AVE.
CHATHAM AVE. 60'
LAMPHERE ROAD 66.
3.68 Acres
SCALE 1"=100
179.48 m.
250'
642.43 m
642.47
642.52 m
180.00 m
250'
532
534
537
540
137.50
593
591
588
585
137.50
594
596
599
602
137.50
657
655
652
649
Drive
Boiler
Second Unit 1930
First Unit 1921
SECOND ADD 1953
SECOND ADD 1953
Parking

- HUBERT SCHOOL -

BASEMENT PLAN
SCALE 1/8"-1'0"

ARCHITECTURAL PLANNING DEPT.
BOARD of EDUCATION
DETROIT, MICHIGAN

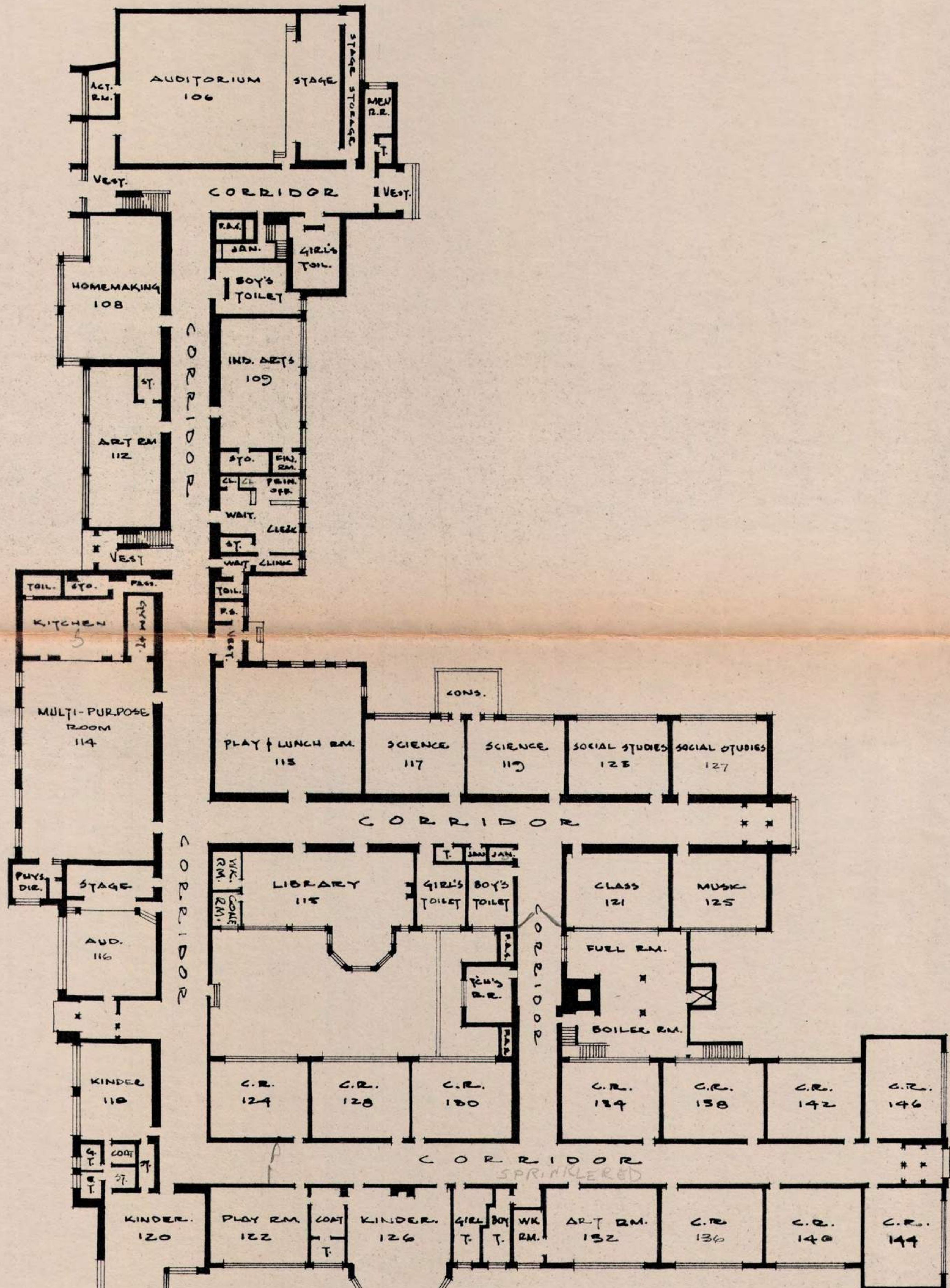
DRAWN	DATE	CH'K'D	DATE	APP'V'D	DATE
D.C.	7/8/68				



HUBERT SCHOOL
FIRST FLOOR PLAN
SCALE 1/32" - 1'0"

ARCHITECTURAL PLANNING DPT.
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CH'K'D	DATE	APP'V'D	DATE
D.C.	7/8/54				



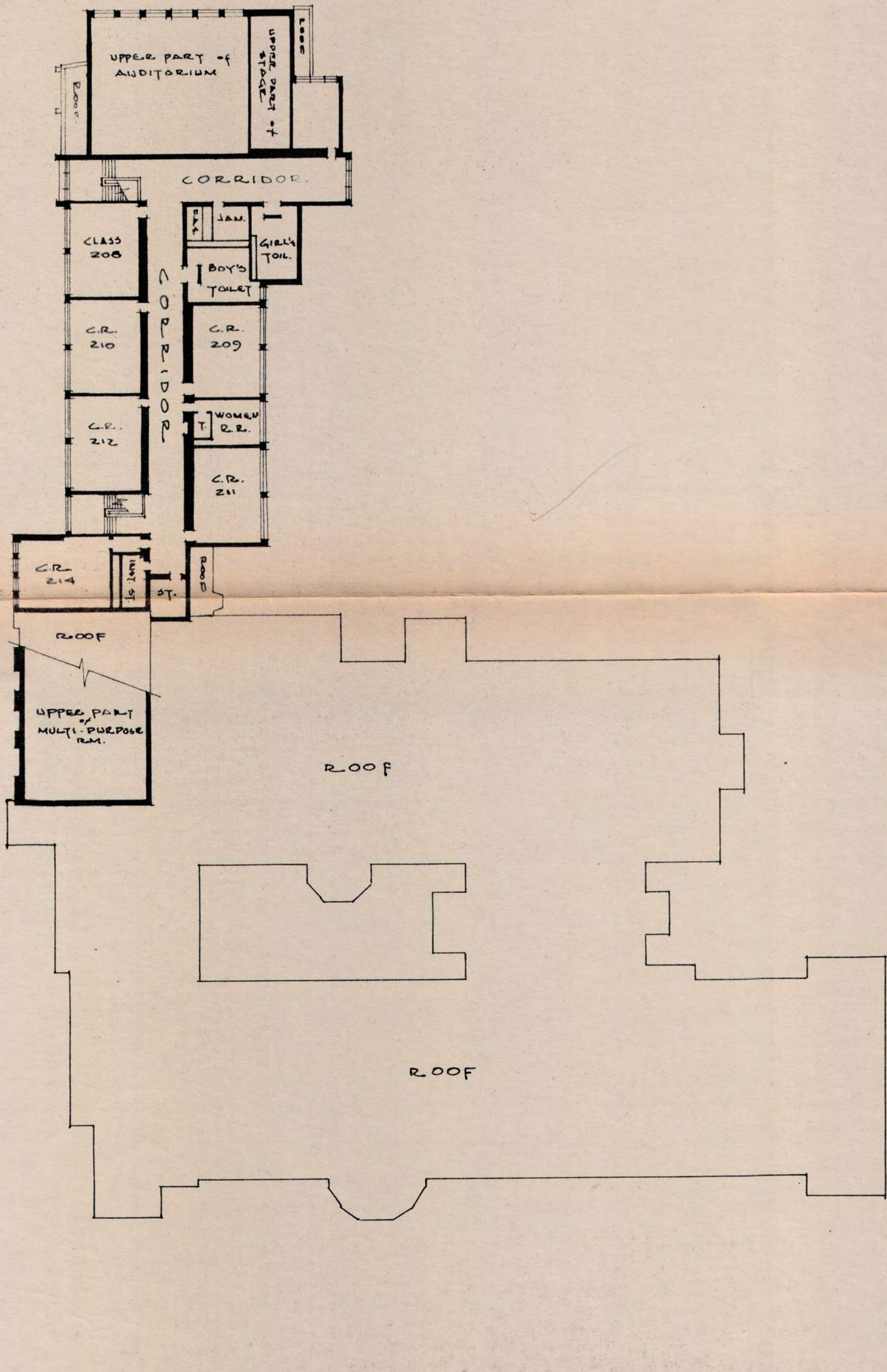
HUBERT SCHOOL

SECOND FLOOR PLAN

Scale 1/32"-1'0"

ARCHITECTURAL PLANNING DEP'T.
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CH'K'D	DATE	APP'V'D	DATE
D.C.	1/8/54				



Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Cooley High School

Basic Property Information: DPS 1-Cooley-15055 Hubbell

Short Name:	Cooley
Address:	15055 Hubbell Street Detroit, Michigan 48227
Year Built:	1928
Additions Built:	1930, 1931, 1971
Outbuildings:	Powerhouse
Year Vacated:	2010
Building Footprint:	400 feet x 530 feet
Square Footage:	302,590 sq. ft.
Number of Stories:	3
Building Height:	53 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete
City Council District:	1	**Exterior Wall System:**	▪ Brick ▪ Terra Cotta
SNF District:	NA	**Window System(s):**	▪ Metal ▪ Wood
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 28, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 19, 2020
Building Risk Index:	**68.52**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$3,589,800
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$24,207,200
Sub-Total	$28,697,000
Contingency (25%)	$7,174,250
Sub-Total	$35,871,250
Overhead and Profit (15-18%):	$3,587,125
Sub-Total	$39,458,375
Escalation (6% for 2 years)	$2,367,502
Sub-Total	$41,825,877
Architectural and Engineering Design Services (20%):	$8,365,175
TOTAL COST ESTIMATE:	$50,191,053

ASSESSMENT METHODS

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WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

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WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

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Risk Characterization

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  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
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  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

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- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
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BUILDING OVERVIEW

Overall

Cooley High School is an ornate three-story building originally constructed in 1928 with its primary facade facing Hubbell Avenue. Two additions shortly followed in 1930 and 1931, and house the auditorium, gymnasium, pool, and additional classrooms. A large, two-story addition was constructed to the north in 1971, which is connected to the main building via an enclosed pedestrian walkway and the northeast wing of the original building. A freestanding powerhouse is located within the courtyard between the two building areas.

The original building and the two additions that shortly followed in the early 1930s have similar construction and architectural features. The facade is clad in an orange Flemish-bond clay brick and ornamental terra cotta features with clay tile and brick masonry back-up. Two domed bell towers frame the main east entrances, and a large clock is centered on the top of the east facade. The structural system consists of a concrete-frame. Aluminum replacement windows were set in the original wood frames, though the aluminum components are now largely missing. The roofing generally consists of an internally drained, slag surfaced, built-up roof (BUR) with granulated cap sheet base flashing, though the roofing over the auditorium and gymnasium is modified bitumen.

The north 1971 addition generally consists of clay brick masonry and precast panels with an exposed aggregate finish. Original aluminum framed windows or glass block infill are generally present within punched wall openings. The structural system is steel-framed with concrete masonry (CMU) infill at the exterior walls. The scope of the team’s assessment focused on the original historical portion of the current building layout, though some detail regarding the north addition is provided here for reference.

Overall, the building is in serviceable condition with the majority of observed distress within the interior resulting from fire damage and water infiltration at missing rooftop mechanical units near the auditorium. Beyond the missing rooftop units, the roofing assembly and internal drains generally appear to be in serviceable condition. The masonry facade is in fair condition with localized repairs recommended throughout. A majority of the windows and exterior doors are missing or significantly damaged and require replacement. The north addition can be restored, mothballed, or demolished as appropriate and desired for the future use of the historic building.

Facade

The brick masonry and terra cotta masonry facades are generally in fair condition, though repairs are recommended in localized regions. Minor cracking and displacement was observed at some of the terra cotta window heads due to corrosion of the steel lintels. Repairs should include removal and replacement of the terra cotta, cleaning and painting of the embedded steel lintels or replacement of the steel if the corrosion is significant, and installation of appropriate through-wall flashings. Some terra cotta header units will require replacement due to the extent of distress, while others may be salvaged and repaired and/or reset. Near term repairs may be completed at some distressed window heads that exhibit minor cracking in order to mitigate water penetration and slow the rate of corrosion in lieu of removing the terra cotta to directly address the steel lintel corrosion. Isolated terra cotta units are cracked, spalled, or displaced throughout the facades, which should be repaired, reset, or replaced as needed with appropriate detailing to consider thermal movements and stress concentrations. Several of the ornate finials at the top of the parapets are missing or spalled due to corrosion of the embedded rod reinforcing and vandalism; these decorative units will require repair or replacement to address the distress and restore the original aesthetic. Isolated terra cotta units have minor spalls or failed glazing, which should be repaired. A majority of the joints around the terra cotta units contain cracked, debonded, or missing mortar, especially at the copings and projecting units. Distressed mortar should be repointed to mitigate water infiltration within the wall assembly and corrosion of the embedded steel support elements. Skyward surfaces should include sealant near the surface of the joint for improved durability.

Previous masonry restoration projects have been completed at the building, which have included localized areas of rebuilt brick masonry, repointing, and lintel repairs. The parapet on the main east facade has been rebuilt with limestone copings between the two bell towers. Previous terra cotta glazing repairs are slightly more pink or orange in color than the original units, and some spalled terra cotta units have been patched. Repairs from these previous masonry restoration projects are generally in serviceable condition.

The exterior brick masonry walls that extend above the main low-slope roof level above the auditorium stage (fly loft) are significantly cracked and displaced. The observed masonry distress within this region is due to fire damage of the steel stage framing that has collapsed to the stage surface below. The masonry walls are constructed of clay brick and clay tile units. Cracking and displacement were not observed within the clay tile infill, though localized clay tile units are spalled due to the collapsing beams and/or heat exposure. Further investigation is required to determine the severity and extent of distress within the fly loft walls and structural system, which is beyond the scope of this assessment. At minimum, the outer wythe of brick masonry should be considered for removal and replacement within the displaced regions, and in a localized region on the east end of the north wall the full wall section may require replacement. Phasing of the repairs may be required, depending on the findings of the recommended detailed investigation.

Localized areas of brick masonry are cracked, spalled, or contain cracked or debonded mortar, particularly within the taller, raised parapets due to the increased exposure conditions. Isolated vertical brick cracks are present at building corners and between building additions due to unaccommodated movement of the masonry. These regions should be rebuilt or repaired as needed with appropriate, durable repair details.

The upper three feet of the brick masonry chimney is deteriorated and displaced. The displaced regions should be rebuilt and the stone caps should be reset with improved through-wall flashings. Isolated, cracked, and debonded mortar should be repointed and isolated cracked brick units should be replaced or reinforced across the crack.

A stucco-like parge coat material is present on the rear, roof facing wall surfaces of the bell towers. This material is generally cracked, delaminated, or spalled with failed paint, warranting replacement or significant repair. Repair to the masonry substrate should also be anticipated in some regions based on the extent of distress.

The aluminum replacement windows are largely missing, and the exposed wood framing or aluminum components that remain are typically decayed or damaged, warranting replacement. The exterior conventional steel doors are generally corroded with missing hardware and cracked glass, and are welded or barred shut for security purposes. Rehabilitation of the building should consider replacement of the exterior doors.

Roofing

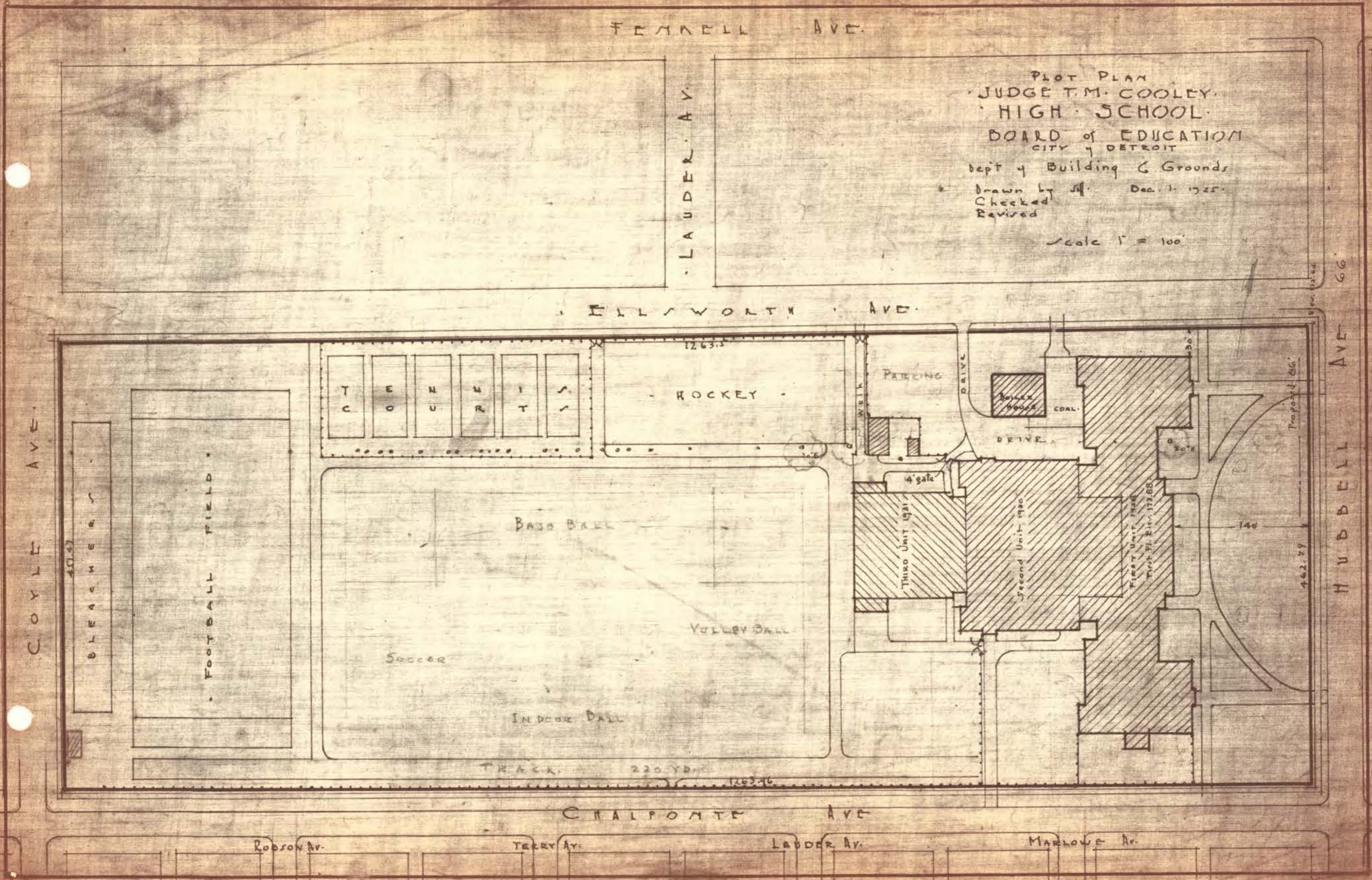
The low-slope roofing assemblies are generally in serviceable condition. The observed distress includes localized, open, and cracked seams, crazing in the roof surface, displaced flashings, and missing drain strainers. The drains largely appear in serviceable condition. However, significant roofing distress was observed at the missing rooftop mechanical units near the auditorium. Localized concrete distress was observed within the roof deck at the regions of missing equipment; further investigation is required and some structural concrete repairs are anticipated. The roofing assembly within the northern half of the auditorium is recommended for removal and replacement in conjunction with the anticipated concrete repairs. Based on a lack of water intrusion below the field of the remaining low-slope roofing, the roof appears to be performing well and likely requires only localized maintenance related repairs to extend the service life of the existing roof assembly.

Sheet metal flashing is displaced in isolated regions at the two bell towers. Repairs should be completed to mitigate water infiltration into the roof and wall assemblies.

North 1971 Addition

The scope of the team's assessment focused on the original historical portion of the current building layout, though some detail regarding the north addition is provided here for reference. Localized cracks and failed sealant were observed in the brick masonry and precast panel cladding materials. Where metal cladding panels are present in some regions, isolated corrosion was observed. The exterior soffits at the roof overhangs are typically cracked and stained. The aluminum windows and glass block infill are generally damaged or missing. Water infiltration was observed within the building interior, concentrated at drains and rooftop units. The slab-on-grade near the west loading dock is significantly displaced, and the exposed steel loading dock framing is corroded.

The north addition can be restored. Localized maintenance repairs are anticipated within the roofing assembly, though the roof drains and conductors will likely require replacement or significant repair. The windows and doors should be considered for replacement, though repairs may be possible in some regions. Minor distress observed within the cladding materials should be repaired, including potential replacement of the soffits.

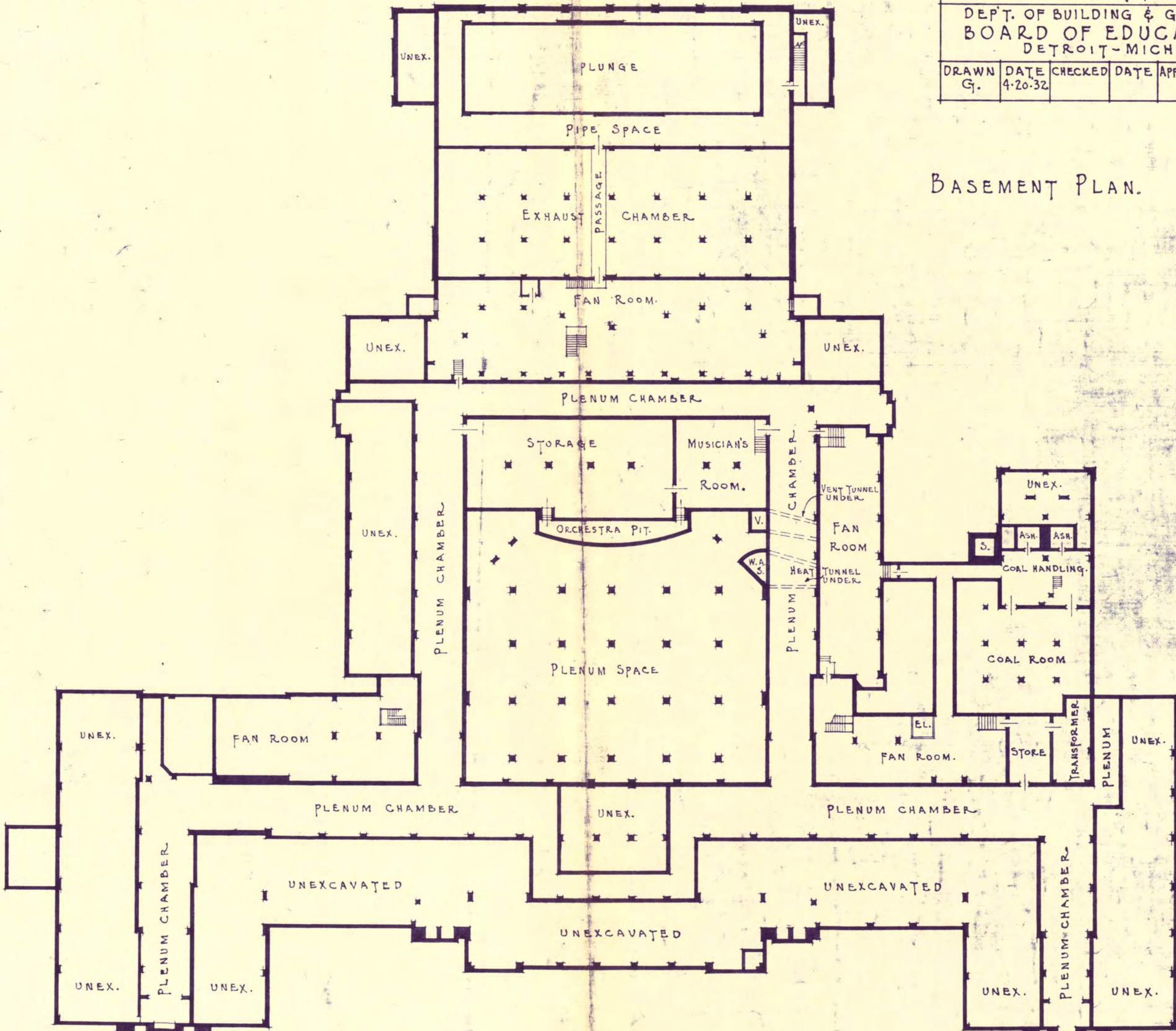

FENKELL AVE.
PLOT PLAN
JUDGE T. M. COOLEY
HIGH SCHOOL
BOARD of EDUCATION
CITY of DETROIT
Dept of Building & Grounds
Drawn by Sff. Dec. 1. 1925.
Checked
Revised
Scale 1" = 100'
LAUDER AV.
ELLSWORTH AVE.
1263.5
TENNIS COURTS
HOCKEY
WALK
PARKING
DRIVE
BOILER HOUSE
COAL
DRIVE
30'
30'
4' gate
THIRD UNIT 1931
Second Unit 1930
FIRST UNIT 1928
First Fl. Elev. 173.88
146
462.79
Proposed 86'
HUBBELL AVE
66
COYLE AVE
451.47
BLEACHERS
FOOTBALL FIELD
BASE BALL
VOLLEY BALL
SOCCER
INDOOR BALL
TRACK 220 YD.
1263.46
CHALFONTE AVE
ROBSON AV.
TERRY AV.
LAUDER AV.
MARLOWE AV.

~ COOLEY ~
HIGH SCHOOL
BASEMENT PLAN

DEP'T. OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT - MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	4-20-32				

BASEMENT PLAN.

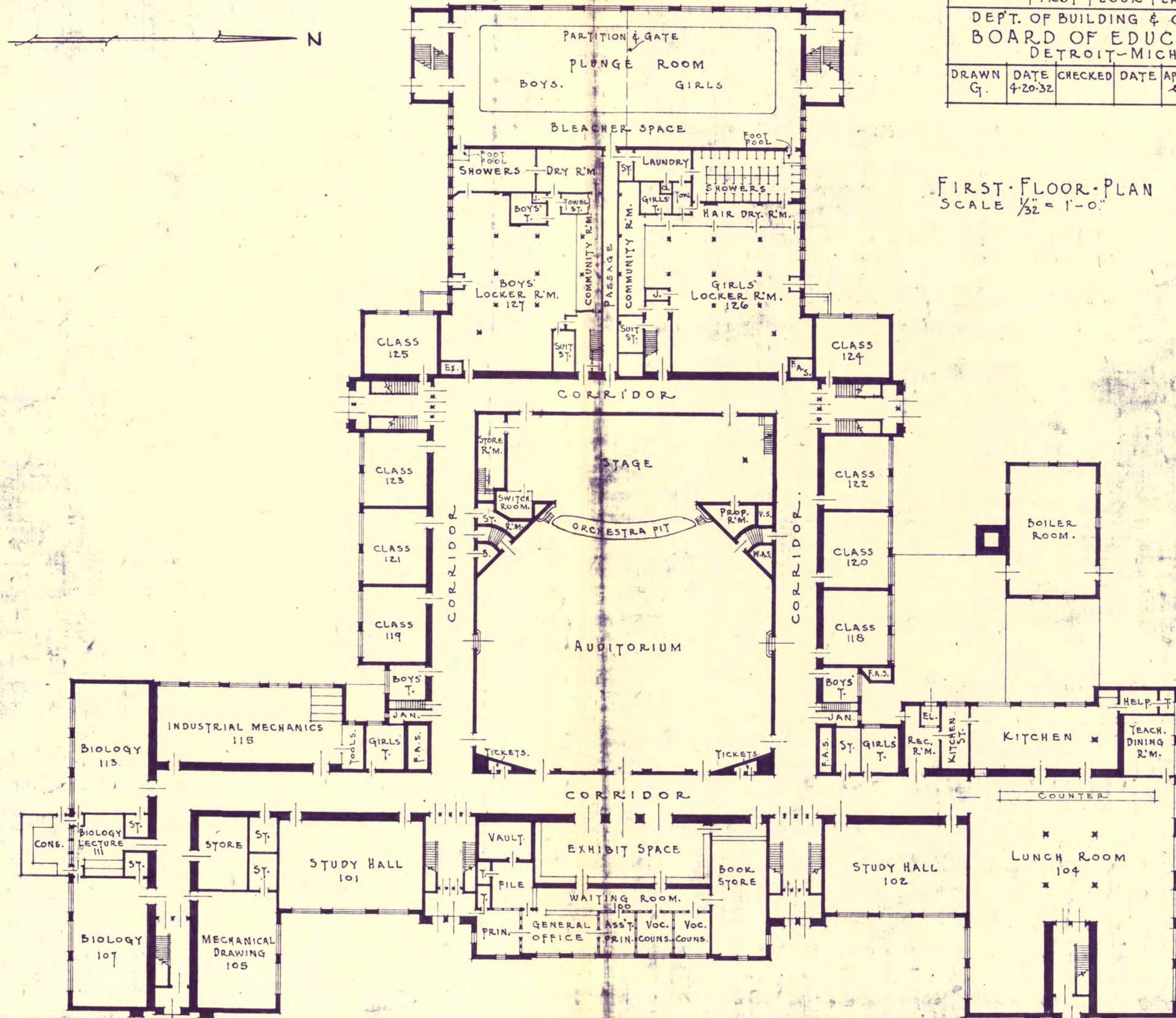


~ COOLEY ~
HIGH SCHOOL
FIRST FLOOR PLAN

DEP'T. OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT-MICH.

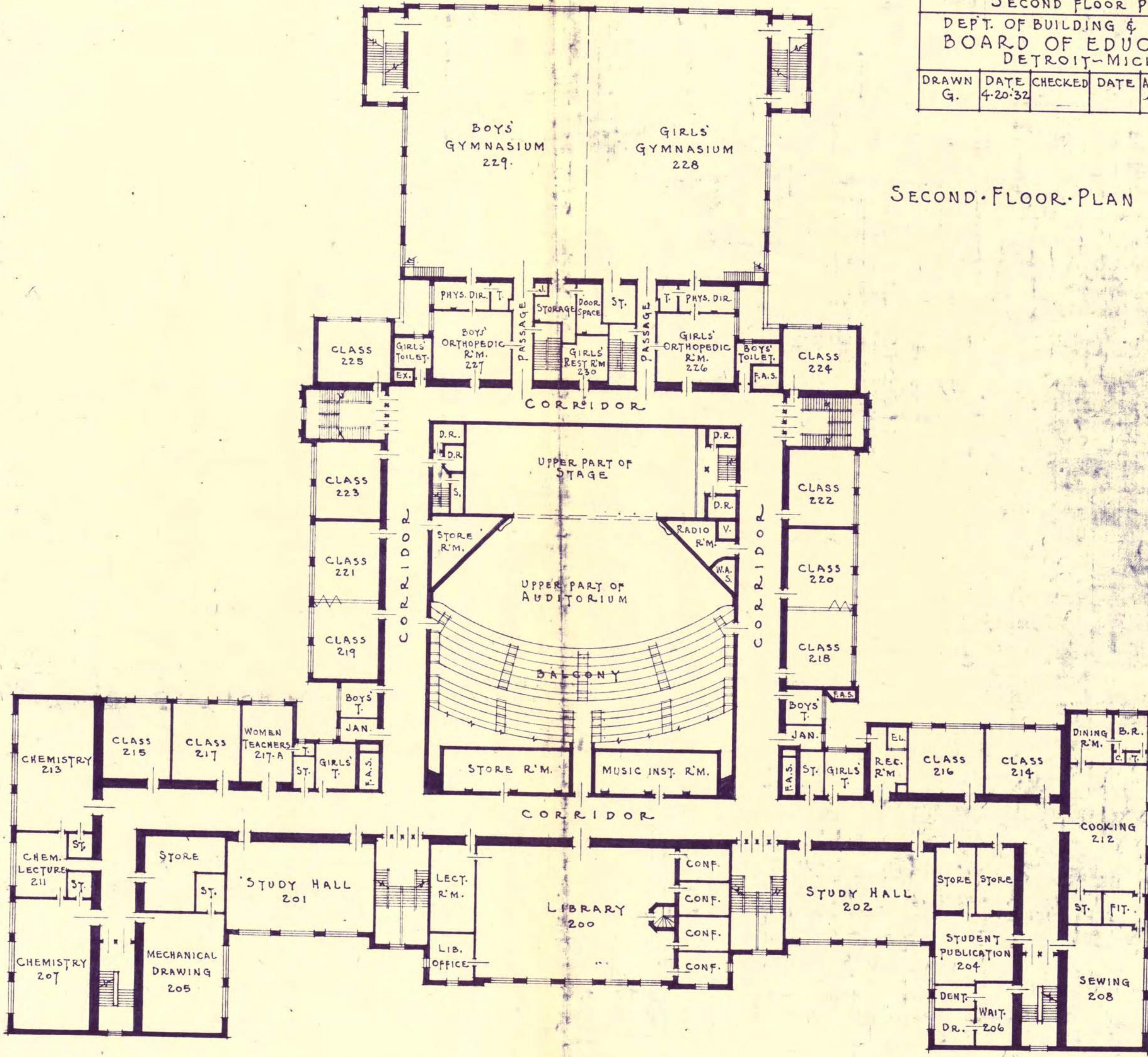
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	4-20-32			G. I. S.	4-25-32

FIRST · FLOOR · PLAN
SCALE 1/32" = 1'-0"



~ COOLEY ~ HIGH SCHOOL SECOND FLOOR PLAN					
DEPT. OF BUILDING & GROUNDS BOARD OF EDUCATION DETROIT-MICH.					
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	4-20-32			G. S. S.	4-25-32

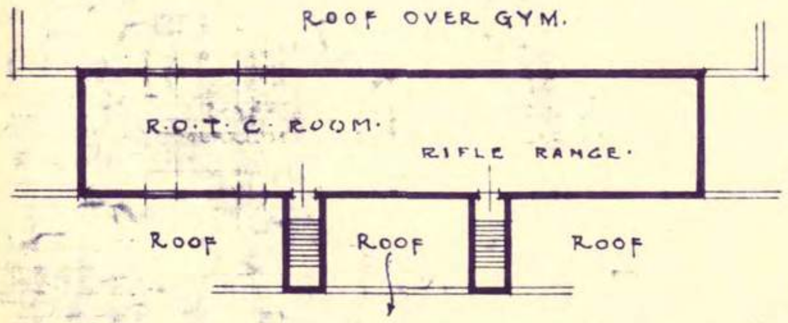
SECOND · FLOOR · PLAN



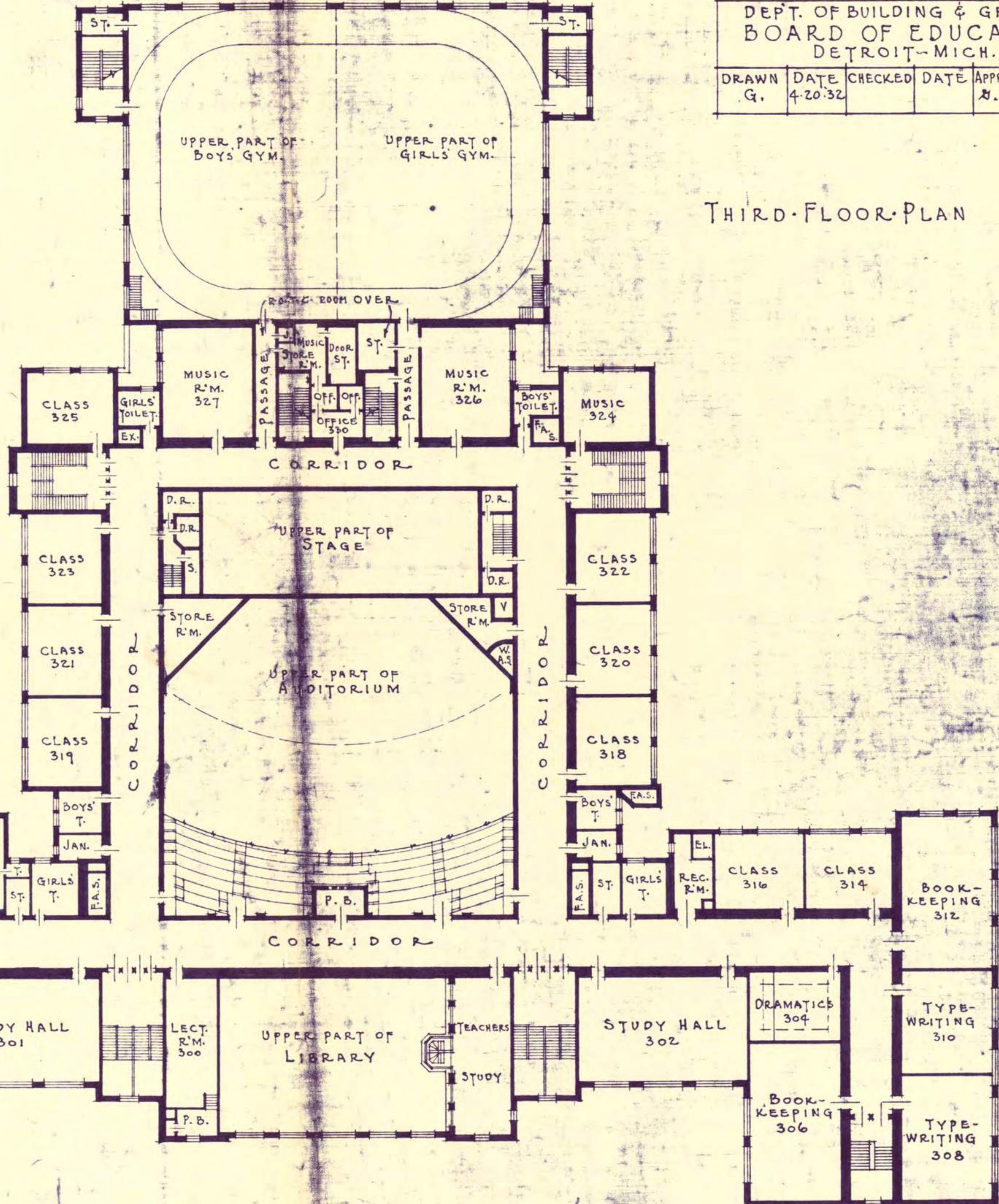
~ COOLEY ~
HIGH SCHOOL
THIRD FLOOR PLAN

DEPT. OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT - MICH.

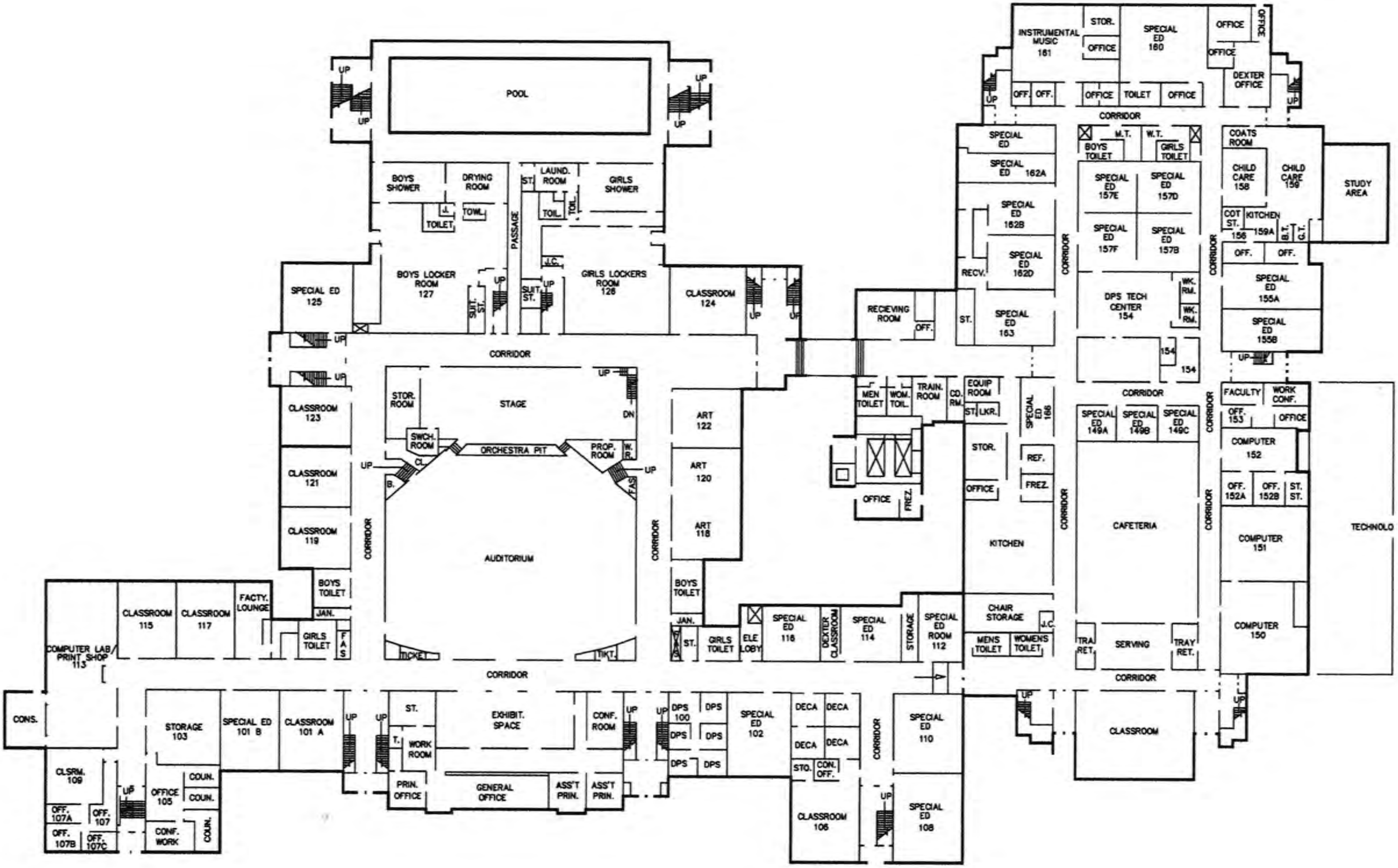
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	4-20-32			G. L. S.	4-25-32



PLAN OF R.O.T.C. ROOM.



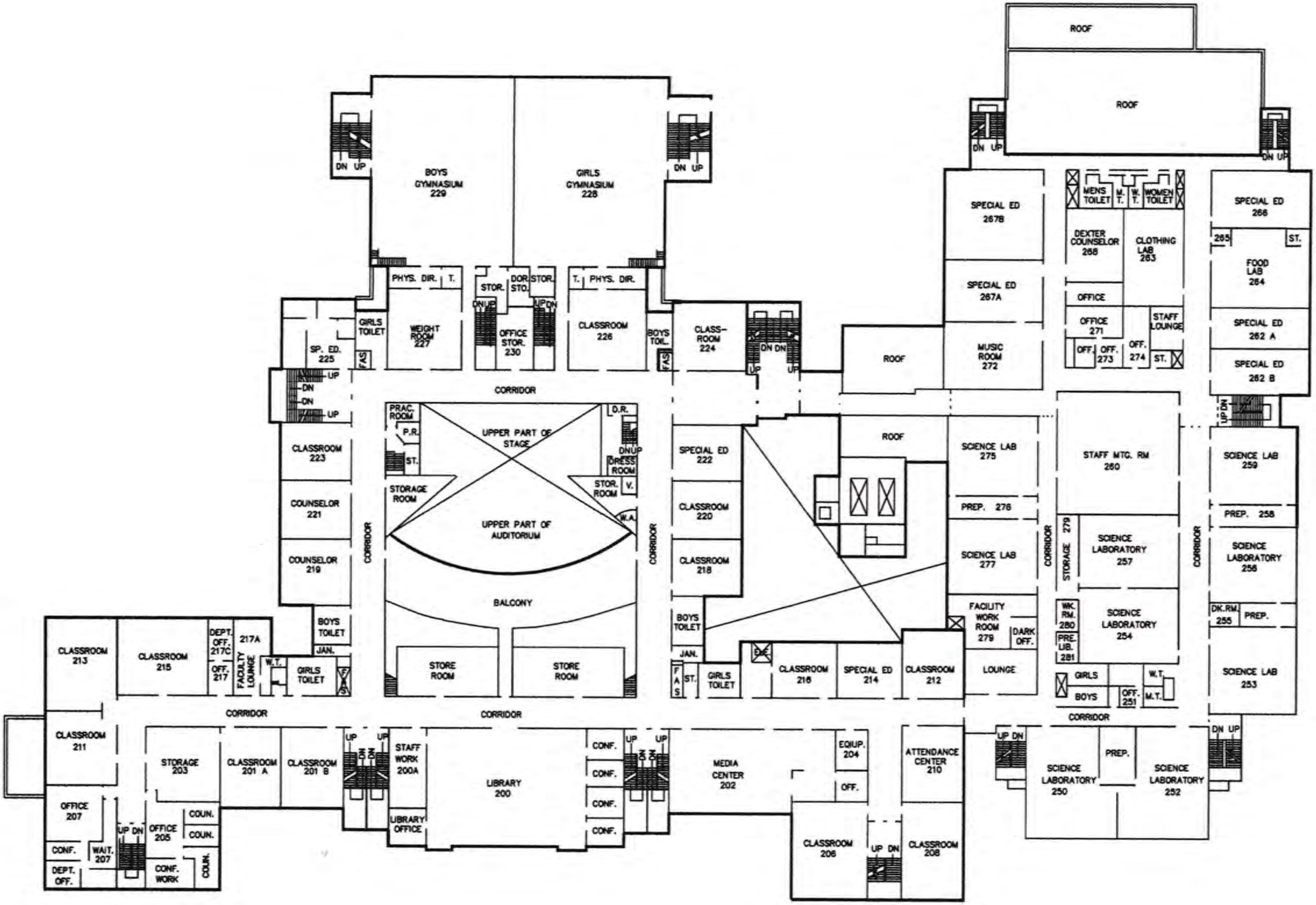
THIRD·FLOOR·PLAN



COOLEY HIGH
FIRST FLOOR

15055 HUBBELL STREET
NOT TO SCALE

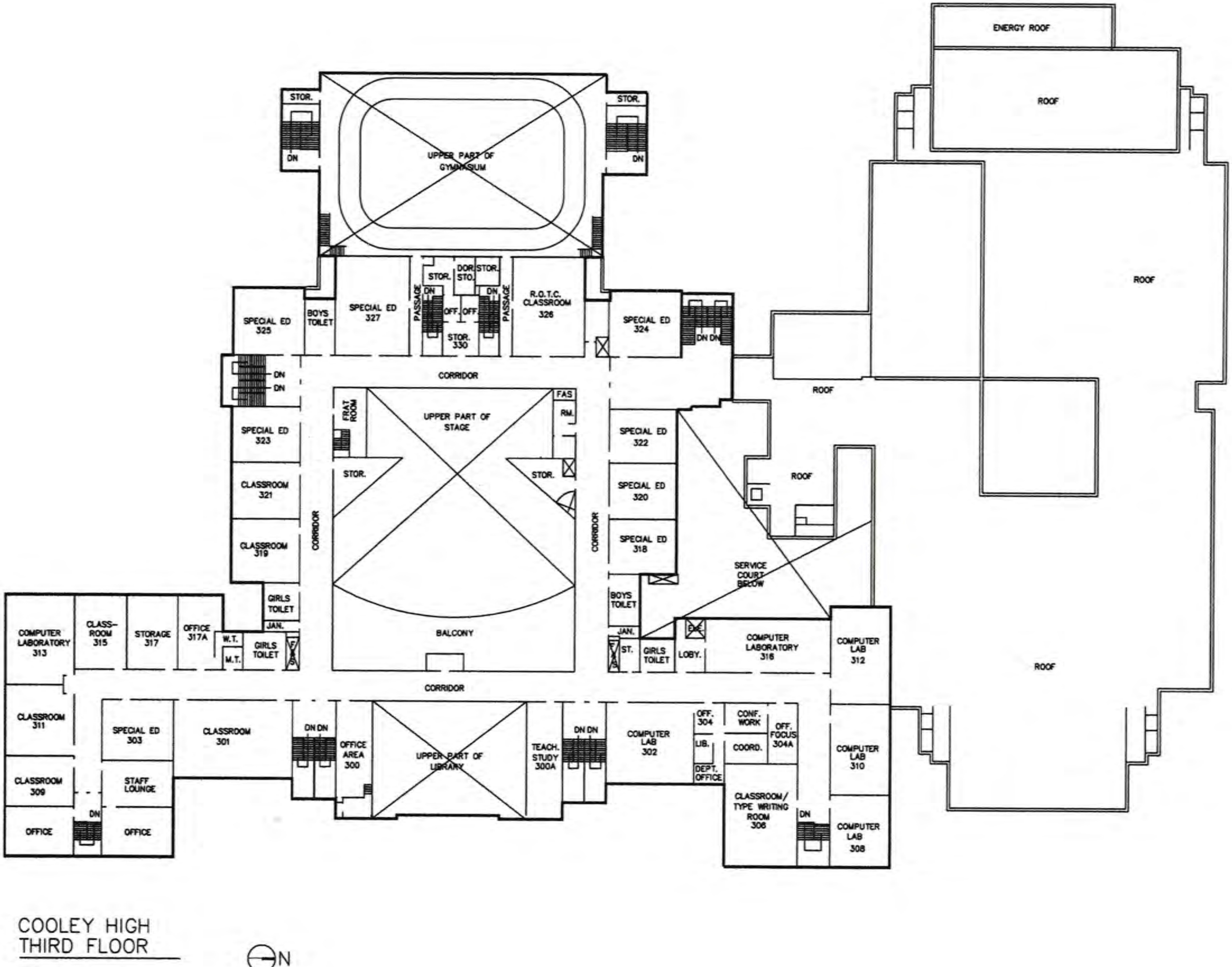
UPDATED AUGUST 2006



COOLEY HIGH
SECOND FLOOR

15055 HUBBELL STREET
NOT TO SCALE

UPDATED AUGUST 2006



COOLEY HIGH
THIRD FLOOR

15055 HUBBELL STREET
NOT TO SCALE

UPDATED AUGUST 2006

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Larned Elementary School

Basic Property Information: DPS 1-Larned-23700 Clarita

Short Name:	Larned
Address:	23700 Clarita Street Detroit, Michigan 48219
Year Built:	1953
Additions Built:	None
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	240 feet x 170 feet
Square Footage:	22,405 sq. ft.
Number of Stories:	1
Building Height:	18 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	■ Cast-in-Place Concrete ■ Structural Steel
City Council District:	1	**Exterior Wall System:**	■ Brick ■ Precast Concrete Panels ■ Storefront
SNF District:	NWGR	**Window System(s):**	■ Steel framed ■ Aluminum framed ■ Glass block
		Roofing System(s):	■ Built-Up Roof ■ Gutters ■ Internal Roof Drains

Assessment Summary

Assessment Date:	August 13, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 17, 2020
Building Risk Index:	**49.49**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,235,200
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$1,792,400
Sub-Total	$3,927,600
Contingency (25%)	$981,900
Sub-Total	$4,909,500
Overhead and Profit (15-18%):	$883,710
Sub-Total	$5,793,210
Escalation (6% for 2 years)	$347,592
Sub-Total	$6,140,802
Architectural and Engineering Design Services (20%):	$1,228,160
TOTAL COST ESTIMATE:	$7,368,963

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition, and to access the roof level. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

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BUILDING OVERVIEW

Overall

The building was constructed in 1953 and is one-story in height with an irregular floor plan. A taller wing is located in the center of the building footprint, which contains the auditorium and gymnasium.

The facades of the central and northeast wings are generally composed of brick masonry, which are constructed in running bond with a header course every six courses vertically and concrete masonry (CMU) backup. At the building perimeter, exposed aggregate finished precast panels clad the concrete beam and column structural system. Windows contain glass block infill with operable metal-framed windows within lower lites. The operable units sit within steel frames and mullions, which support the weight of the glass block infill above. The remaining facades are composed of similar materials, though brick veneer is located only near the base of the wall and the window assemblies extend between concrete columns and to the roof level, making up a majority of the facade. Storefront assemblies constructed with metal framing and cementitious panels are present at the two main building entrances on the south and west facades, and at the conservatory located on the west end of the south facade. Plexiglass has been installed over all wall fenestrations, and has been used to replace localized glass lites in some regions. The low-slope roofing consists of an internally drained, gravel-surfaced, bituminous built-up roofing system with a perimeter sheet metal fascia. A brick masonry chimney is located above roof level on the east side of the building.

The building is generally in fair condition. Localized repairs are recommended within the brick masonry veneer and precast concrete panels. The existing metal-framed windows and glass block infill are recommended for replacement. The roofing assembly exhibits deterioration, especially within the central wing, warranting replacement. Further investigation of the condition of the structure below the central wing is recommended due to the extent of moisture related deterioration observed within the building interior.

Facade

The majority of the distress observed within the facade elements is a result of prolonged water infiltration within the wall assembly and subsequent freeze-thaw damage and corrosion of embedded steel elements. Spalled brick masonry, deteriorated mortar, biological staining, and efflorescence were observed in localized areas of the central wing. These areas are often concentrated adjacent to vertical precast aggregate panels and existing downspouts, though not exclusively. The interface detailing between the precast panels and brick masonry is unknown; however, this may be a vulnerable location for moisture infiltration and the associated masonry freeze/thaw distress. Original copper flashings were observed in some roof areas; thus, it is also possible that the areas of masonry distress correlate with previously existing downspouts that were replaced during a past reroofing effort. Rehabilitation of the building should include repairs at the interface between the precast concrete accent units and brick masonry, and repair or replacement of the deteriorated roofing assembly to address potential water penetration issues, as well as repair of the localized distressed masonry elements. This would include replacement of localized cracked and spalled brick units, repointing deteriorated mortar joints, and cleaning the masonry surface.

The precast concrete panels are spalled in localized areas due to corrosion of the embedded reinforcing steel, caused by moisture penetration through cracks or joints in the panels and insufficient cover between the reinforcement and the surface of the precast panels. Weathering, severe degradation, and cohesive failure of the sealant was observed at most of the precast panel joints throughout the building. Repairs to the precast concrete panels should include removal of unsound concrete material, cleaning and coating of exposed steel reinforcement, installation of concrete patch material, and replacement of backer rod and sealant at panel joints.

The windows are currently covered with temporary protective enclosures. The enclosure fasteners penetrate glass block mortar joints and window frames, creating holes. The temporary protective enclosures also include supplemental clips mounted to the existing steel window mullions, creating additional holes. The windows within the central wing are significantly deteriorated due to the extent of water infiltration within the wall assembly, likely warranting replacement. Cracked and missing glass lites were observed at many of the window assemblies, including several glass lites that have been replaced with plexiglass. The sealant at the perimeter joints typically exhibited weathering and bond failure. Paint failure and surface corrosion of the metal frames was observed throughout. The steel frame around the lower lites support the glass block units above. Localized glass block units are cracked, including one larger area of deterioration on the north facade, which is attributed to vandalism. Replacement of the metal-framed windows without replacement of the glass block will be difficult since the glass block will require shoring during the removal of the existing windows. Restoration of the existing metal-framed and glass block windows is possible, though repairs are anticipated to be significant; thus, replacement of both the glass block units and the metal-framed windows should be considered for improved thermal performance and for a relative cost comparison.

The west storefront entrance is largely missing and will require replacement, while the main south entrance is intact though localized repairs will be required. The steel framing of the conservatory storefront assembly is significantly corroded with localized areas of section loss, the cementitious panels are damaged from prolonged moisture exposure, and the glass lites are damaged. Full removal and replacement of the conservatory assembly is recommended. The conventional exterior steel doors are typically corroded and dented, and should be replaced.

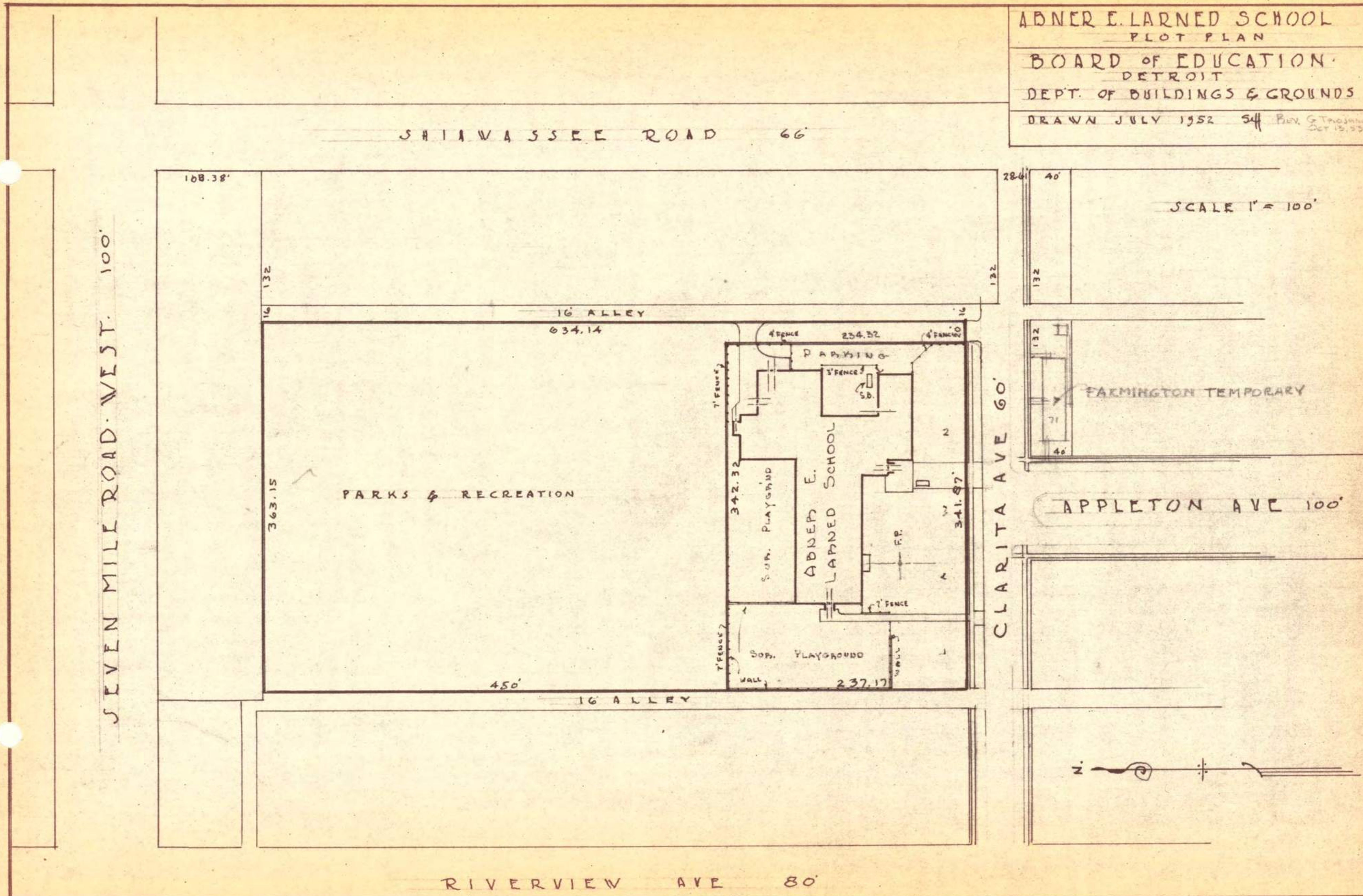
The clay brick masonry chimney contains some distress, including localized cracked brick units, debonded mortar, and minor displacement, largely resulting from corrosion of the surface-mounted steel ladder. Masonry repairs including brick replacement, repair or removal of ferrous materials, repointing, and improved cap flashing detailing are recommended to mitigate further distress.

Roofing

The low-slope roofing is in poor condition, particularly over the central wing, and is recommended for removal and replacement. Cracking and seam failures were observed throughout the roof surface with localized areas of reinforcing exposed. The edge of the roofing at the perimeter of the central wing was loose and could easily be lifted from the substrate. Evidence of water infiltration was observed from the building interior within this central wing.

Structure

WJE's assessment was limited to the building envelope. However, during our cursory building walkthrough, significant water staining and deterioration was observed within the gymnasium steel roof deck and framing located on the north end of the central wing. Rehabilitation of the building should include further investigation into the extent and structural significance of observed deterioration.


ABNER E. LARNED SCHOOL
PLOT PLAN
BOARD OF EDUCATION
DETROIT
DEPT. OF BUILDINGS & GROUNDS
DRAWN JULY 1952
SHIAWASSEE ROAD 66'
SCALE 1" = 100'
SEVEN MILE ROAD WEST 100'
16' ALLEY
634.14
234.32
PARKING
PARKS & RECREATION
363.15
342.32
341.87
ABNER E. LARNED SCHOOL
SUR. PLAYGRND
SOP. PLAYGROUND
FARMINGTON TEMPORARY
CLARITA AVE 60'
APPLETON AVE 100'
450'
237.17
16' ALLEY
RIVERVIEW AVE 80'

ABNER E. LARNED SCHOOL

FIRST FLOOR PLAN

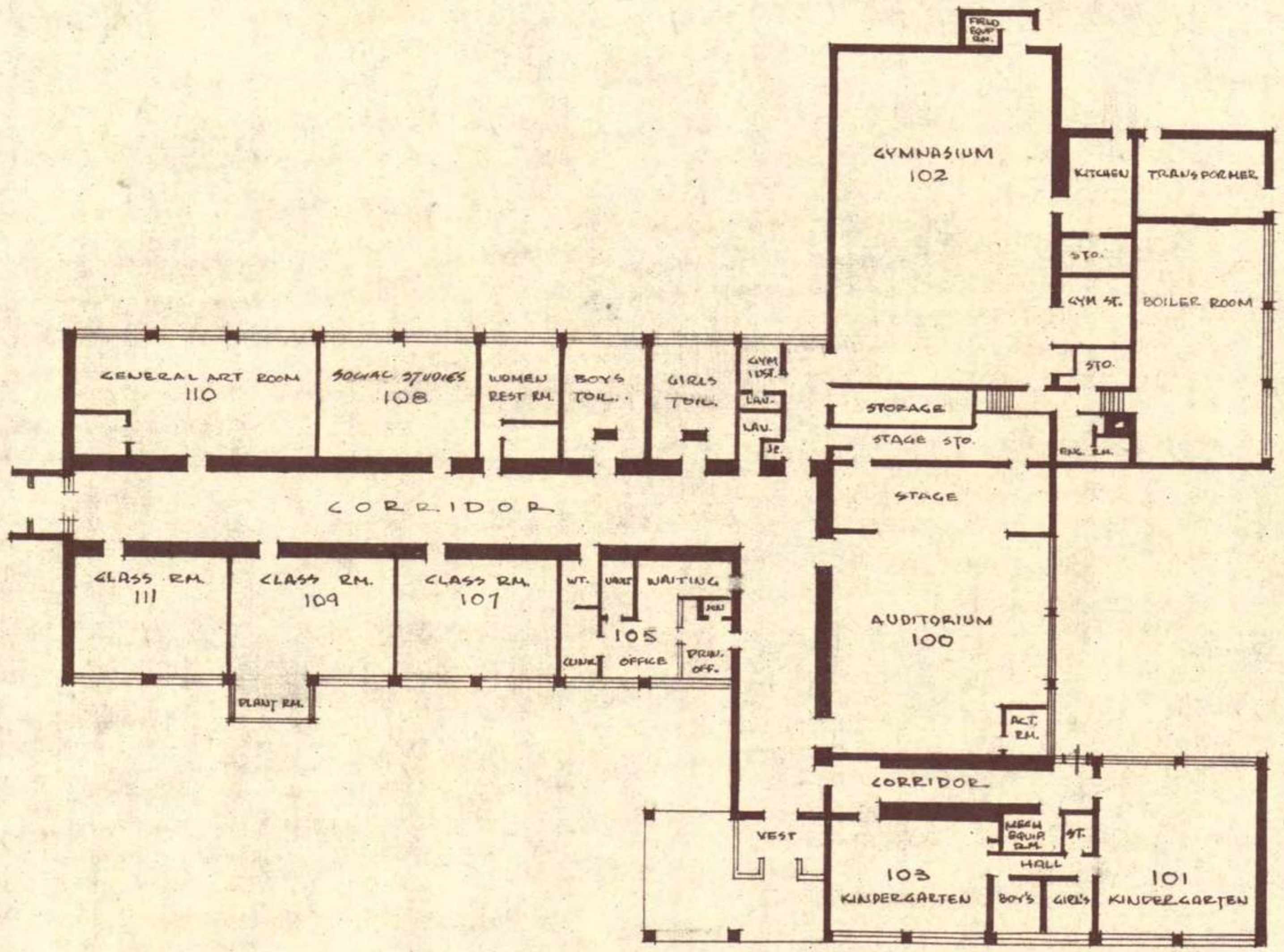
SCALE 1/32" = 1'0"

ARCHITECTURAL PLANNING DEPT.

BOARD OF EDUCATION

DETROIT, MICHIGAN

DRAWN	DATE	C'HK'ED	DATE	APP'VD	DATE
D. Chiodo	7/31/53	Lansing	8-3-53		



ABNER E. LARNED SCHOOL

BASEMENT PLAN

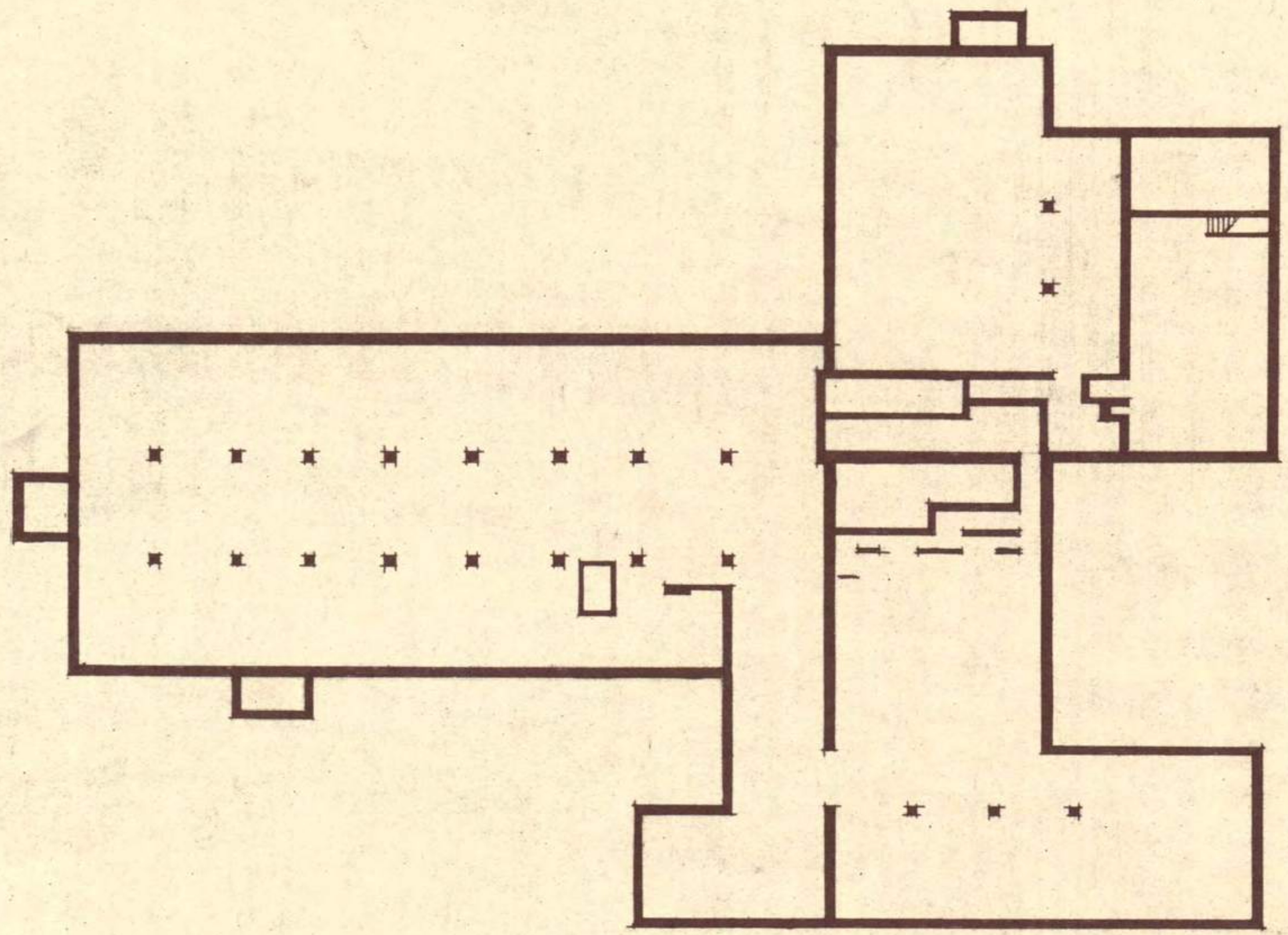
SCALE 1/32" -1'0"

ARCHITECTURAL PLANNING. DEPT.

BOARD OF EDUCATION

DETROIT, MICHIGAN

DRAWN	DATE	C'HK'ED	DATE	APP'VD	DATE
D Chiodo	7/31/53	Lansing	8-3-53		



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248.593.0900 tel
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Lodge Elementary

Basic Property Information: DPS 1-Lodge-17450 Lenore

Short Name:	Lodge
Address:	17450 Lenore Avenue Detroit, Michigan 48219
Year Built:	1950
Additions Built:	1957
Outbuildings:	Powerhouse
Year Vacated:	2009
Building Footprint:	75 feet x 155 feet
Square Footage:	21,362 sq. ft.
Number of Stories:	2
Building Height:	29 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete
City Council District:	1	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NWGR	**Window System(s):**	▪ Aluminum replacements ▪ Glass block
		Roofing System(s):	▪ Built-Up Roofing ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	August 13, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 17, 2020
Building Risk Index:	**32.85**

Cost Estimate

Base Rehabilitation Cost Estimate:	$621,700
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$1,708,960
Sub-Total	$3,230,660
Contingency (25%)	$807,665
Sub-Total	$4,038,325
Overhead and Profit (15-18%):	$726,898
Sub-Total	$4,765,223
Escalation (6% for 2 years)	$285,913
Sub-Total	$5,051,136
Architectural and Engineering Design Services (20%):	$1,010,227
TOTAL COST ESTIMATE:	$6,061,364

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition; however roof access was not obtained. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under “Risk Characterization” below. A summary of the conditions observed is provided in the “Building Overview” section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelopes. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building is rectangular in plan and was constructed in the 1950s. The building facades generally consist of clay brick masonry with concrete masonry (CMU) backup. The brick units are typically laid in a running bond with every sixth course laid in a header bond. Punched wall openings contain glass block infill with operable aluminum replacement windows within lower lites. Limestone mullions frame the lower, aluminum window units. The building entrances contain conventional steel-framed doors. The low-slope roofing was not accessed, but likely consists of an internally drained, gravel-surfaced, bituminous built-up roof based on aerial photographs. A single story, freestanding powerhouse is located to the south of the building with an adjoining chimney and is clad in similar materials as the main building.

Overall, the building is in good, serviceable condition. Repairs are recommended at the brick veneer on the west facade and at the concrete entrance canopies over the two main entrances. The roofing assembly and drainage systems require removal and replacement. Many of the aluminum replacement windows or operable sashes are missing and require replacement.

Facade

The clay brick masonry and limestone mullions that surround the lower window lites are generally in excellent condition. Mortar deterioration, water staining, and organic growth was observed within the brick veneer on the west facade, which is attributed to deterioration of the roofing and/or roof base flashings along this wall. If the source of water infiltration is not addressed in the near future, freeze-thaw cycles may cause spalling of the brick units. Once the roofing distress is addressed, deteriorated mortar materials should be repointed, and the wall surfaces should be methodically cleaned.

The exterior concrete canopies at the two main entrances are deteriorated as a result of the failed roofing assembly above the canopies. Vegetation growth was observed on the skyward canopy surfaces, the paint on the underside of the canopy was blistered and failed, and localized regions of cracked and spalled concrete were observed. A portion of the sheet metal fascia was also missing, exposing the perimeter wood nailer, which exhibited decay. Concrete repairs are anticipated in this region in conjunction with the roofing replacement work.

Most of the aluminum replacement windows on the second floor are missing. The aluminum frames on the first floor are intact, but the operable sashes are typically missing. The conservatory and stairwell windows are in good, serviceable condition. Replacement of the existing first and second floor aluminum window assemblies should be considered, though salvage and repair of the first floor windows may be possible. The glass block infill within the upper lites of the punched wall openings are enclosed by perimeter steel frames. The paint on the frames is generally peeled, exposing the factory primer and localized regions of corrosion; however they are largely in serviceable condition and can be restored with cleaning and recoating. Very few glass block units are cracked and can be repaired in-place or replaced if desired.

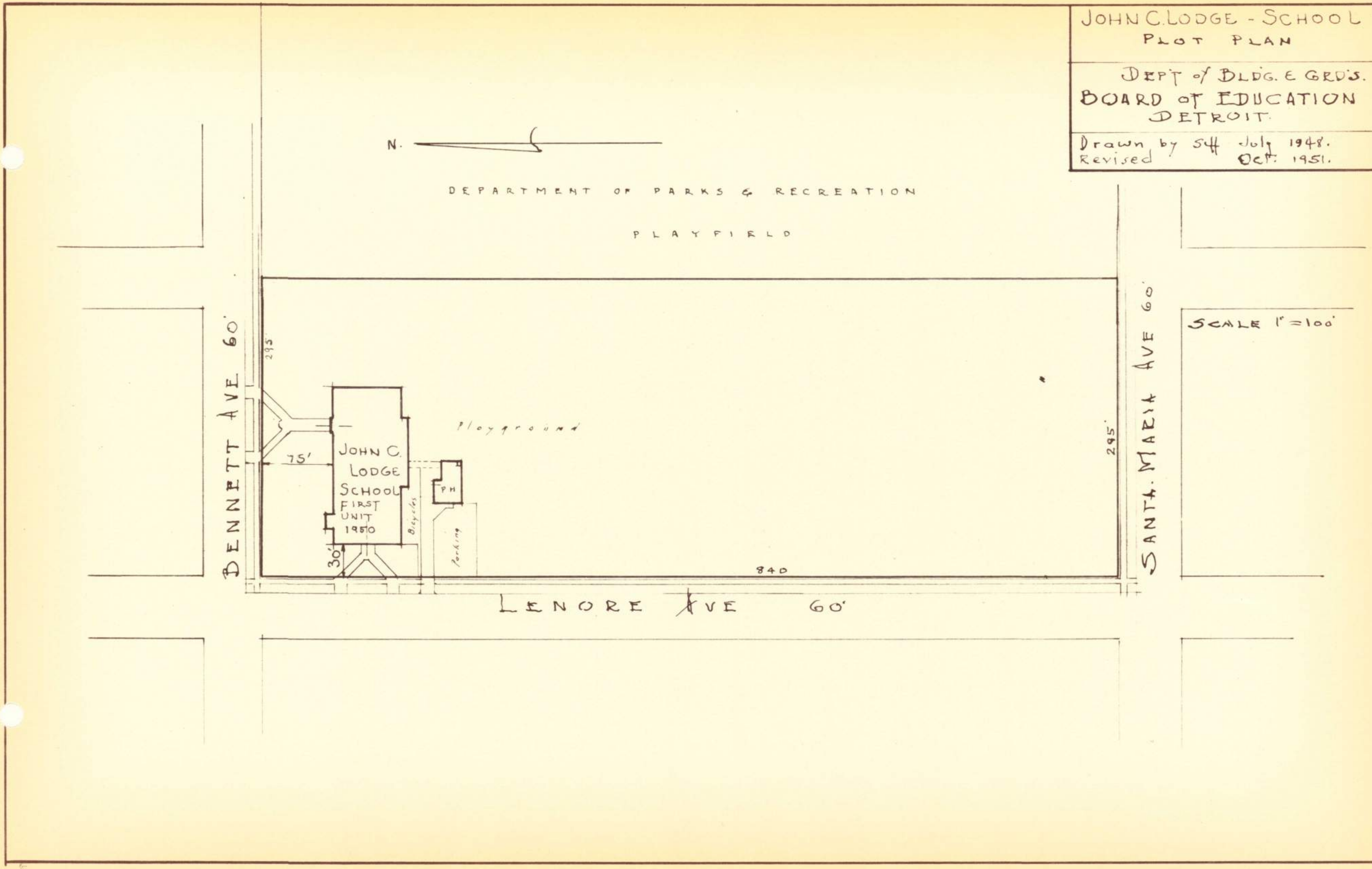
The clay brick masonry chimney contains some distress, including localized cracked brick units, debonded mortar, and minor displacement, largely resulting from corrosion of the surface-mounted steel ladder.

Masonry repairs including brick replacement, repair or removal of ferrous materials, repointing, and improved cap flashing are recommended to mitigate further distress.

Roofing

The roof level could not be accessed during WJE's assessment; however, indications of roofing deterioration and localized water infiltration were visible from grade and from the building interior at locations of damaged roof drains, damaged drain conductors, and missing and displaced rooftop mechanical units. Vegetation growth and water ponding is also readily visible from aerial photographs. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and drainage systems.

Large trees that crowd the west facade and overhang the roof level should be trimmed as part of the building rehabilitation to mitigate further organic growth and reduce roof drainage maintenance.

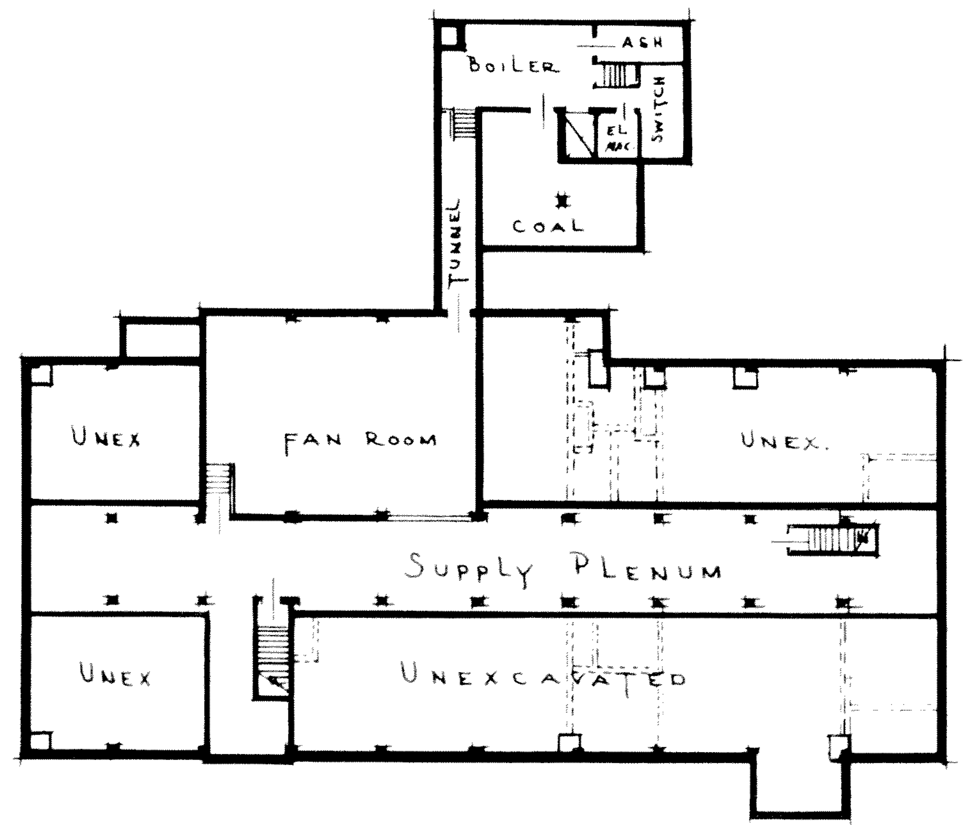

JOHN C. LODGE - SCHOOL
PLOT PLAN
DEP'T of BLDG. & GRD'S.
BOARD of EDUCATION
DETROIT
Drawn by SH July 1948.
Revised Oct. 1951.
N.
DEPARTMENT OF PARKS & RECREATION
PLAYFIELD
SCALE 1" = 100'
BENNETT AVE 60'
SANTA MARIA AVE 60'
LENORE AVE 60'
295
295'
840
75'
30'
Playground
JOHN C. LODGE SCHOOL FIRST UNIT 1950
PH
Bicycles
Parking

JOHN C. LODGE
BASEMENT PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT–MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROV'D	DATE
L C	7/27/50				

SCALE $\frac{1}{32}'' = 1'\text{-}0''$



JOHN C. LODGE
FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T
BOARD OF EDUCATION
DETROIT-MICHIGAN

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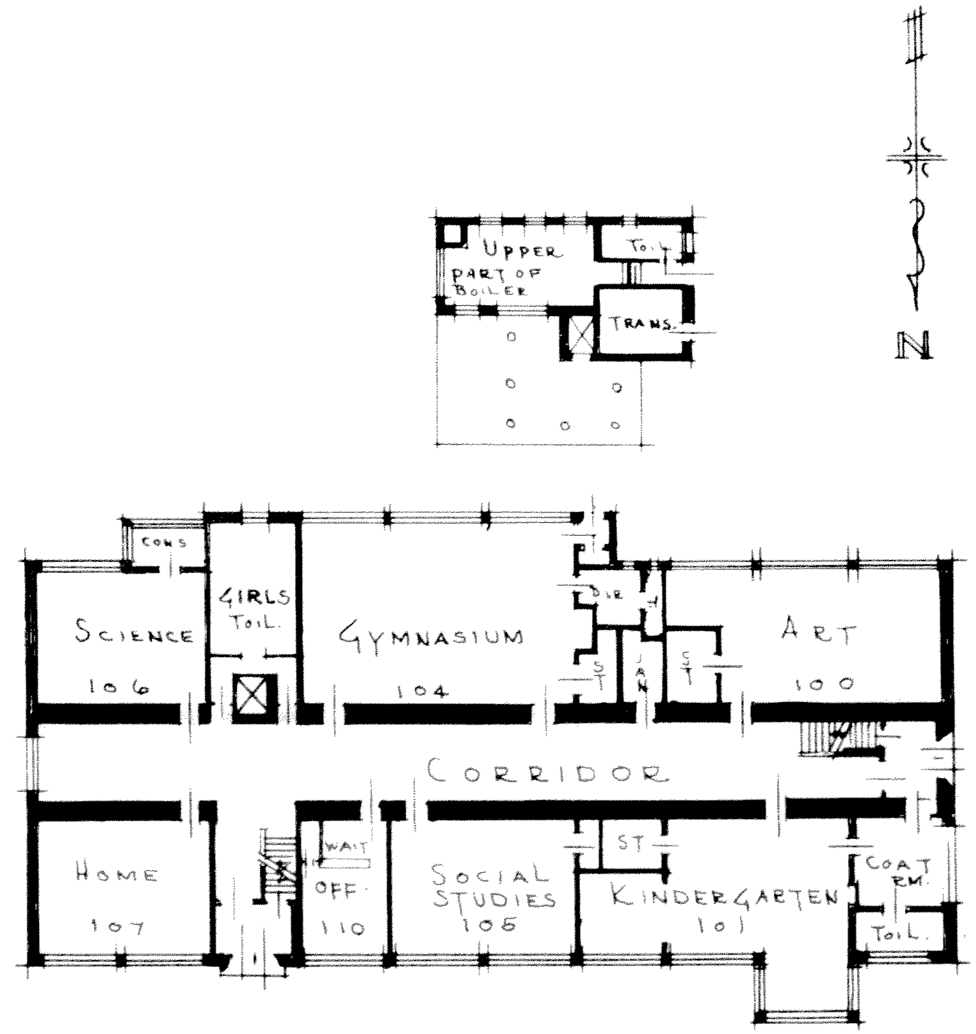

JOHN C. LODGE
SECOND FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T
BOARD OF EDUCATION
DETROIT-MICHIGAN

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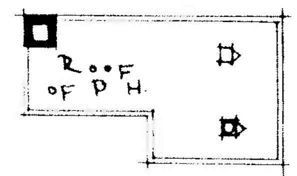

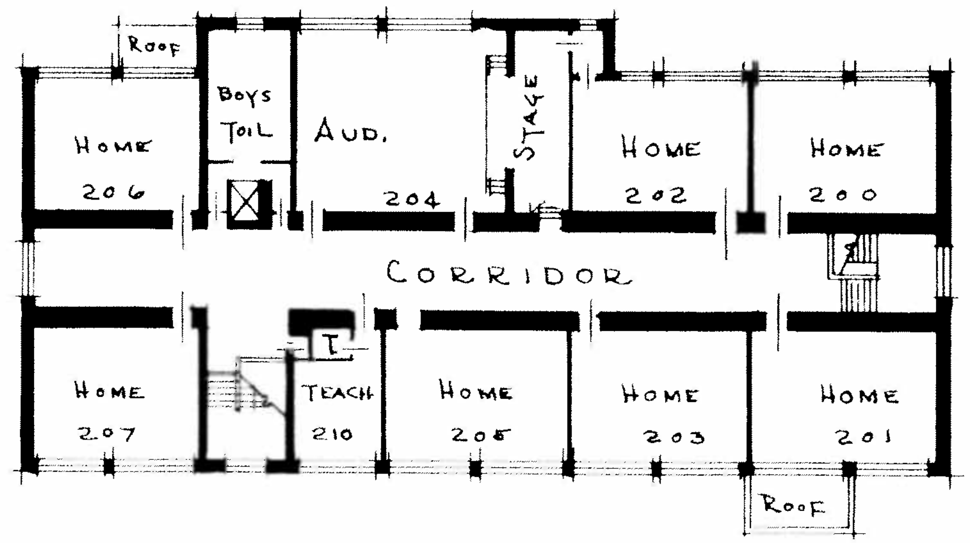

WJE

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Murphy Middle School

Basic Property Information: DPS 1-Murphy-23901 Fenkell

Short Name:	Murphy
Address:	23901 Fenkell Street Detroit, Michigan 48223
Year Built:	1963
Additions Built:	None
Outbuildings:	None
Year Vacated:	2018
Building Footprint:	390 feet x 350 feet
Square Footage:	103,826 sq. ft.
Number of Stories:	1
Building Height:	13 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Structural Steel
City Council District:	1	**Exterior Wall System:**	▪ Brick Masonry ▪ Precast Concrete Panels
SNF District:	NA	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roofing (assumed) ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	August 11, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 17, 2020
Building Risk Index:	**49.49**

Cost Estimate

Base Rehabilitation Cost Estimate:	$3,758,900
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$8,306,080
Sub-Total	$12,964,980
Contingency (25%)	$3,241,245
Sub-Total	$16,206,225
Overhead and Profit (15-18%):	$1,620,622
Sub-Total	$17,826,847
Escalation (6% for 2 years)	$1,069,610
Sub-Total	$18,896,458
Architectural and Engineering Design Services (20%):	$3,779,291
TOTAL COST ESTIMATE:	$22,675,750

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition; however roof access was not obtained. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The building is rectangular in plan and is one-story in height with double height spaces at various locations, including the gymnasium at the southwest portion of the building. Three wings extend eastward that form the east side of the building and two central courtyards are located within the middle third of the building. According to information provided by Interboro Partners following our field assessment, the school building was constructed in 1963 and operated as a Detroit Public School until 2012, at which point it housed a charter school that closed in 2018.

The building facade generally consists of clay brick masonry with concrete masonry unit (CMU) backup. The brick units are typically oriented in a running bond with header courses every six courses vertically. Precast concrete panels with exposed aggregate are located above and below some of the window assemblies on the north facade. Architectural metal panels are located above the north facade building entrances. Aluminum framed windows, aluminum framed storefronts, and steel framed doors are located within punched openings in the exterior walls. Limestone units are typically located at the main building entrance thresholds below the exterior doors. Aluminum framed windows are also present at the north facade below the sawtooth roof overhang. The low-slope roofing areas were not reviewed because the access door was locked, but appear to consist of internally drained, gravel surfaced, bituminous built-up roofing systems based on review of aerial photographs.

The building is generally in serviceable condition. Localized repairs are recommended at the brick masonry and roofing. The aluminum single pane windows may be restored in place if desired but are recommended for replacement for improved thermal performance. Further investigation of the roofs is also recommended since these areas were inaccessible during this assessment.

Facade

Cracking and spalling of brick masonry units at lintel bearings was observed at south elevation exterior entrances, likely due to corrosion of the steel lintel caused by prolonged water infiltration and failure of the existing flashing, if present. Indications of previous masonry repointing attempts are visible at these locations. Debonded mortar was observed in some of the masonry bed joints likely due to corrosion of the steel lateral reinforcement, due to water infiltration. Vertical cracking and localized masonry displacement was observed at some building corners where a steel column is embedded in the masonry wall assembly. The cracking is likely due to one or a combination of the following: corrosion of the embedded steel column; unaccommodated thermal movement between the steel framing, CMU backup, brick masonry outer wythe; and/or foundation settlement at the corner. Spalling of brick masonry units, efflorescence, and moisture staining was observed at one of the building corners on the west facade. At this area, vegetation was visible on the roof above, which may be contributing to excessive moisture penetration into the wall assembly below. Weathering, severe degradation, and cohesive failure of the sealant was observed at most of the masonry expansion joints. Rehabilitation of the building should include masonry repairs, including the replacement of localized cracked and spalled brick units, installation of flashing with a durable repair detail at the corroded lintels, grinding and repointing of deteriorated mortar joints, installation of new sealant and backer rod at the expansion joints, and rebuilding of the distressed masonry at the facade corners with appropriate movement detailing.

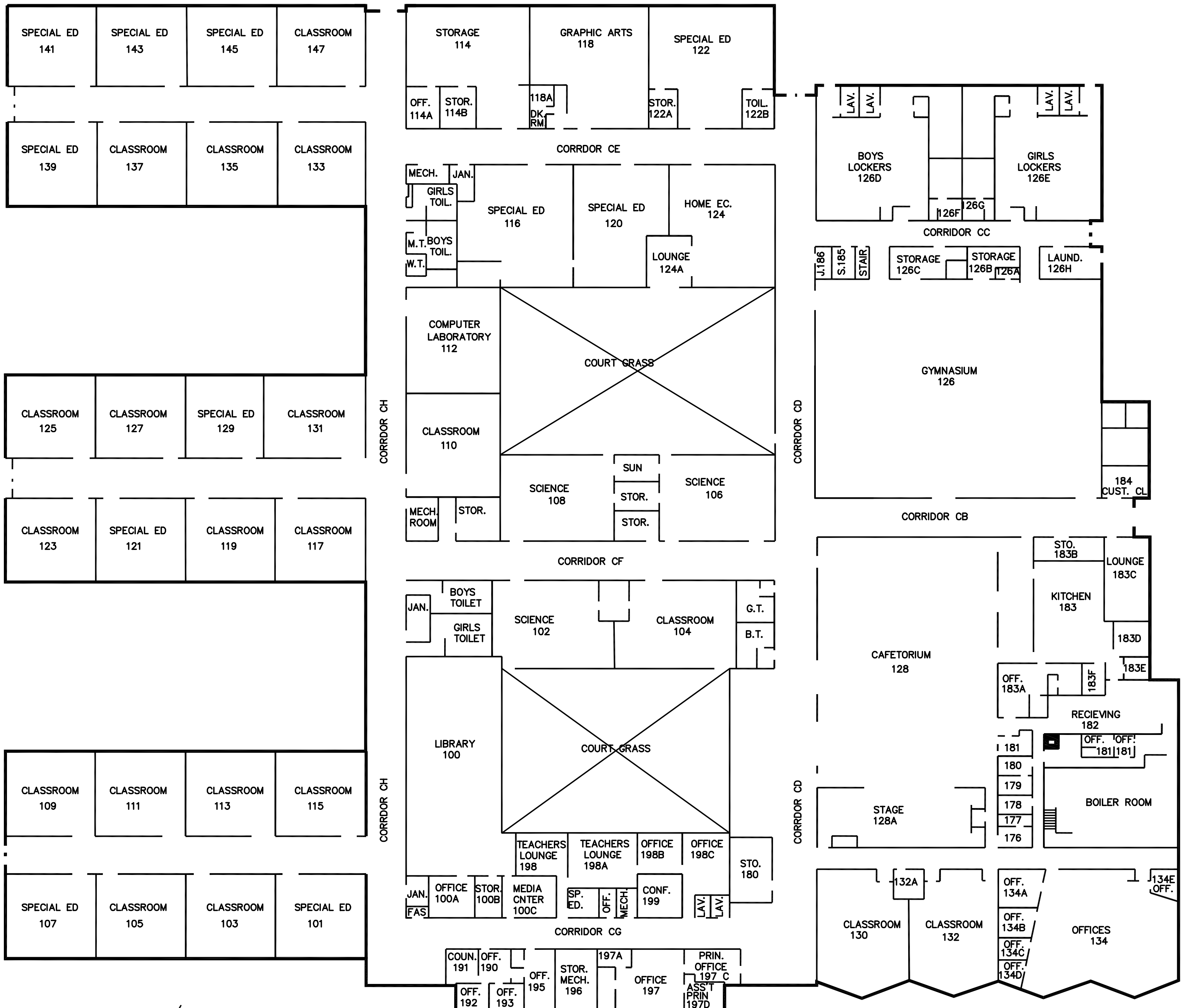
Isolated precast concrete panels at the north facade exhibited large fractures near the base of the wall due to impact, warranting replacement of the damaged panels. The panels are thin, architectural precast panels supported by steel supports; therefore, full replacement of damaged panels is necessary so that the new panels can be engaged with the existing structural supports.

Corrosion and section loss of the metal soffit panels was observed at the valley of the gymnasium sawtooth roof canopy located adjacent to the roof drains, including some of the metal panels with large holes due to the extent of corrosion. The deterioration of the soffit panels appears to be due to moisture infiltration through the roofing above, or at the roof drains or piping. It is also likely that the valleys are vulnerable to ponding if the roof drains are blocked and are not cleaned regularly. The sawtooth canopies above the primary building entrances exhibited cracking and delamination of the cementitious parge coating over the metal soffit panels. Corrosion staining was present on the remaining parge coating and the deterioration appeared to be related to moisture infiltration through the roofing above. Replacement of the soffit panels are anticipated in these regions in conjunction with the roofing replacement work.

The windows and storefront assemblies are currently covered with temporary protective enclosures; the enclosure fasteners penetrate the window framing, creating holes. Cracked and broken glass lites were observed at many of the window assemblies and the sealant at the perimeter joints typically exhibited weathering and bond failure. The exterior metal doors are typically corroded with areas of complete section loss. Additionally, the doors are barred shut and exhibit with missing or deteriorated sealant. The conventional steel doors are significantly damaged and deteriorated, requiring replacement. The windows may be restored, including replacement of cracked and broken lites and the installation of new sealant around the window perimeters and within the holes created by the fasteners, though replacement may be a cost-effective alternative for improved thermal performance.

Roofing

The roof level could not be accessed during WJE’s assessment; however, indications of roofing deterioration and localized water infiltration were visible from the building interior throughout. Dark staining was observed on the surface of ceiling tiles and the interior painted CMU walls at the northeast corners of the east building wings. Moisture related damage or other indications of water infiltration were not apparent in these locations; therefore, it is possible that the dark staining is related to increased humidity from ponded water at the clogged drains on the low points of the roofs. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and drainage systems; however, a detailed assessment of the roof when accessible is recommended to determine if localized repairs can be performed in lieu of complete replacement.



MURPHY ES/MS
FIRST FLOOR

23901 FENKELL STREET
NOT TO SCALE

N

UPDATED JULY 2006

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Vetal Elementary

Basic Property Information: DPS 1-Vetal-14200 Westwood

Short Name:	Vetal
Address:	14200 Westwood Street Detroit, Michigan 48223
Year Built:	1926
Additions Built:	1930, 1942, 1948, 1953, unknown
Outbuildings:	None
Year Vacated:	2011
Building Footprint:	285 feet x 165 feet
Square Footage:	63,348 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Unknown
City Council District:	1	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone ▪ Cast Stone
SNF District:	NWGR	**Window System(s):**	▪ Metal ▪ Glass block
		Roofing System(s):	▪ Built-Up Roof (assumed) ▪ Asphalt Shingle ▪ Gutters ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	August 11, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 17, 2020
Building Risk Index:	**34.77**

Cost Estimate

Base Rehabilitation Cost Estimate:	$661,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,067,840
Sub-Total	$6,629,340
Contingency (25%)	$1,657,335
Sub-Total	$8,286,675
Overhead and Profit (15-18%):	$1,243,001
Sub-Total	$9,529,676
Escalation (6% for 2 years)	$571,780
Sub-Total	$10,101,456
Architectural and Engineering Design Services (20%):	$2,020,291
TOTAL COST ESTIMATE:	$12,121,748

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did not access the interior of the building, as the building doors were locked. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed in 1926 with additions constructed in 1930, 1942, 1948, and 1953. The date of construction for the most recent one-story addition at the south end of the building is unknown. The facade generally consists of clay brick masonry with limestone copings, horizontal bands, entrance surrounds, window sills, and window heads. Cast stone is located at the chimney horizontal band. The brick masonry units are typically oriented in a running bond with a header course every seven courses vertically. Punched wall openings generally contain glass block infill with operable windows within lower lites. Limestone mullions frame the lower window units which consist of either steel- or aluminum-framed windows. The building entrances include steel and wood doors within steel frames.

The building interior and roof level were not accessed during this assessment because the building exterior doors were locked. The low-slope roof appears to consist of a gravel-surfaced, bituminous built-up roofing system based on review of aerial photographs. The steep-slope gable roof at the south addition is covered with asphalt shingles. The low-slope roof areas are internally drained and the gable roof slopes to perimeter gutters and downspouts.

Overall, the building is in fair, serviceable condition. Masonry and stone repairs are recommended throughout the facade. The window assemblies and doors require replacement. The roofing assembly and drainage systems should be further assessed to determine the extent of repairs.

Facade

Cracking and displacement of the brick masonry was observed at window heads due to corrosion of the steel lintel caused by prolonged water infiltration. At many of the window heads, severe corrosion and deflection of the steel lintels was noted. Repairs should include removal and replacement of the brick masonry, cleaning and painting of embedded steel lintels or replacement if steel exhibits severe deflection and/or section loss, and installation of through-wall flashing.

Partial height expansion joints were observed at the ends of the parapet on all facades of the two-story building. The vertical joints were typically noted between original brick masonry and wall areas that were previously rebuilt. Weathering, severe degradation, and cohesive failure of the sealant within the expansion joints was observed, and some of the expansion joints ended in the field of the wall instead of continuing the full height of the wall. Removal of the existing sealant and installation of new sealant and backer rod at the expansion joints is recommended. In addition, we recommend extending partial height expansion joints, which should include sawcutting the existing brick masonry and installing new sealant and backer rod, to maintain a consistent expansion joint at the full height of the wall.

Brick masonry spalling was observed at the top two courses of the north parapet within the south courtyard area. The spalling was observed directly below the parapet copings and is attributed to prolonged moisture penetration into the masonry wall assembly. At the north parapet within the north courtyard, cracked and debonded mortar was observed, with a large bed joint caused by upward movement of the parapet. Removal and replacement of spalled brick masonry units and further investigation of the parapet is recommended to verify the cause of distress and develop appropriate repair details.

Cracks and spalls where observed at the limestone mullions, sill, and heads, which typically propagate from corroded anchors at locations of existing or previously removed barricades. Bond separation and erosion of the mortar at many stone coping and sill bed joints was also observed. Some coping units on the north facade are missing or exhibit spalling. Cracks and spalls were observed at the cast stone band at approximately mid-height of the chimney. Repair or replacement of the distressed limestone and cast stone elements, as well as repointing deteriorated mortar joints, is recommended to mitigate further distress.

The conservatory steel framing is corroded with localized areas exhibiting complete section loss. The windows are generally missing. Cracking and spalling of limestone sill units and spalling of brick masonry was observed at the wall areas below the conservatory windows. The conservatory walls may be restored in-place, though replacement of the window assembly above the masonry may be a cost-effective option in lieu of restoration.

The windows are currently covered with temporary protective enclosures and the enclosure fasteners penetrate the window framing, as well as the joints between the glass blocks, creating holes. The existing aluminum and steel framed single-pane windows are significantly deteriorated with cracked and missing glass lites, corroded steel surfaces, and failed perimeter sealant. These windows are recommended for replacement due to the extent of distress and for improved thermal performance. The glass block infill within the window openings is typically enclosed by steel framing at the perimeter. Peeling paint and corrosion was observed on the steel frames; however, the steel frames and glass block appear to be in serviceable condition and can be restored with cleaning and recoating the steel surfaces and replacement of localized broken glass block units.

The steel framed doors in place are typically corroded, dented, and the protective enclosure bars penetrate the doors, rendering them inoperable and warranting replacement. The wood doors are severely decayed with localized areas of complete rot, warranting replacement.

Roofing

The roof level and building interior could not be accessed during the assessment. Organic growth, areas of deteriorated flashing, and damaged gutters were observed at the lower roofs and first floor addition from grade. Masonry distress including spalled masonry at the parapets and failure of the mortar near the roof deck level appear to be related to issues with the roof. However, obvious signs of distress were not visible from aerial photographs or within the first floor as viewed from the exterior windows. Further investigation of the roofing assembly is required, though at minimum, localized maintenance-type repairs should be anticipated to prolong the service life of the existing roof assembly.

PETER VETAL SCHOOL
PLOT PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT MICHIGAN

Drawn by	oct 24/30	Revised 1-31-69. SCH
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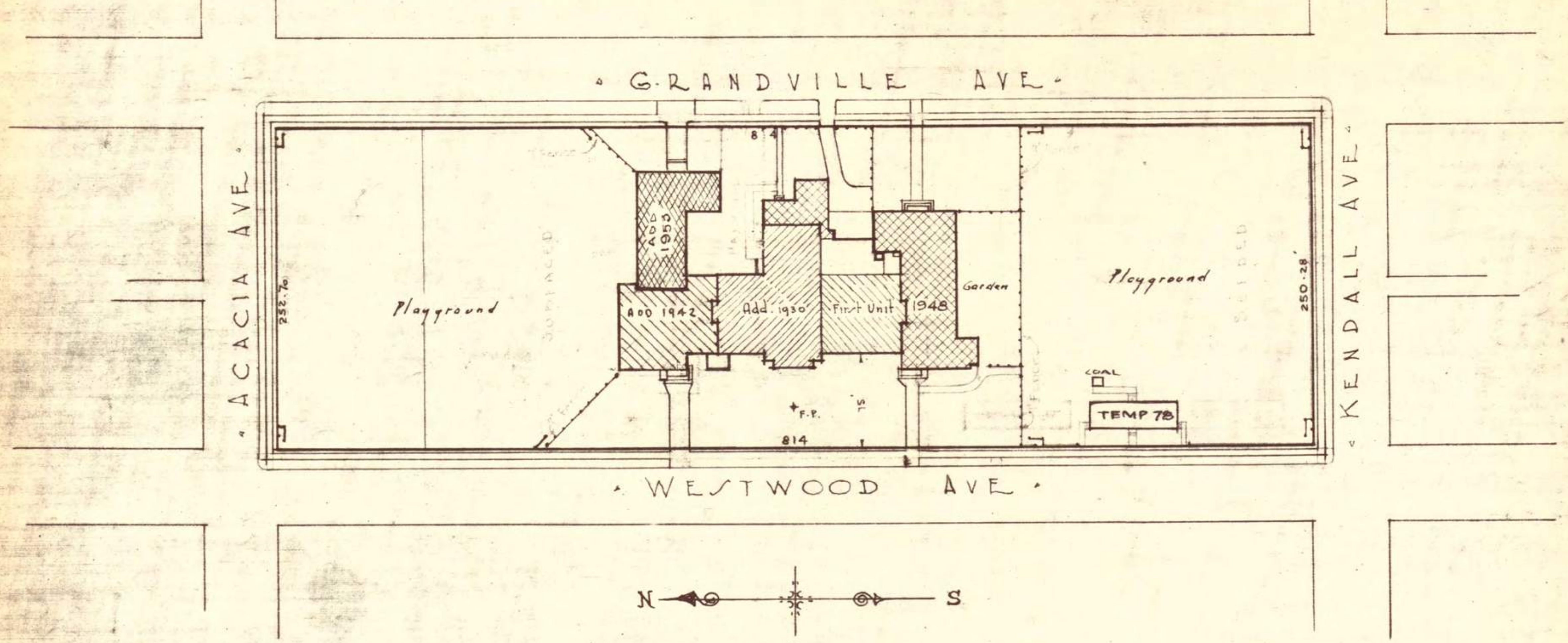


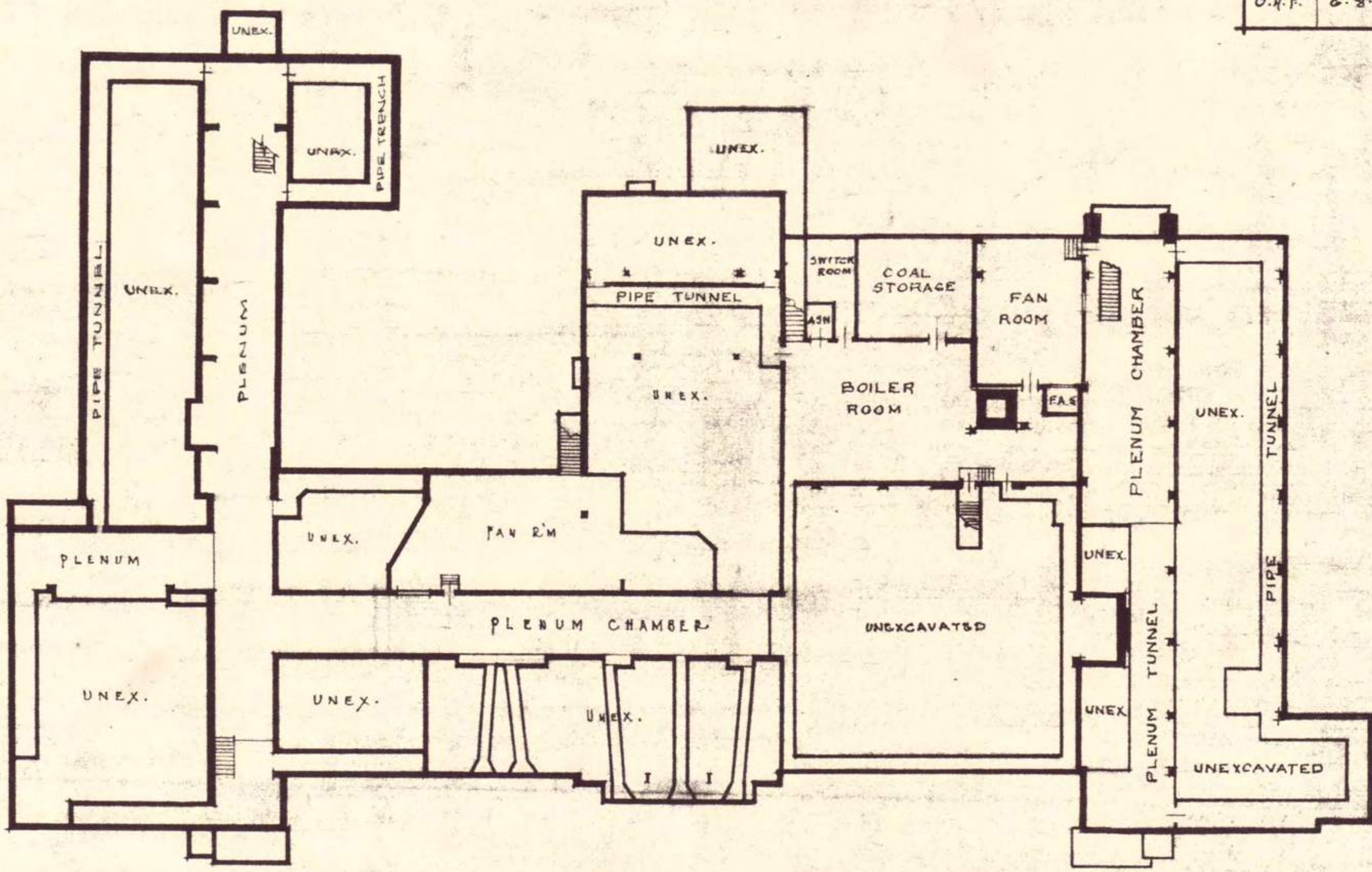
Scale 1" equals 100'

PETER VETAL SCHOOL

ARCHITECTURAL PLANNING DEP'T.
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.R.F.	6-3-26	G.L.L.	6-14-26		

Rev 7-16-53 Chiodo



BASEMENT PLAN
SCALE 1/32" = 1'0"

PETER VETAL SCHOOL

ARCHITECTURAL PLANNING DEP'T
BOARD of EDUCATION
DETROIT, MICHIGAN

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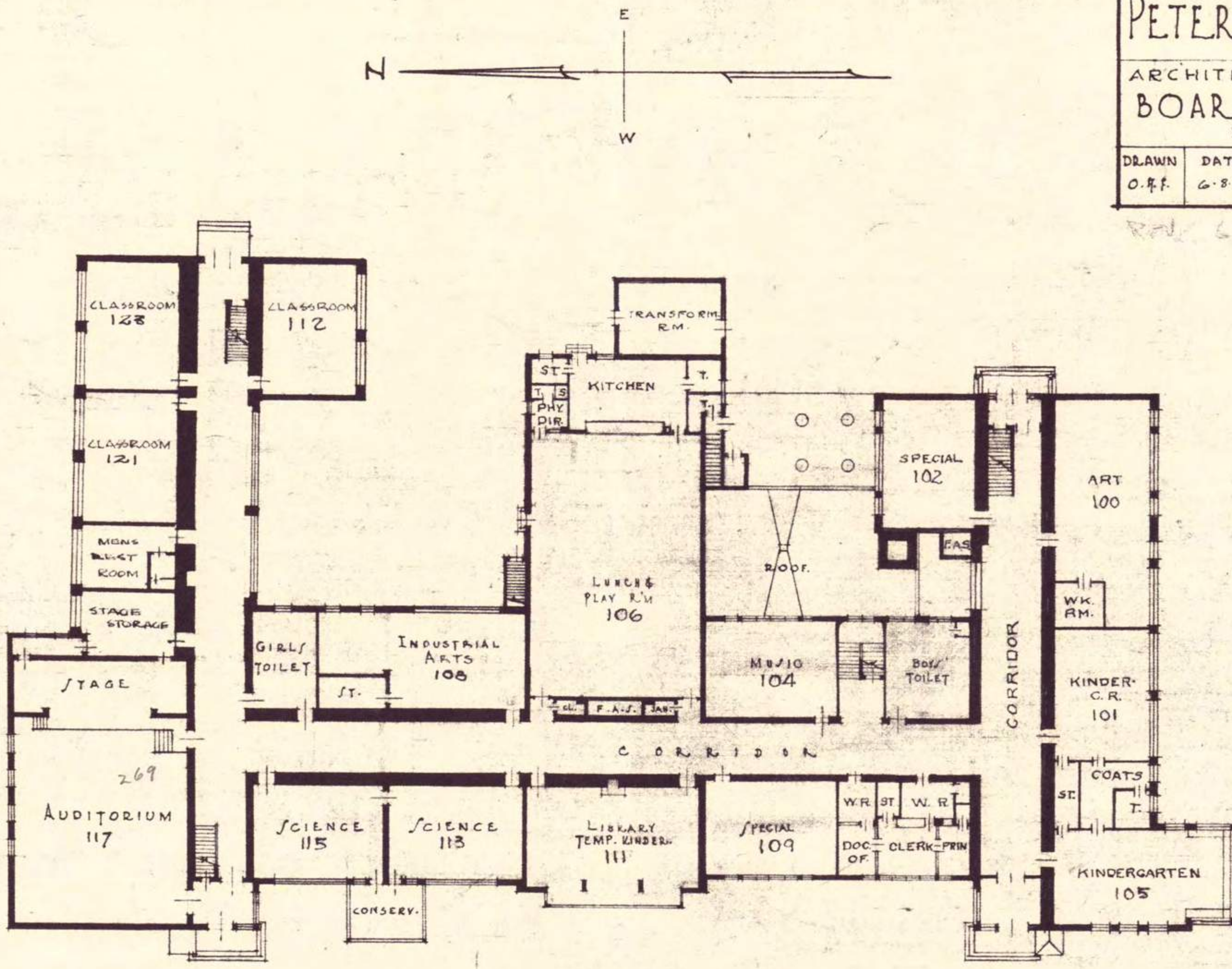

FIRST FLOOR PLAN
SCALE 1/32" = 1'-0"

PETER VETAL SCHOOL

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BOARD of EDUCATION
DETROIT, MICHIGAN

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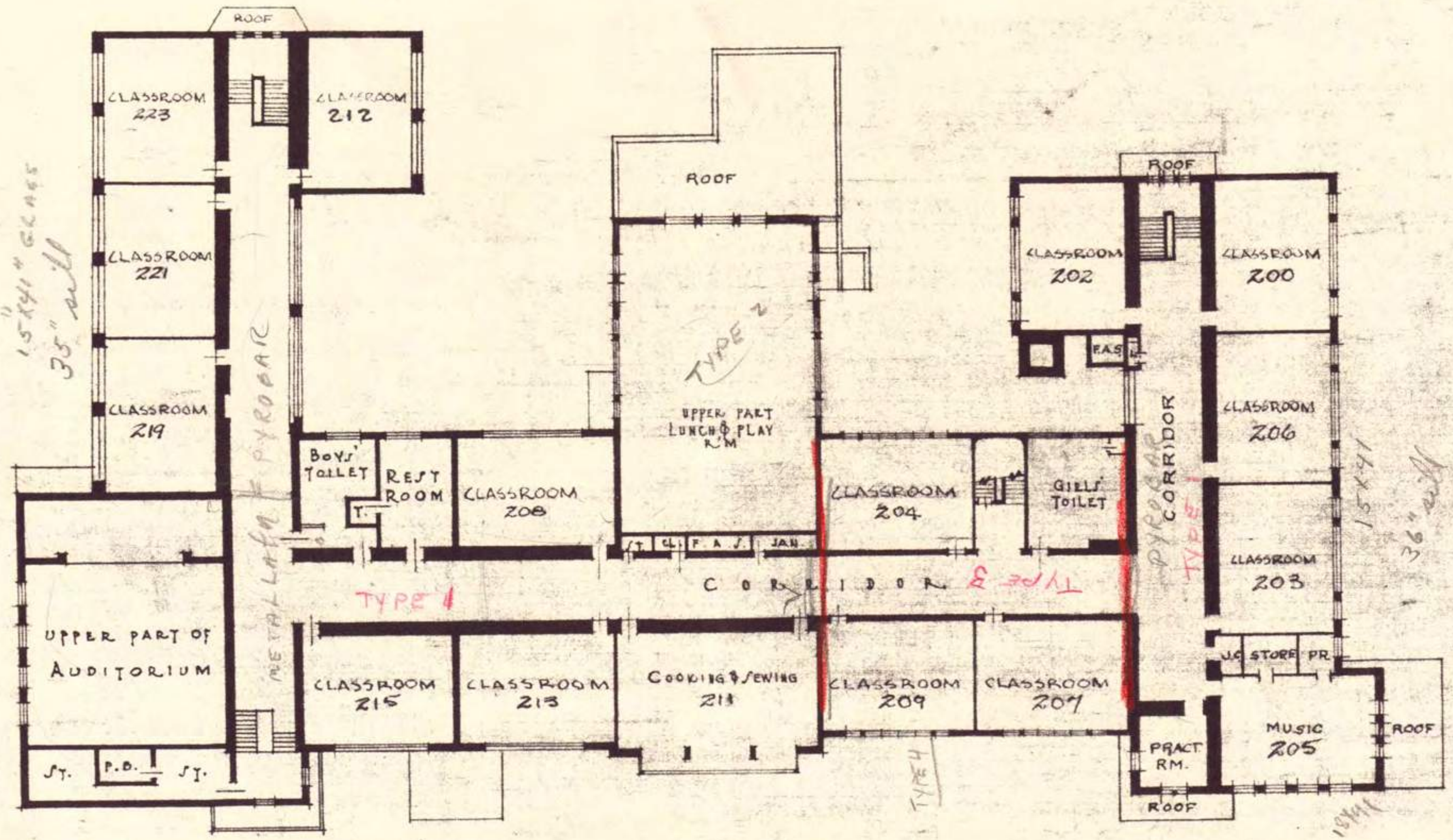

SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"

PETER VETAL SCHOOL

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BOARD of EDUCATION
DETROIT, MICHIGAN

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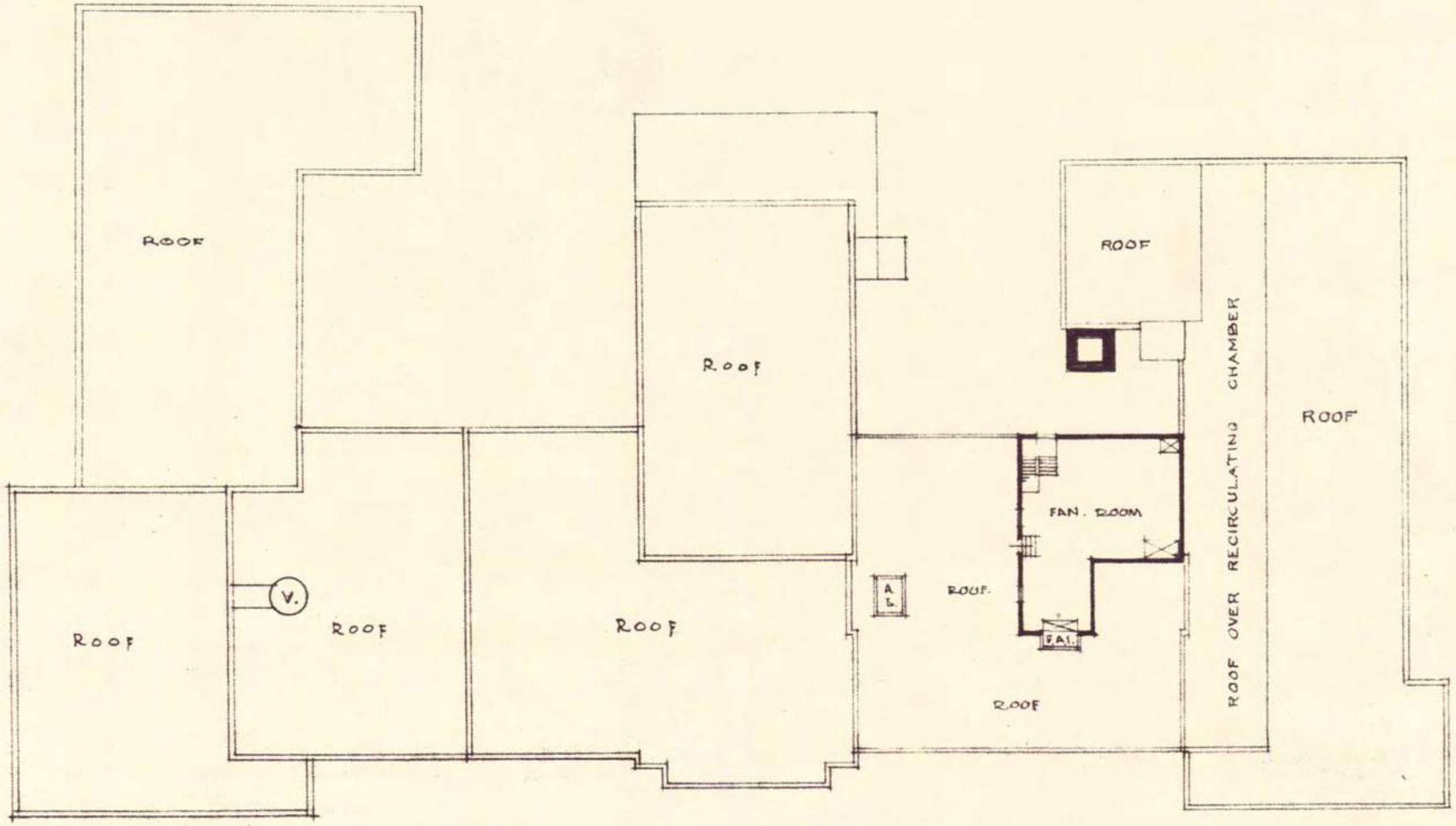

ROOF PLAN
SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
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248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Yost Academy

Basic Property Information: DPS 1-Yost-16161 Winston

Short Name:	Yost
Address:	16161 Winston Street Detroit, Michigan 48219
Year Built:	1925
Additions Built:	1961
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	280 feet x 210 feet
Square Footage:	32,716 sq. ft.
Number of Stories:	1
Building Height:	18 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ CMU Masonry ▪ Structural Steel
City Council District:	1	**Exterior Wall System:**	▪ Cast Stone ▪ Brick ▪ Metal Panels
SNF District:	NWGR	**Window System(s):**	▪ Wood ▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	August 13, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 19, 2020
Building Risk Index:	**65.54**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,955,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,617,280
Sub-Total	$5,472,280
Contingency (25%)	$1,368,070
Sub-Total	$6,840,350
Overhead and Profit (15-18%):	$1,026,052
Sub-Total	$7,866,402
Escalation (6% for 2 years)	$471,984
Sub-Total	$8,338,386
Architectural and Engineering Design Services (20%):	$1,667,677
TOTAL COST ESTIMATE:	$10,006,063

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The single-story building consists of a small original building constructed in 1925 and a large addition constructed in 1961. The original building is generally rectangular in plan and is located at the southwest wing of the current building layout. The addition extends to the north and east of the original building. An attached powerhouse is located on the southeast wing, creating a "U" shaped footprint of the current building layout.

The original building facade consists of brick masonry exterior walls with cast stone detailing and clay tile coping. Original wood windows are present on the west facade, while aluminum replacement windows have been set in the original wood frames elsewhere. The low-slope roof structure consists of dimension lumber framing. The interior finishes are generally in good condition.

The 1961 building addition is clad in clay brick masonry with header units every six courses and concrete masonry (CMU) back-up. Single-pane aluminum ribbon windows are present along the facades with sheet metal sill flashings and trim. All windows are covered with clear protective coverings. Painted panels are located directly above the windows and doors. The roof structure consists of metal roof deck spanning between open web steel joists which are supported by steel girders and columns located along the perimeter and corridor walls. The roof structure extends beyond the exterior building walls in several regions, creating an overhang, with painted exterior steel framing and Tectum soffit panels.

The roofing of both building areas appears to consist of a gravel surfaced, internally drained, built-up roofing assembly (BUR). Two BUR assemblies may be present based on our observations. The roof deck over the addition likely consist of lightweight insulated concrete infill on the metal deck. A large steel antenna is located on southeast wing of the 1961 addition roof.

Overall, the building is generally in fair condition. Isolated masonry repairs are required throughout the facades. The painted panels above the windows and doors should be repaired or replaced, and the soffit materials at the roof overhangs should be replaced. The roofing over the original building portion appears to be in good, serviceable condition. The roofing over the 1961 building addition is in poor condition, resulting in deterioration of the structural roof deck and interior spaces below. Structural repairs to the 1961 roof decking are anticipated and further investigation is recommended. The exposed steel framing should be cleaned, repaired if necessary, and painted. The original wood windows, single-pane aluminum windows, and metal doors require replacement, though the aluminum replacement windows may be repaired in-place. Further detail is provided below.

Facade

The masonry facades are in serviceable condition. Minor cracking and displacement of the brick masonry was observed at window heads within the original building due to corrosion of the steel lintels caused by prolonged water infiltration. Repairs should include removal and replacement of the brick masonry, cleaning and painting of embedded steel lintels, and installation of through-wall flashing. Debonded mortar and step cracks were also observed in isolated locations throughout the facade warranting repointing repairs. Isolated clay tile coping units on the original 1920s building are missing, exposing the masonry wall to moisture penetration; some of the units were observed on the grade to be cracked and broken. Replacement of the missing coping units is recommended to mitigate further distress.

Cast stone units are distressed on the projected bay within the courtyard of the original building, which is attributed to moisture penetration into the wall assembly. The mortar at the joints is eroded and debonded and a head unit is cracked and spalled where corroded steel reinforcement is exposed. Additionally, there are isolated spalls and minor crazing cracks caused by cyclical freeze-thaw damage in the cast stone. Repair or replacement of the distressed cast stone elements, as well as repointing deteriorated mortar joints, is recommended to mitigate further distress. Cast stone units with crazing cracks may be monitored for continued distress in lieu of replacement, provided that the source(s) of water penetration within the wall assembly have been addressed.

Tectum soffit panels are missing or exhibit significant water damaged in several regions. This material is not appropriate for exterior use in a northern climate zone. Several panels have been replaced with sheet-metal, which are typically corroded. The distress to the tectum panels and sheet-metal panels is attributed to deterioration of the roofing above and subsequent water infiltration within the roof assembly. We recommend replacement of all soffit materials with an alternative material in coordination with roofing work.

The paint on the exposed steel framing at the roof overhangs has peeled and flaked, and localized corrosion has occurred, particularly in regions where the framing intersects the brick veneer. We recommend cleaning and painting of the exposed steel and removal and rebuilding of the brick veneer at the wall interface to clean and coat the concealed steel elements.

The painted panels above the windows and doors currently consist of painted sheet metal, painted cement board or synthetic stucco, and painted plywood coverings. The paint is generally peeled and flaked, the perimeter sealant is failed, and the panels contain dents and holes. Replacement of the panels should be considered for budgetary purposes, though near-term repair of the existing materials is possible.

The brick masonry of the chimney exhibits localized cracks and eroded mortar. We recommend grinding and repointing the mortar joints within the upper three feet of the chimney and performing crack repairs at the localized vertical cracks.

The original wood framed windows within the west facade of the original building are in poor condition with severe decay and damage and cannot be salvaged. We recommend replacement of the wood-framed window assemblies with aesthetically similar system. The aluminum replacement windows within the east facade of the original building are generally in serviceable condition with localized distress. The majority of distress is located within the aluminum caps that cover the original wood frames on the exterior, including dented and displaced caps and weathered and debonded perimeter sealant. The aluminum sashes are in serviceable condition with only one unit containing cracked glass. The windows can be restored in place, including replacement of the aluminum caps and cracked glass lite.

The single-pane aluminum window assemblies within the 1961 addition are currently covered with temporary protective enclosures; the enclosure fasteners penetrate the window framing, creating holes. Cracked and broken glass lites were observed at many of the window assemblies, and in some locations, plexiglass has been installed within the window frames in lieu of glass lites. Localized corrosion was observed on the frames, and the sealant at the perimeter joints typically exhibited weathering and bond failure. Due to the age of these window assemblies and the observed deterioration and damage, we recommend replacing the 1961 window assemblies with a new system with improved thermal performance.

The building entrances consist of aluminum and steel doors, which contain localized distress including weathered and debonded sealant, corrosion, cracked and missing glass, dents, and missing hardware. Protective enclosure bars used to secure the building penetrate the doors, creating holes. The original wood door frame at the south entrance of the original building is decayed and the paint is peeled and flaked throughout. The doors should be considered for replacement, though restoration may be possible at some locations.

Roofing

The roof levels could not be accessed during the assessment. However, the roofing assemblies were viewed from grade, select areas of the building interior, and aerial images.

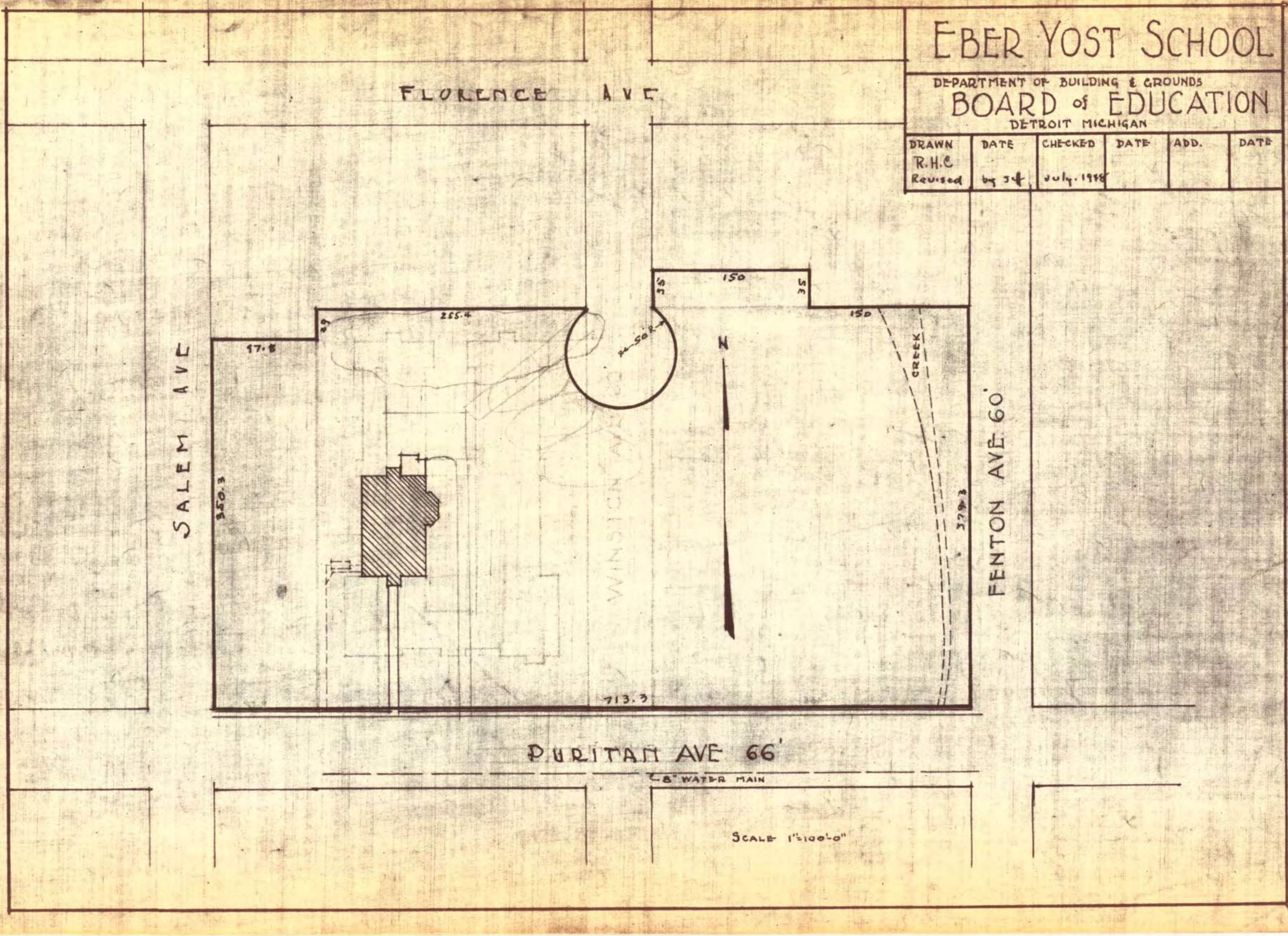
The roofing assembly over the original building appeared in serviceable condition and interior spaces remain dry. Based on the limited observed distress, minor maintenance-type repairs are anticipated in isolated areas to extend the service life of the existing roof assembly.

The roofing assembly over the 1961 addition is in poor condition. Evidence of significant water infiltration was observed within the exterior overhangs and building interior, including corroded areas of the roof structure and decking. Deterioration of the cementitious fill atop the metal roof deck, likely lightweight insulating concrete, was also visible in isolated regions, particularly near the roof perimeter, internal drains, and rooftop mechanical units. Eroded and spalled cementitious material was observed in isolated regions, as well as white-colored deposits and stalactites at the decking seams. Isolated areas of roofing deterioration and ponding water are visible from aerial images, and regions of displaced flashing and organic growth were visible from grade. We recommend removal and replacement of the roofing, drains, and drain conductors within the 1960s addition. The steel antenna on the roof surface will need to be considered during the roofing work, if it is to remain.

Structure

WJE's assessment was limited to the building envelope; however, WJE made the following additional observations of structural conditions in the course of assessing the building enclosure elements.

The metal roof decking is significantly corroded on underside in localized areas, notably near roof drains and rooftop mechanical units on the interior of the building and at areas of deteriorated or missing soffit panels at the exterior. Spot corrosion is occurring on the open web steel joists and steel framing. Further investigation is required to determine the severity and extent of observed distress. For budgetary purposes, and based on extent of observed distress, the roof deck should be considered for complete removal and replacement down to the open web steel joists and structural steel framing in conjunction with the roofing replacement work, although localized reinforcement or replacement of the metal deck may be possible in lieu of complete replacement. The joists and framing should be cleaned, painted, and repaired as needed.


EBER YOST SCHOOL
DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN
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CHECKED
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FLORENCE AVE
SALEM AVE
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PURITAN AVE 66'
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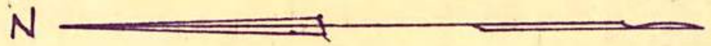

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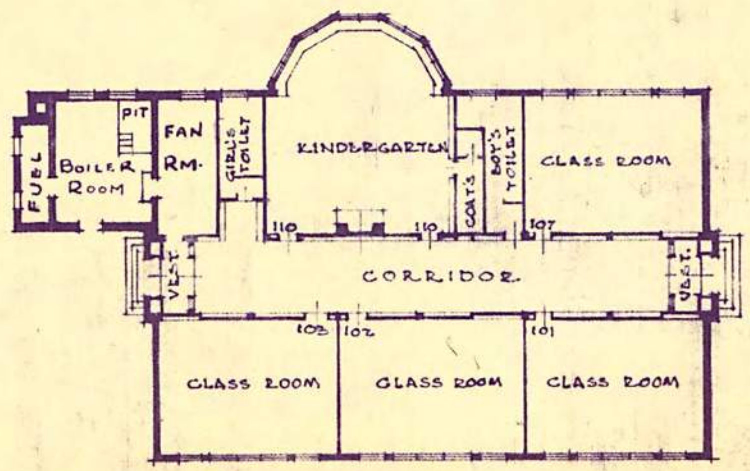
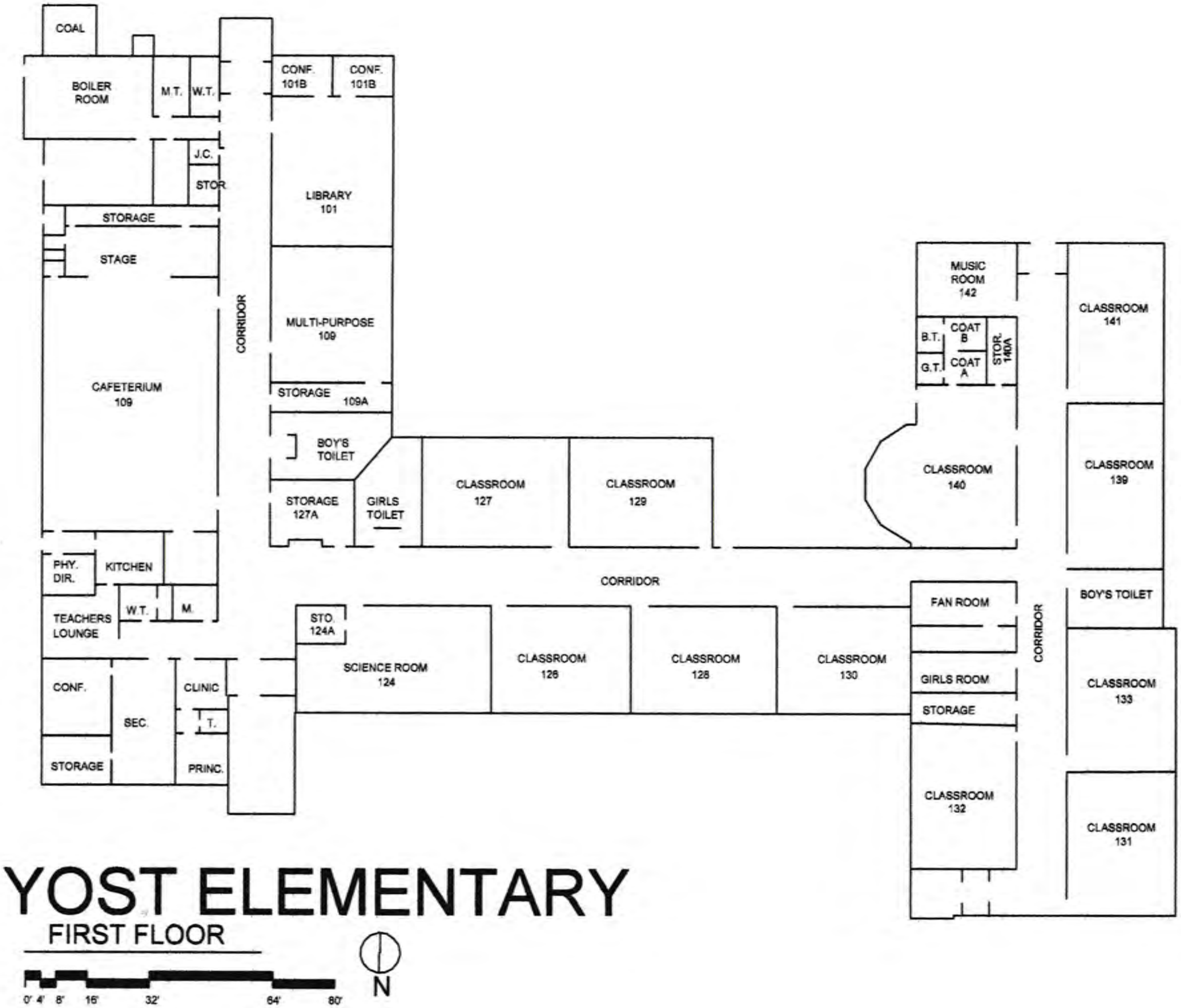


FIRST FLOOR PLAN

SCALE 1/32" = 1'-0"



YOST ELEMENTARY

FIRST FLOOR

SCHOOL CODE : 394

District 2

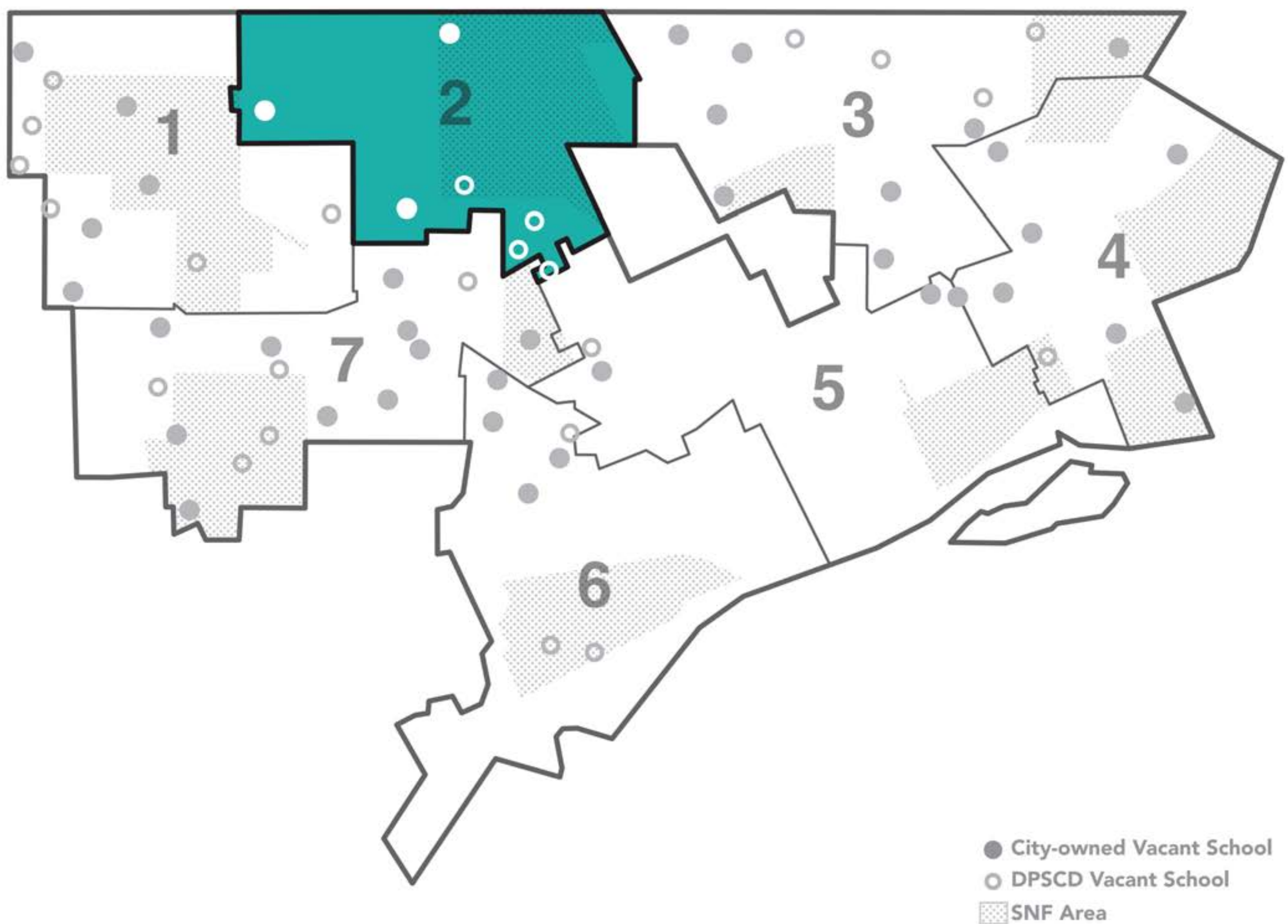
City of Detroit Schools:

Bethune
Coffey
Higginbotham

DPSCD Schools:

Hancock
Post
Robeson
Stewart

Detroit
City Council District 2



Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Bethune Elementary/Middle School

Basic Property Information: COD 2-Bethune-10763 Fenkell

Short Name:	Bethune
Address:	10763 Fenkell Street, Detroit, Michigan 48238
Year Built:	1922
Additions Built:	1925, 1929, 1931
Outbuildings:	Powerhouse
Year Vacated:	2010
Building Footprint:	145 feet x 265 feet
Square Footage:	67,586 sq. ft.
Number of Stories:	2
Building Height:	32 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	2	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Cast stone
SNF District:	NA	**Window System(s):**	▪ Aluminum ▪ Wood
		Roofing System(s):	▪ Built-up Roof ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	February 20, 2020
WJE Inspector(s):	Sarah Rush; Cheryl Early
Report Date:	October 26, 2020
Building Risk Index:	**71.89**

Cost Estimate

Base Rehabilitation Cost Estimate:	$2,505,800
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,406,880
Sub-Total	$8,812,680
Contingency (25%):	$2,203,170
Sub-Total	$11,015,850
Overhead and Profit (15-18%):	$1,101,585
Sub-Total	$12,117,435
Escalation (6% for 2 years)	$727,046
Sub-Total	$12,844,481
Architectural and Engineering Design Services (20%):	$2,568,896
TOTAL COST ESTIMATE:	$15,413,377

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the main building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelopes from grade and lower roof levels, using binoculars as needed. Upper roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the buildings, including areas of the basement that were not flooded. Limited access to the attic was obtained near the roof hatches. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems to view in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation

projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

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- Floor Plans (included with this report)
- Environmental Reports

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- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

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BUILDING OVERVIEW

Overall

The original two-story building was of a nearly square footprint. An addition in 1930 extended the building to the south from the western end of the south facade of the original building. A year later, another addition extended the remaining portions of the south facade to the south while creating a central courtyard space between the original and additions. A powerhouse was also constructed with the last addition and is connected to the main building at the basement level.

The facade generally consists of multi-wythe clay brick masonry with concrete block masonry (CMU) and clay brick masonry backup. Limestone and cast stone masonry accents frame the entrances, window sills, coping, and horizontal bands, with cast stone elements largely concentrated within the original 1922 building area. Clay tile copings are present at some of the upper roof levels not visible from grade. The building entrances consist of wood surrounds and transoms with replacement metal door inserts. The windows generally consist of original wood framing with aluminum covers, and sashes that have generally been replaced with aluminum inserts. Similar facade elements are present within the walls facing an interior courtyard. The low-slope roofing consists of an internally drained, bituminous built-up roofing (BUR) system with flood coat and granular cap sheet base flashing.

The structures of the original building and the three later additions consist of a concrete beam and column system with load bearing masonry walls in select locations. Depending upon location in the building, the floor and roof structures consist of concrete tee joist-slab construction formed with stay-in-place clay tile and concrete masonry. Masonry elements include multiwythe brick, clay tile and brick composite walls, gypsum block, and CMU walls with brick veneer, depending upon location within the building. The roof structure is sloped to internal drains and is in good condition. A large steel-framed skylight in the roof of the gymnasium space provides ample light into this large space.

A freestanding powerhouse is present on the south end of the property and is accessible from the basement spaces of the main building. The powerhouse has a similar limestone and brick masonry facade with metal doors and steel-framed windows. A brick masonry chimney adjoins the powerhouse.

In generally, the buildings are in serviceable condition with the majority of observed distress resulting from water infiltration due to damage at the copings and deterioration of the internal drains. Failed and missing roof drains and missing mechanical roof vents are allowing a significant amount of water to collect within localized areas of the building interior. On the north end of the building, roof drains are positioned within the exterior walls and have failed, resulting in significant distress within the surrounding masonry. Some of the limestone and clay tile copings have been removed and are damaged, with fractured pieces generally sitting on lower roof levels or grade; these conditions are attributed to vandalism. Repair of the roofing and drains are critical elements to maintain the sound condition of the existing structure. Windows and doors require replacement. Further assessment of the structure is required of the central northern classrooms and the classrooms located directly south of the central courtyard. Further detail of the observed distress is provided below.

Facade

The facade is generally in fair condition. Minor localized cracking and mortar erosion within the brick and stone units was observed and is attributed to water infiltration and corrosion of the embedded steel elements. Previous masonry repairs have been performed at the building, including flashing repairs, rebuilding localized areas of masonry, and replacing localized cast stone units with limestone. These past repairs are generally in good condition, though one rebuilt brick area on the south facade has re-cracked and is outwardly displaced. Brick at the exterior face of the parapets is showing signs of distress, including mortar deterioration and brick spalling, which may be caused by deterioration of the copings or roofing terminations. Rehabilitation should include repair of these distressed masonry and steel support elements to mitigate further distress within the wall assembly and building interior.

Significant masonry deterioration is located near the entrance on the north facade of the original 1922 construction. On this facade, roof drains are positioned within the exterior walls and are failed, resulting in significant distress to the surrounding masonry cladding and infill. The observed distress includes spalling of brick and cast stone units surrounding the building entrance, mortar erosion, efflorescence and water staining, and sheets of ice on the wall surfaces. Rehabilitation should include significant masonry repairs within this region.

Some of the limestone and clay tile copings have been removed and are damaged, with fractured pieces generally laying on lower roof levels or grade. Portions of the brick masonry parapet at these locations are also missing or damaged. Removal of these units has been attributed to vandalism to access the copper flashing elements located below. In some areas where the flashing has been removed, the roofing membrane is pulled away from the masonry substrate, exposing the wall cavity and building interior to water infiltration. In areas where the fractured pieces of stone are currently laying on the lower roof levels, the roofing membrane is typically damaged, likely due to punctures caused by the falling stone material. Rehabilitation should include replacement of the missing coping units and parapet repairs.

The majority of the windows are missing or damaged with missing sashes, displaced frames, decay, and broken glass. The wood surrounds and transoms at the exterior doors contain significant distress including fractured and decayed elements, decay, and paint failure. The metal doors within these wood surrounds are typically corroded near their bases. Rehabilitation of the building should include replacement of the window and door assemblies, and replacement or restoration of the wood surrounds.

Roofing

The upper low-slope roof levels were not accessed due to safety concerns with the roof access ladders. However, the lower roof level on the south end of the building and over the north entrance could be viewed from the building interior. Where visible, the roofing assemblies were significantly deteriorated with cracking, seam failure, organic growth, and ponded water. Failed and missing roof drains and missing mechanical roof vents are allowing a significant amount of water to collect within localized areas of the building interior, including select corridors, classrooms, and the gymnasium. Several mechanical rooftop vent hoods are currently located within the interior courtyard. Rehabilitation of the building should include replacement of the existing roof assemblies, internal drains, drain pipes, and mechanical systems as appropriate.

Structure

The interior plaster, wood, vinyl composite tile and ceiling finishes are deteriorating, although they are still intact in portions of the building and can be matched or replicated if desired. Generally, the condition of finishes is indicative of the condition of the structural elements behind. Overall, the structural systems are in good condition.

Glass is broken and missing in the skylight in the gymnasium allowing rain and snow to collect on the gymnasium wood floor. In addition, the roof drains located at the center steel roof truss bearings at the east and west walls of the gymnasium are damaged and are allowing significant water infiltration into the gymnasium. During our assessment we observed icing of the adjacent wood roof deck, masonry walls and wood flooring directly below these drains. The water infiltration has resulted in corrosion of the steel roof framing, which requires cleaning, assessment and recoating. After further assessment, it may be determined that the wood roof deck requires localized replacement in the vicinity of the drains, and the brick masonry wall may require partial reconstruction.

Concrete deterioration is present at the north entry and at each room on either side of the north entryway. The brick masonry exposed at the north wall on either side of the north entry doors is heavily iced. The concrete and masonry deterioration observed is related to significant water infiltration from the roofing and facade systems. Steel reinforcing is exposed on the underside of the second-floor joists in the northern classrooms, but this may be related to low concrete cover during original construction more than distress/spalling caused by the water infiltration observed in this area. Similar concrete distress is present at the classrooms located immediately south of the central courtyard. Localized partial depth concrete repairs will be required of the second-floor structure in these areas. Rebuilding of the masonry at the exterior wall at either side of the entryway may be preferred considering the extent of observed distress observed on both the interior and exterior surfaces of this wall.

The second-floor corridor ceiling is composed of gypsum planks spanning between structural steel members. Spot corrosion is present on the visible surface of the structural steel members. The gypsum plank is exposed, visually saturated, cracked and eroded in several locations, deeming the attic and roof levels unsafe for access. Once saturated, gypsum planks are typically not salvageable, therefore the second-floor corridor ceiling is recommended to be replaced with a new attic floor structural system.

Powerhouse

The exterior cast stone and brick masonry facade and roofing contained similar distress to the main building. The paint on the original steel-framed windows has failed and the steel frame is corroded. The glazed tile interior walls are in good condition excepting water staining near the tops of the walls.

The roof structure is a board-formed concrete joist-slab system that is in good condition except at the north and south masonry bearing walls, where steel reinforcement is exposed on the underside of the slab. Ice and water infiltration, efflorescence, and concrete deterioration was observed in a corner of the powerhouse basement level. These sections of the roof slab and basement wall corner should be further assessed for partial depth concrete repairs; full depth replacement of the roof deck may be required in these areas.

Miscellaneous

In many of the non-structural walls separating classroom spaces, perpendicular to the exterior walls, there is vertical or diagonal cracking within the length of the wall. Previous repairs have been attempted at some of the cracks. The cracking may be related to volumetric changes of the materials or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated if these walls are to remain with potential new use of the spaces.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

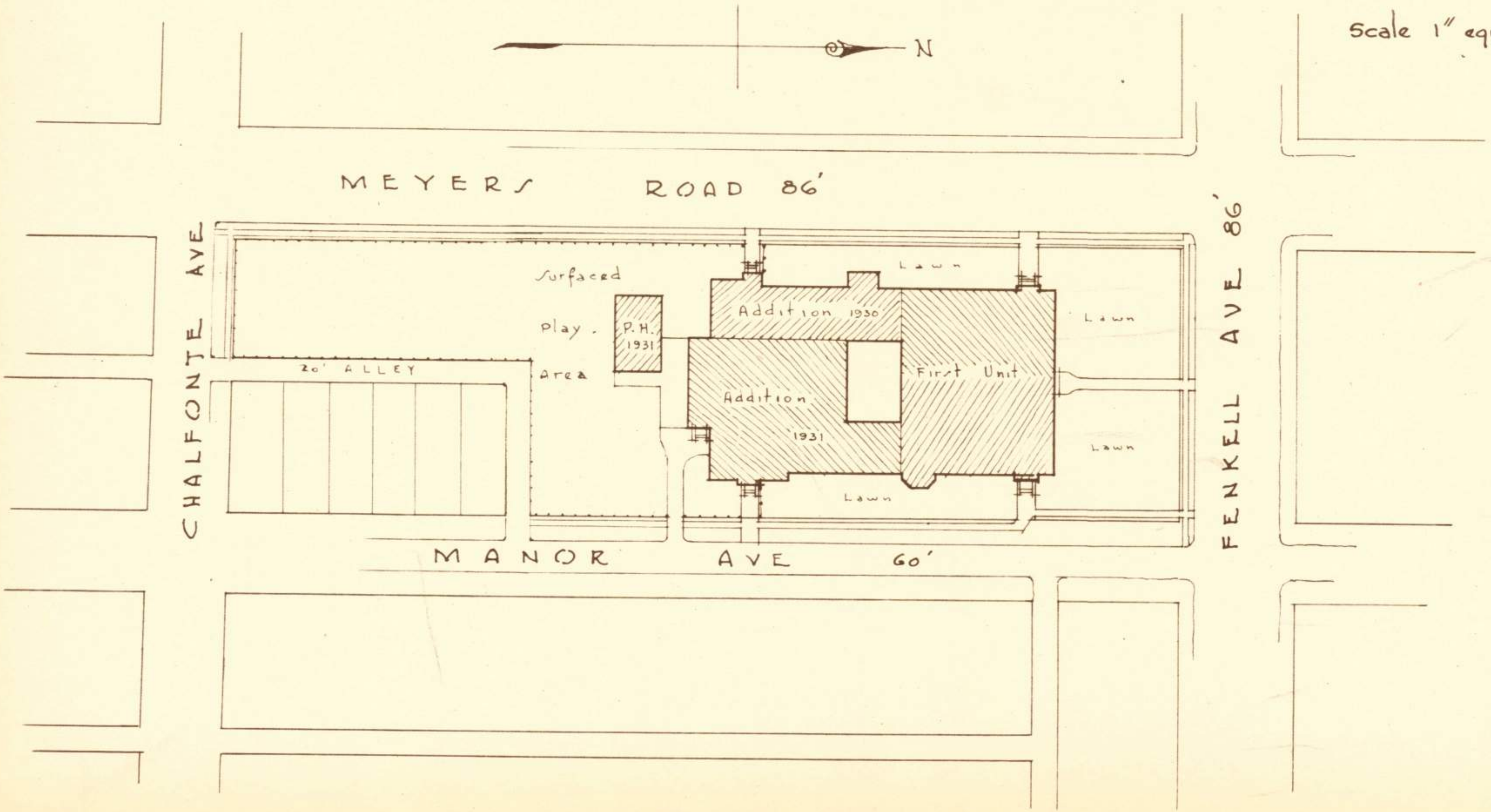
EDGAR GUEST SCHOOL
- PLOT PLAN -

DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT MICHIGAN

Drawn by LM March 15-32.

3.00 Acres.

Scale 1" equals 100'

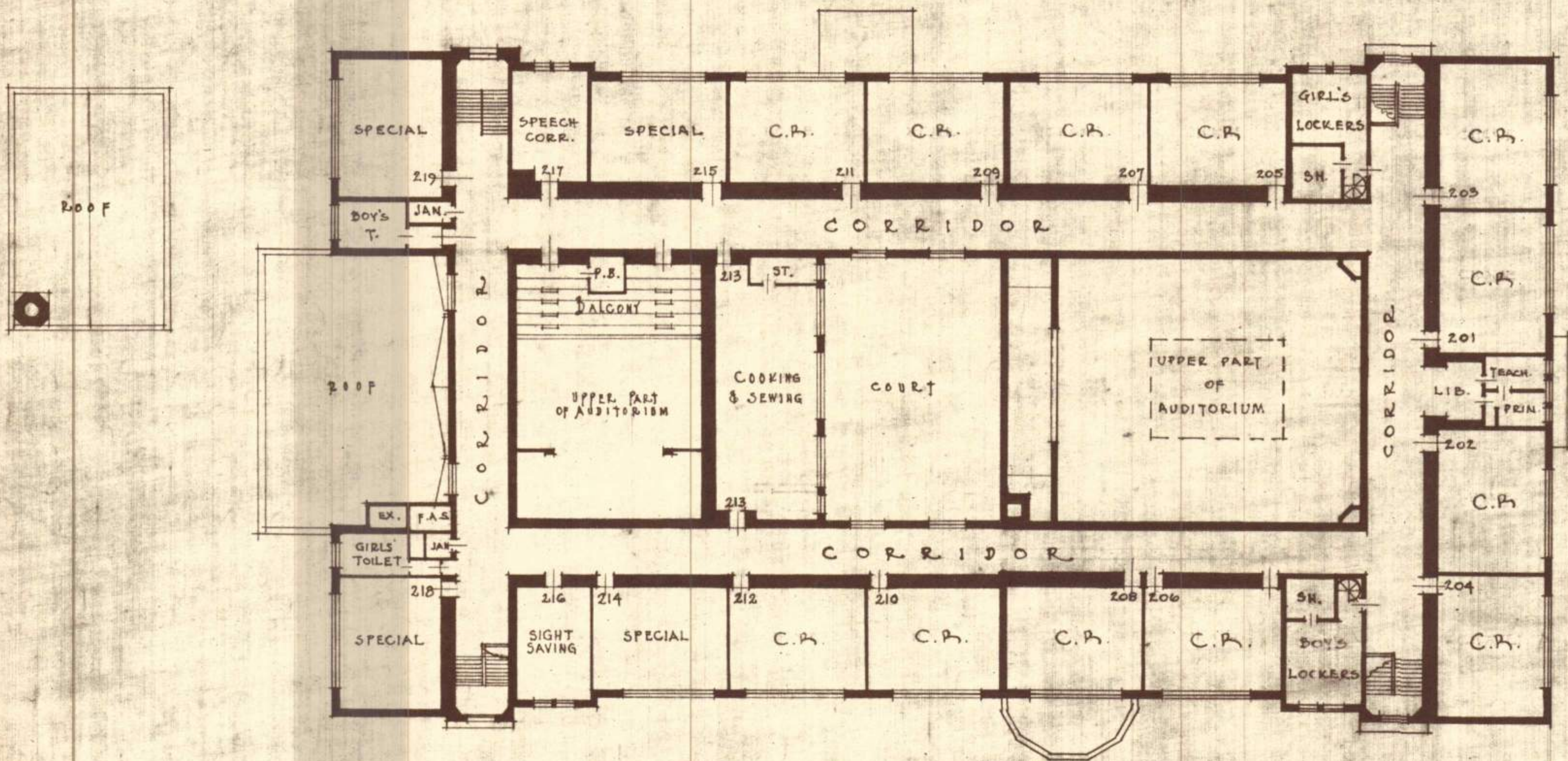


GUEST SCHOOL
SECOND FLOOR PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.C.G.	11-6-29				

SCALE 1/32" = 1'-0"

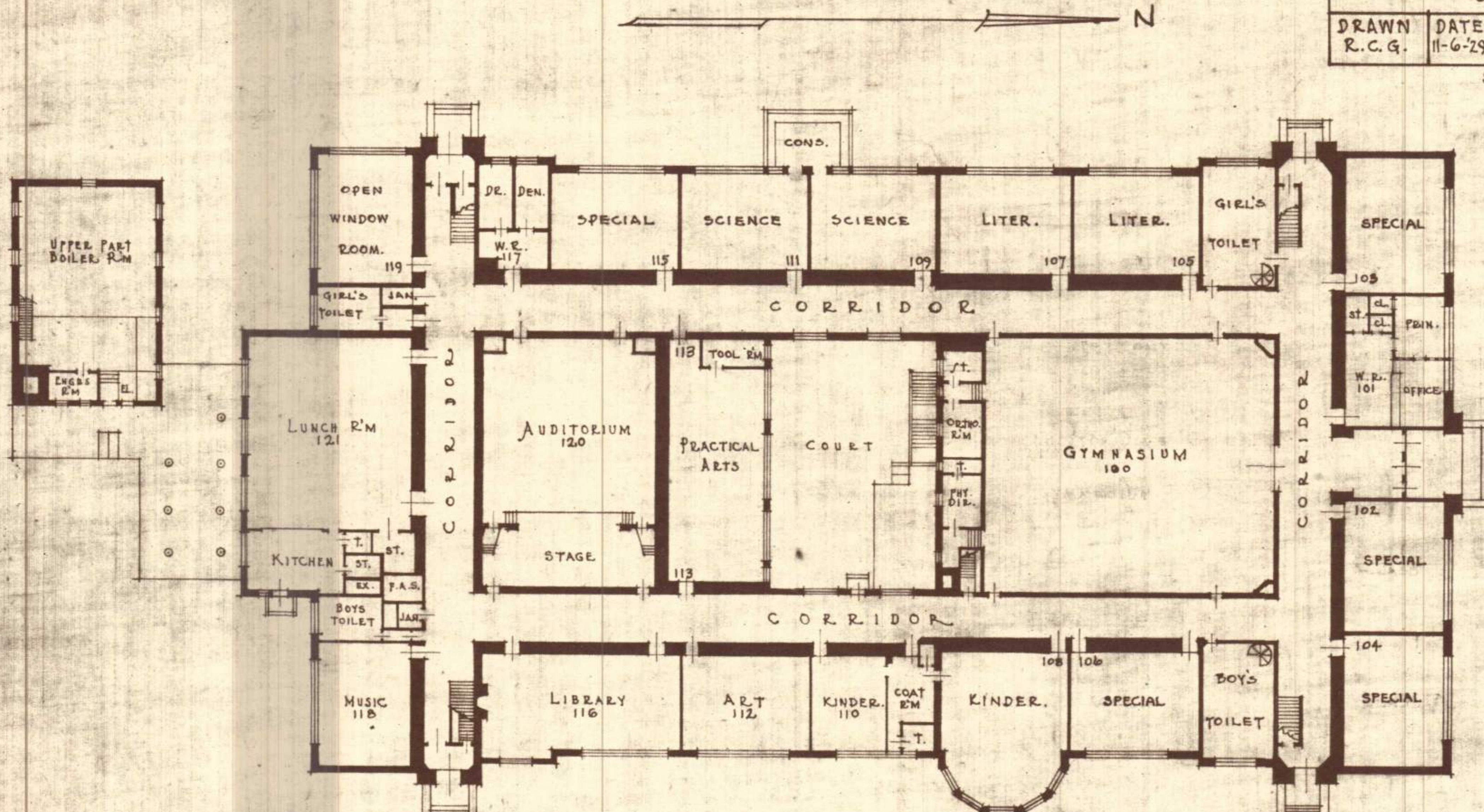


GUEST SCHOOL
FIRST FLOOR PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.C.G.	11-6-'29	✓			

SCALE 1/32" = 1'-0"

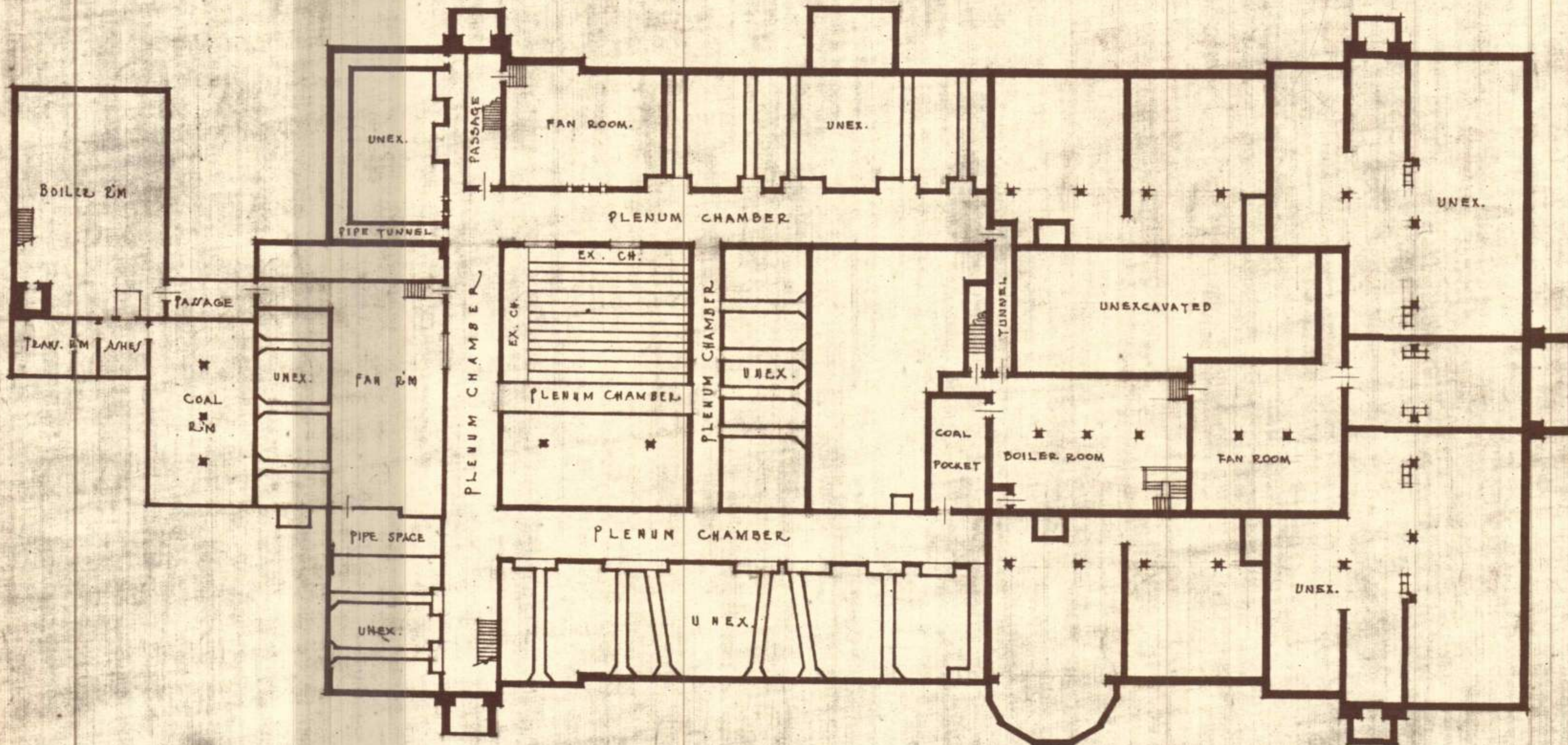


GUEST SCHOOL
BASEMENT PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.C.G.	11-6-29	✓			

SCALE 1/32" = 1'-0"



Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Coffey Elementary/Middle

Basic Property Information: COD 2-Coffey-19300 Lindsay

Short Name:	Coffey
Address:	19300 Lindsay Avenue, Detroit, Michigan 48235
Year Built:	1925
Additions Built:	1954
Outbuildings:	None
Year Vacated:	2010
Building Footprint:	175 feet x 260 feet
Square Footage:	48,916 sq. ft.
Number of Stories:	2
Building Height:	26 ft.
Current Ownership:	City of Detroit
City Council District:	2
SNF District:	NA

Structural Framing System:	Cast-in-Place Concrete; Precast Concrete; CMU; Structural Steel; Wood
Exterior Wall System:	Brick; Limestone; Cast stone
Window System(s):	Steel-framed; Glass block infill
Roofing System(s):	Built-Up Roof (assumed); Gravel Surfaced; Internal Roof Drains

Assessment Summary

Assessment Date:	February 11, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 26, 2020
Building Risk Index:	**81.07**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,313,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,913,280
Sub-Total	$6,126,780
Contingency (25%):	$1,531,695
Sub-Total	$7,658,475
Overhead and Profit (15-18%):	$1,148,771
Sub-Total	$8,807,246
Escalation (6% for 2 years)	$528,434
Sub-Total	$9,335,681
Architectural and Engineering Design Services (20%):	$1,867,136
TOTAL COST ESTIMATE:	$11,202,817

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the main building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facade from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to access ladder conditions. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including areas of the basement that were not flooded. The non-masonry interior finishes are in a state of deterioration. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The school was originally constructed in 1925 as a small, single-story four room building. A large two-story addition was reportedly constructed in 1954, creating the U-shaped footprint that is existing today.

The original 1925 building is located in the northwest corner of the current building layout. Its facade consists of multi-wythe brick masonry with reinforced cast stone accent units at entrances, window sills, and parapet copings. The windows are steel-framed and the original building entrance is wood framed. The low-slope roof was not accessed due to concerns with safe ladder access, but likely consists of an internally drained, bituminous built-up roofing system. The roof structure consists of wood plank roof sheathing and nominal dimension lumber joists. The joists are supported by steel framing spanning between steel columns. The floor is a concrete slab-on-ground with utility tunnels at the perimeter.

The 1956 building addition facade consists of brick masonry veneer over concrete masonry unit (CMU) backup with limestone sills and copings. Ribbon windows contain glass block infill with operable steel-framed windows within lower lites. The glass block infill and operable units sit within steel frames constructed of C-shaped and I-shaped members. The entrances consist of steel doors with multi-light aluminum transoms at some entrances. The low-slope roof at this building also likely consists of an internally drained, built-up roofing system or modified bitumen membrane roofing system. The structural system is representative of modern construction materials of the mid-1950s. The first-floor structure is a combination of cast-in-place concrete slab and precast concrete slab construction depending upon location. The roof and second-floor structures consist of long span metal deck formed concrete tee joist-slab construction to a concrete beam and column system. The ceiling above the second-floor corridor is a gypsum plank system supported on steel beams. The basement area is accessible except in three locations, where the basement rooms are flooded with an approximate four-foot depth of water.

In general, the building is in serviceable condition with many of the interior finishes intact. Replacement of the roofing and interior roof drains are critical elements to maintain the sound condition of the existing structure. Much of the observed masonry deterioration is concentrated at the limestone and cast stone accent elements and is a result of water infiltration into the wall assembly, corrosion and freeze/thaw damage. The steel windows within the original building portion can be restored. Within the building addition, it may be difficult to replace the missing glass block units in-kind within the existing steel frames without removal and disassembly of the steel window frames. Therefore, alternative infill materials or replacement of these window assemblies should be considered. Additional evaluation of the long span steel deck of the floor and roof structures of the addition is warranted to determine if the deck is acting compositely with the concrete or was intended to be both the formwork for the concrete and the finish ceiling surface.

Overall, observed distress in both the original building and addition is isolated and related to the water infiltration into the building. Further detail of the observed distress is provided below.

Facade

The facade is generally in good condition. Minor localized cracking of the brick masonry exterior walls was observed and is attributed to water infiltration and corrosion of embedded and attached steel elements.

Isolated cast stone and limestone coping and accent band units are eroded, cracked, or spalled and should be replaced. The brick masonry and cast stone at the library alcove of the original building portion have been previously repaired and are showing continued signs of distress due to corrosion of the embedded steel lintels and subsequent displacement. Rehabilitation should include repair of these elements to mitigate water infiltration into the wall assembly and building interior, and to mitigate further masonry distress.

Significant vertical cracking and localized displacement of the clay brick masonry was observed at the chimney stack. The distress is attributed to prolonged water penetration into the masonry and subsequent freeze-thaw damage, as well as potential deterioration resulting from thermal and moisture expansion of the inner wythes. Rehabilitation of the chimney should include crack stitching repairs with supplemental reinforcing (Helibar) followed by monitoring to determine if distress continues. The cap should be repaired with improved flashing to mitigate further water penetration and masonry distress. Consideration for demolition or partial demolition may be an economical solution depending on the future building use, historical impact, and the functionality need of the chimney.

The original steel window frames within the original building portion are generally in good condition with only minimal corrosion, cracked glass, sealant failure, and a few missing sashes. Based on our observed conditions, the frames can be salvaged and restored, and missing sashes and glass lites can be replaced in lieu of full window replacement. The wood framed entrance of the original building portion may be restored. The windows within the building addition largely consist of glass block infill with operable lites near the base of the wall openings that sit within a steel frame constructed of C-shaped channel members. The frames are generally in good condition with minimal corrosion or observed displacement; however, the glass block infill units are typically missing or cracked. Based on the as-built configuration of this assembly, it may be difficult to replace the glass block units in-kind within the steel frame without disassembly of the steel window frames and/or adjacent masonry; therefore, alternative infill materials or replacement of these window assemblies should be considered. The entrances may be restored or replaced in-kind.

Roofing

The low-slope roof levels were not accessed at the time of this assessment due to safety concerns with the roof access ladders. Where visible from grade, vertical roofing terminations are failed (open, displaced, non-adhered to substrates) and vegetation/organic growth was present on the surface of the roof. Significant signs of water infiltration were also observed at the interior, including damage to interior ceiling finishes. Observed deterioration within the copings and parapet masonry indicate bulk water infiltration into the wall assembly, likely due to deficiencies in the roof terminations and/or flashing. A majority of the water infiltration within the building interior was observed to be a result of failed roof drains and/or drain pipes. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and replacement of the internal drains and drain pipe systems.

Structure

The original 1925 portion of the building is in serviceable condition with finishes primarily intact except for isolated locations near roof drains in the far west end and center of the north corridor wall. Water collecting near and infiltrating the building at these damaged roof drains has caused the wood roof decking and rafters to be visibly saturated with fungal growth present. These areas of roof structure require reinforcement or replacement.

In the addition, the glazed tile and painted concrete masonry walls of the addition are primarily intact except for isolated locations where walls are damaged from vandalism or water infiltration. Round, cast-in-place concrete columns, some with the cardboard forms still in place, are located along both the exterior walls and interior corridor walls. The floor and roof structures consist of concrete tee joist-slab construction with long span steel deck forms[1]. The underside of the metal formwork is exposed, with perforated metal acoustic panels and fluorescent lighting located in alternating spaces between the joists. The steel deck form is present and perpendicular to the joists at the joist bearings, with a horizontal steel plate continuous and supporting the steel deck for the joist system. The steel deck observed at the joist bearing may potentially have served as the form for the concrete beams which span between the columns. The metal forms and acoustic panels are corroded throughout the building and are recommended to be cleaned, further assessed, and re-coated as appropriate. Structural repairs may be necessary if these elements are determined to be acting compositely with the concrete floor and roof framing systems.

The second-floor corridor ceiling is composed of gypsum planks spanning between structural steel members. The gypsum plank is exposed, visually saturated, cracked and eroded in several locations, deeming the attic and roof levels unsafe for access. Once saturated, gypsum planks are typically not salvageable, therefore the second-floor corridor ceiling is recommended to be replaced with a new attic floor structural system.

At the conservatory located on the south side of the building, the three steel columns along the south wall of the conservatory are displaced outward. The movement of the columns is related to masonry distress observed in this area related to removal of the adjacent windows. The columns can be replumbed in coordination with the masonry repairs in this area.

Limited basement level access was available during the assessment due to partial flooding of the lower levels of the basement spaces. At the intersection of the original building and the addition, near the center of the eastern wall of the original building, significant cracking and displacement of the CMU walls was observed. The walls appear to be partition walls (non-load bearing elements) and the cracking does not continue into the first-floor structure above but is related to cracking in the concrete slab-on-ground. Movement of these concrete masonry walls may be related to damaged sub-surface drainage systems, differential settlement of the addition relative to the original building, corrosion of embedded metal elements, or other contributing water or foundation concerns. Due to the fact that the walls appear to be non-load bearing, the distress does not indicate a significant structural concern; however, further evaluation is recommended due to the severity of the cracking.

The underside of the first-floor structure, as observed from the walkable basement spaces, is in excellent condition. Water droplets were observed on the underside of the precast plank located over earth floor

[1] Initial review of the 1950s era long span metal deck system indicates the decking is acting non-compositely with the concrete tee joist-slab, that the decking was used as a stay-in-place form for the cast-in-place concrete. However, a non-technical, marketing brochure from this era was noted to advertise the decking as a "composite" concrete floor system.

crawl spaces (below the first-floor classrooms). Increasing the amount of ventilation of the crawl space areas and conditioning the building will mitigate the water droplets.

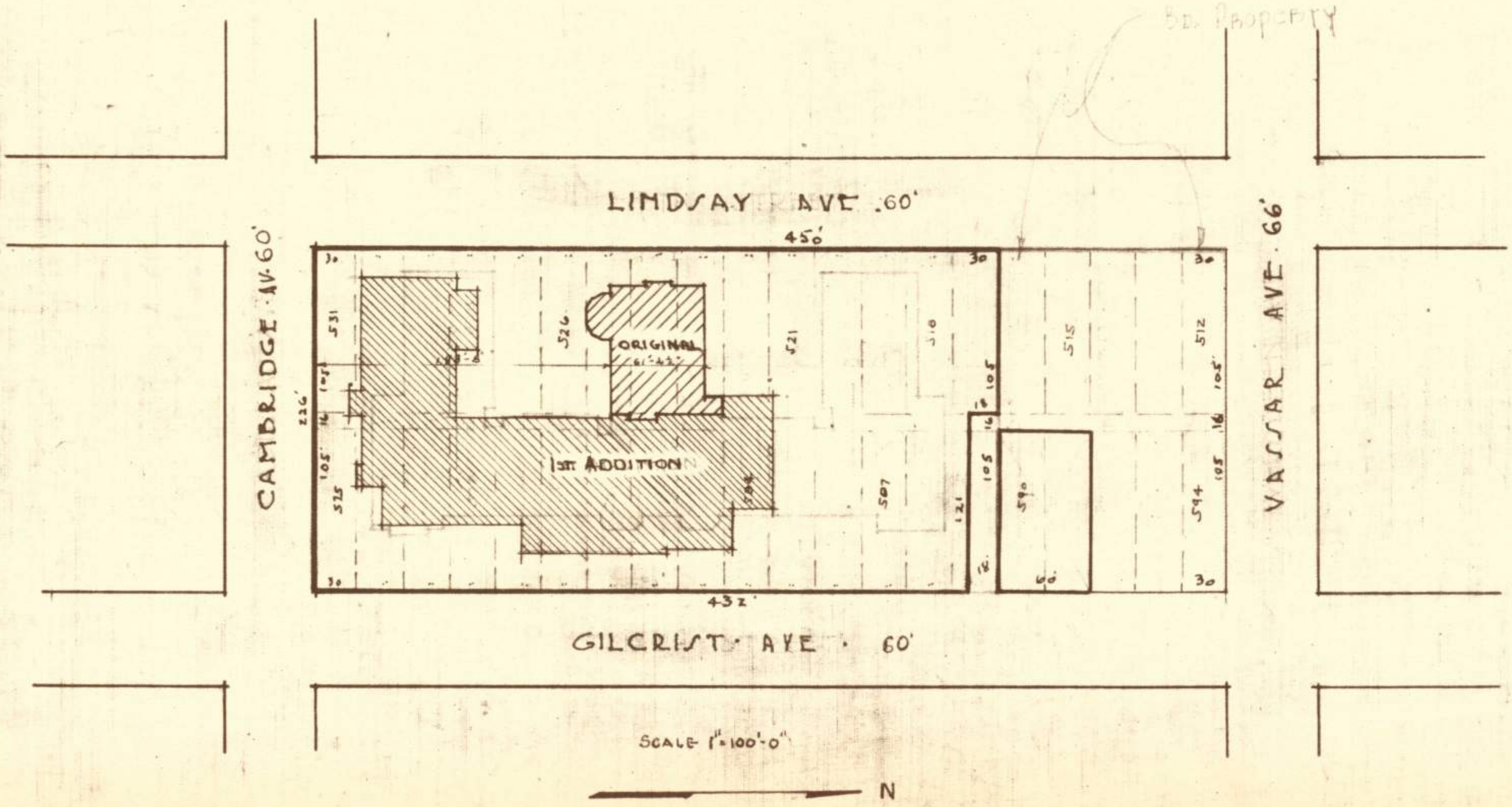
Miscellaneous

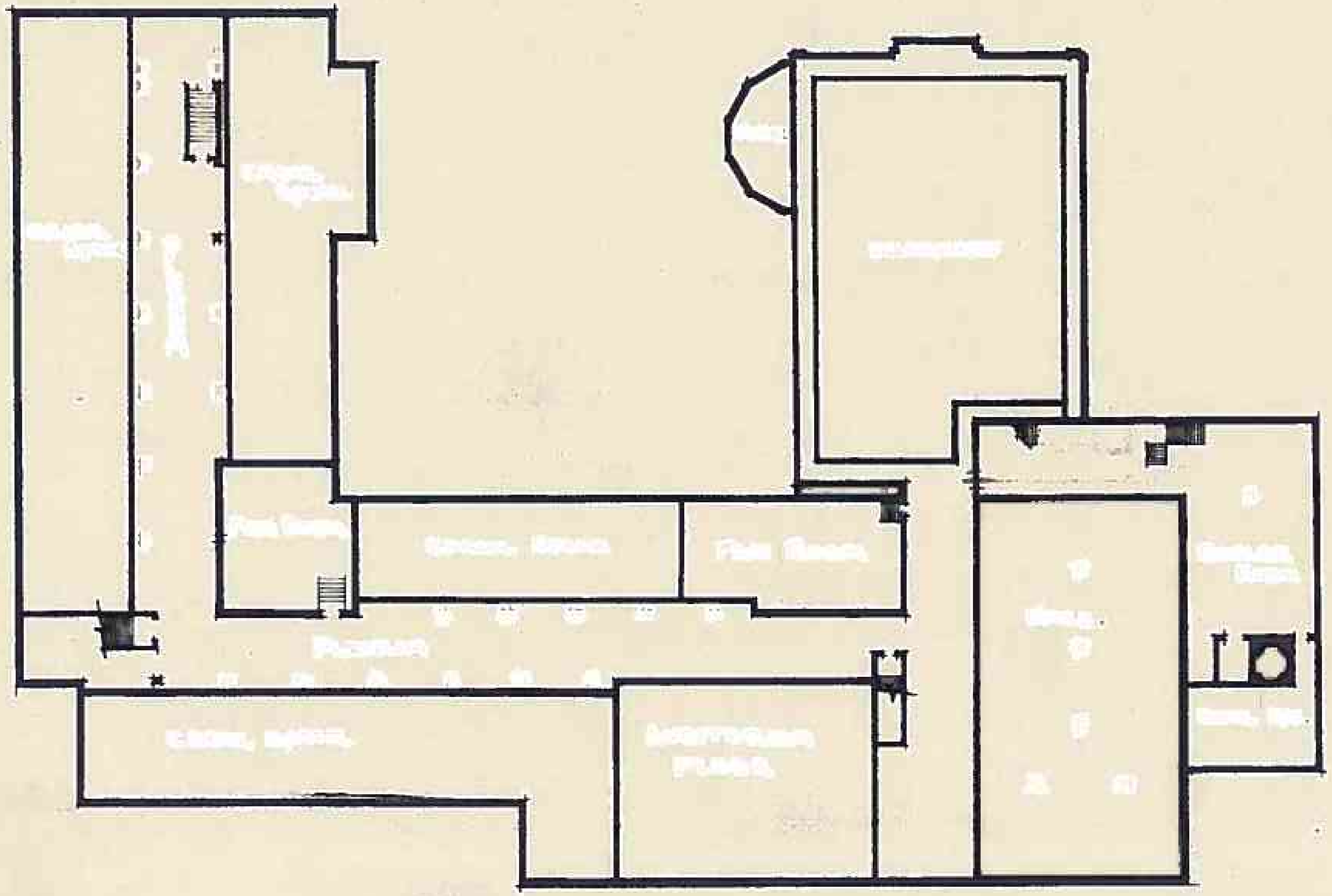
Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

COFFEY SCHOOL

DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
RH.C. Revised	5-26-48	JH		R.N.	7-14-55

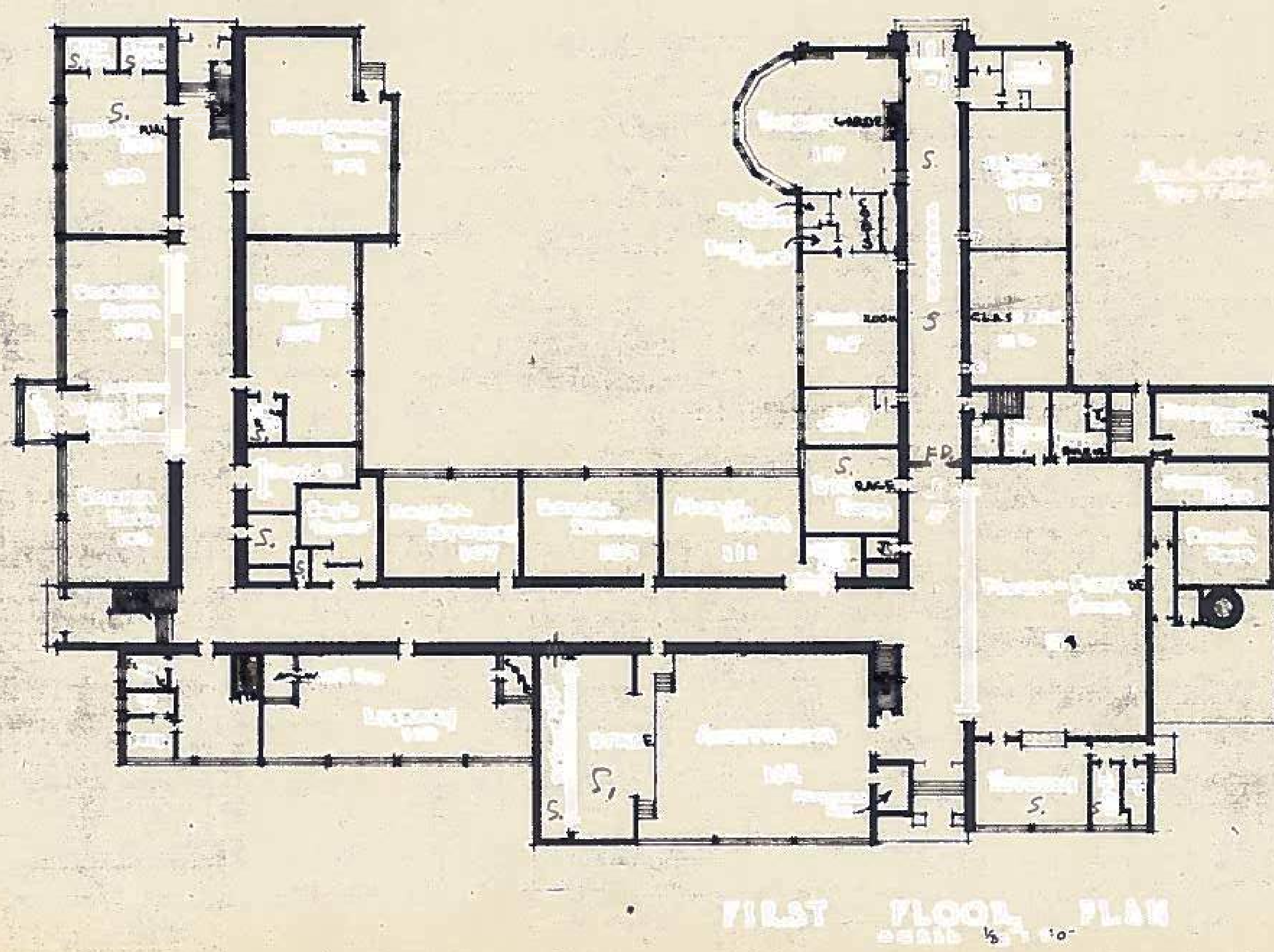




BASEMENT PLAN
SCALE 1/32" = 1'0"

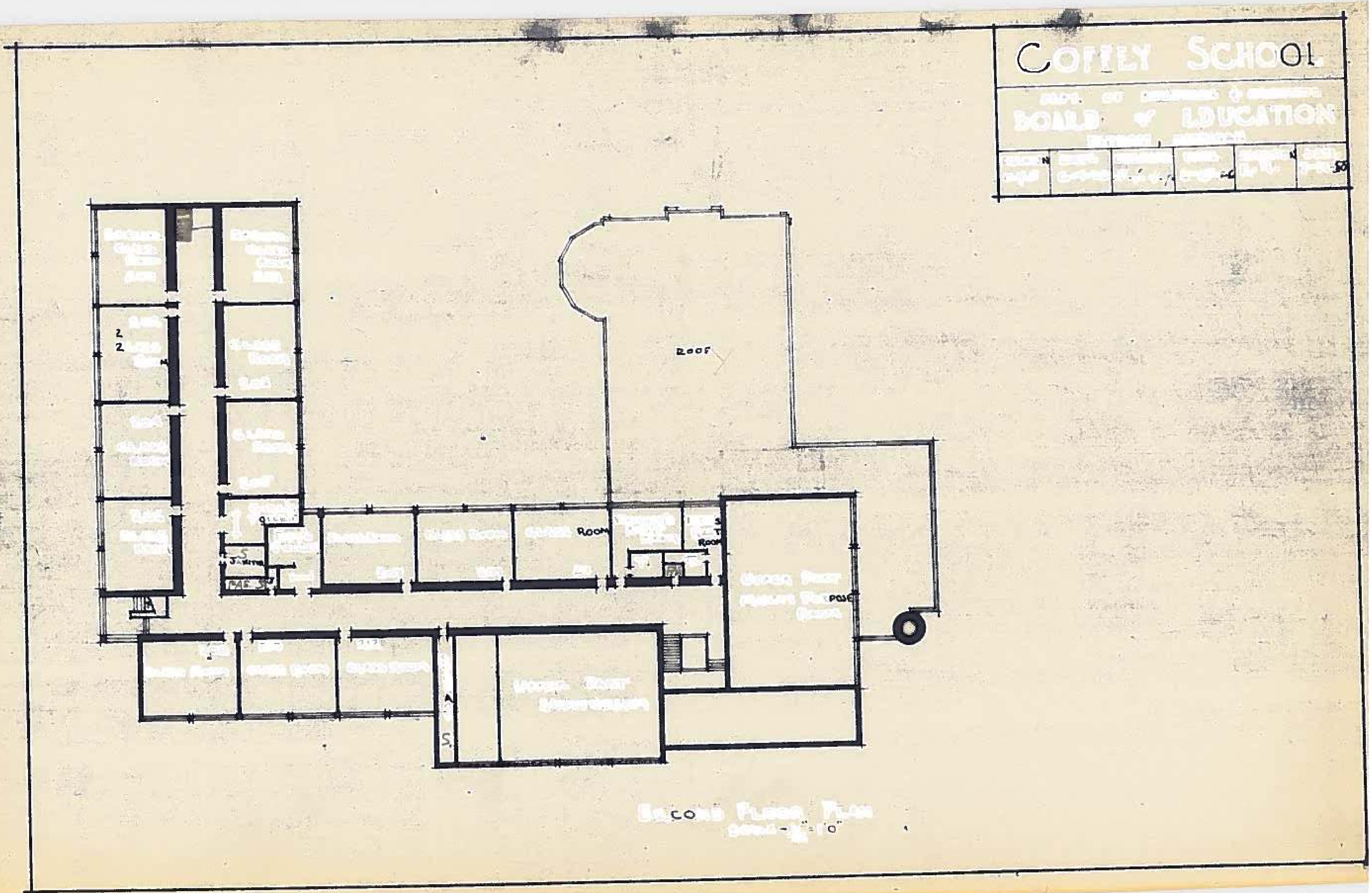
COFFEY SCHOOL

BOARD of EDUCATION



COFFEY SCHOOL

BOARD OF EDUCATION


COPLEY SCHOOL
BOARD
EDUCATION
ROOF
ROOM
ROOM
PURPOSE
SECOND FLOOR PLAN

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Higginbotham/Commerce High School

Basic Property Information: COD 2-Higginbotham-20119 Wisconsin

Short Name:	Higginbotham
Address:	20119 Wisconsin Street, Detroit, Michigan 48221
Year Built:	1927
Additions Built:	1945, 1946, 1948
Outbuildings:	None
Year Vacated:	2004
Plant Dimensions:	48,338 SF
Square Footage:	200 feet x 170 feet
Number of Stories:	2
Building Height:	38 feet

Current Ownership:	City of Detroit	**Structural Framing System:**	Cast-in-Place Concrete; Brick Masonry; CMU; Structural Steel; Wood
City Council District:	2	**Exterior Wall System:**	Brick; Stone
SNF District:	LM	**Window System(s):**	Metal; Wood; Aluminum Replacement
		Roofing System(s):	Built-up Roof; Asphalt Shingles; Clay and Precast Tiles; Internal Drains; Gutters

Assessment Summary

Assessment Date:	January 23, 2020
WJE Inspector(s):	Sarah Rush; Cheryl Early
Report Date:	October 26, 2020
Building Risk Index:	**37.13**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,134,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,867,040
Sub-Total	$5,901,040
Contingency (25%):	$1,475,260
Sub-Total	$7,376,300
Overhead and Profit (15-18%):	$1,106,445
Sub-Total	$8,482,745
Escalation (6% for 2 years)	$508,964
Sub-Total	$8,991,709
Architectural and Engineering Design Services (20%):	$1,798,341
TOTAL COST ESTIMATE:	$10,790,051

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the main building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including basement and attic areas. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

Two additions have been constructed to the original 1928 two-story building. The original construction was primarily rectangular in plan, with small wings extending to the west at the north and south ends of the rectangular footprint. The first addition added a south and west wing to the total building footprint, connecting to the original construction at the south end of the west facade. The second addition infilled the courtyard space created by the small western wings of the original building and a boiler house. The second addition also extended the southern wing of the first addition to both the north and to the south.

The yellow brick facade has a common bond coursing, with header units occurring every six courses. It is accentuated with red brick to create a "quoined" appearance at building corners. Limestone accent pieces frame the entrances, window sills, and the tops of the walls of the mid-1940s additions. The window lites are grouped together to create larger window areas, and generally align vertically between the first and second floors. The windows typically consist of original wood elements, though one lite at each window has been replaced with an operable aluminum frame for improved egress from the classrooms.

The steeped-sloped hip roofs consist of clay and precast tiles directing water to a gutter and downspout system around the perimeter of the original building. The low-sloped roof areas, which extend between the sloped sections and over the 1940s additions, consist of internally drained built-up roof. The low-slope roof areas are at differing elevations, with at least three clay tiled hipped roofs for bell towers or ventilation shafts located on the uppermost low-slope roof area. The hipped roofs overhang the exterior walls and contain ornate wood soffits and framing.

The original building is a concrete framed structure; the 1940s additions are believed to be of both concrete and steel construction. Throughout the building, the interior floor systems are of concrete joist and slab construction. The joists are both precast I-shaped members and cast-in-place tee joist-slab members depending upon location within the building. The tee joist-slab members were formed with metal pan, wood boards and clay tiles, again depending upon location within the building. The basement area is accessible except in one location, where the basement room is flooded with an approximate two-foot depth of water. The roof structure consists of sloped, board-formed concrete beams and a steel pan-formed concrete roof deck. Interior walls were observed to be of brick masonry and concrete masonry unit (CMU), with the CMU construction related to the 1940s additions. The interior corridor walls are non-load bearing partitions constructed of gypsum tile units and metal lathe-supported plaster. The basement foundation walls are of cast-in-place concrete construction.

In general, the building is in good condition with many of the interior finishes intact or requiring limited repair due to water damage from potentially damaged interior roof drains. Repair of the interior roof drains, replacement of the roofing for the low-slope roof areas, and the repair of the tile roofing are also critical elements to maintain the sound condition of the existing structure. Replacement of the roof deck over the stage, and potentially the full auditorium, is recommended based on the type of precast plank used and its condition. Many of the existing windows can be restored. A prominent vertical crack on the south facade warrants further investigation to develop an appropriate repair. Further investigation on the potential corrosion of embedded structural steel elements within the 1940s era masonry walls is warranted. Further detail of the observed distress is provided below.

Facade

The facade is generally in good condition. Minor localized cracking within the brick and limestone units was observed and is attributed to water infiltration and corrosion of the embedded steel elements. Refer to the "Structure" section below regarding specific areas of potential corrosion of embedded steel. Rehabilitation should include repair of these elements to mitigate water infiltration within the wall assembly and building interior, and to mitigate further masonry distress.

Near the center of the south facade, several brick masonry infill areas are present. A large vertical crack and localized masonry displacement is present between two of these infill areas. The crack is widest near the roof level, but does not extend to grade, and previous repair attempts are visible. The cause of this distress should be further investigated, though removal and reconstruction of the brick units in this region should be anticipated.

The original wood window frames and metal replacement lights are generally in good condition. Localized areas of observed distress include minor decay, fractured framing elements, broken or missing glass panes, and adhesively failed perimeter sealant. Based on the observed conditions, the majority of the existing windows may be restored in lieu of replaced; however, select windows will require replacement due to fire damage, more significant decay, or fractured elements.

Roofing

The accessible portions of the roofing assemblies were observed to be in fair condition. Localized areas of the steep-slope roofing tiles are missing or displaced, and water infiltration-related damage was observed, particularly within the roof overhangs where the wood soffit and framing is readily visible. The observed distress is concentrated near missing and displaced gutters and downspout elements. Water infiltration is occurring at some locations at the roof and wall interface in the attic. Rehabilitation of the building should include restoration of these water management systems, repair of the deteriorated steep-slope roof areas in-kind, and repair of deteriorated corresponding roof structural elements as needed, particularly at the wood framed overhangs.

The low-slope roofing areas were not accessed at the time of this assessment due to limited access and safety concerns with the main roof access ladder. Where visible from grade, vertical roofing terminations are failed (open, displaced, non-adhered to substrates). The copings, where present and visible from grade, appeared to be in good condition. Isolated areas of significant water damage to wall and ceiling finishes noted on the interior may be related to damaged interior roof drains. Based on the observed conditions, including those described below, the low-slope roofing assembly will likely require removal and replacement, including localized areas of the internal drains and drain pipes and localized coping repointing repairs.

Structure

The structure is minimally exposed due to the relatively good condition of the floor, wall and ceiling finishes. Generally, the condition of finishes is indicative of the condition of the structural elements behind. The existing wood flooring has buckled in the classrooms, and in the gymnasium the wood floor has uniformly warped or bowed upward up to two-feet in height. The existing wall and ceiling finishes are exhibiting failure only in isolated locations, likely related to damaged interior roof drains. Isolated areas of ceiling plaster have fallen. Additional moisture staining is present on the underside of the 1940s addition roofs over the gymnasium, auditorium, and in the classroom spaces near the northwest corner of the building.

In the attic level, the concrete roof deck was observed to have localized areas of water staining and efflorescence, which generally correlated with roofing distress above. Locations of past repairs are evident and are in good condition with no observed distress. Corrosion is present in the perforated steel decking of the gymnasium ceiling. The precast roof plank over the stage is heavily water stained and cracked for approximately half of the stage area. Based on our experience with the type of precast roof planks over the stage area and based on the amount of water staining and cracking observed, replacement of the roof deck over the stage is recommended. The area over the adjacent auditorium seating is also recommended to be further assessed, assuming the same roof deck was installed in this area.

All of the finishes in the library space, located in the south wing, have been damaged by fire. A relatively small area of the second-floor concrete I-joist structure is soot laden and cracked. These joists may be damaged from the fire event and require further assessment and potentially full replacement. The soot is recommended to be cleaned from the remaining concrete structure in this room.

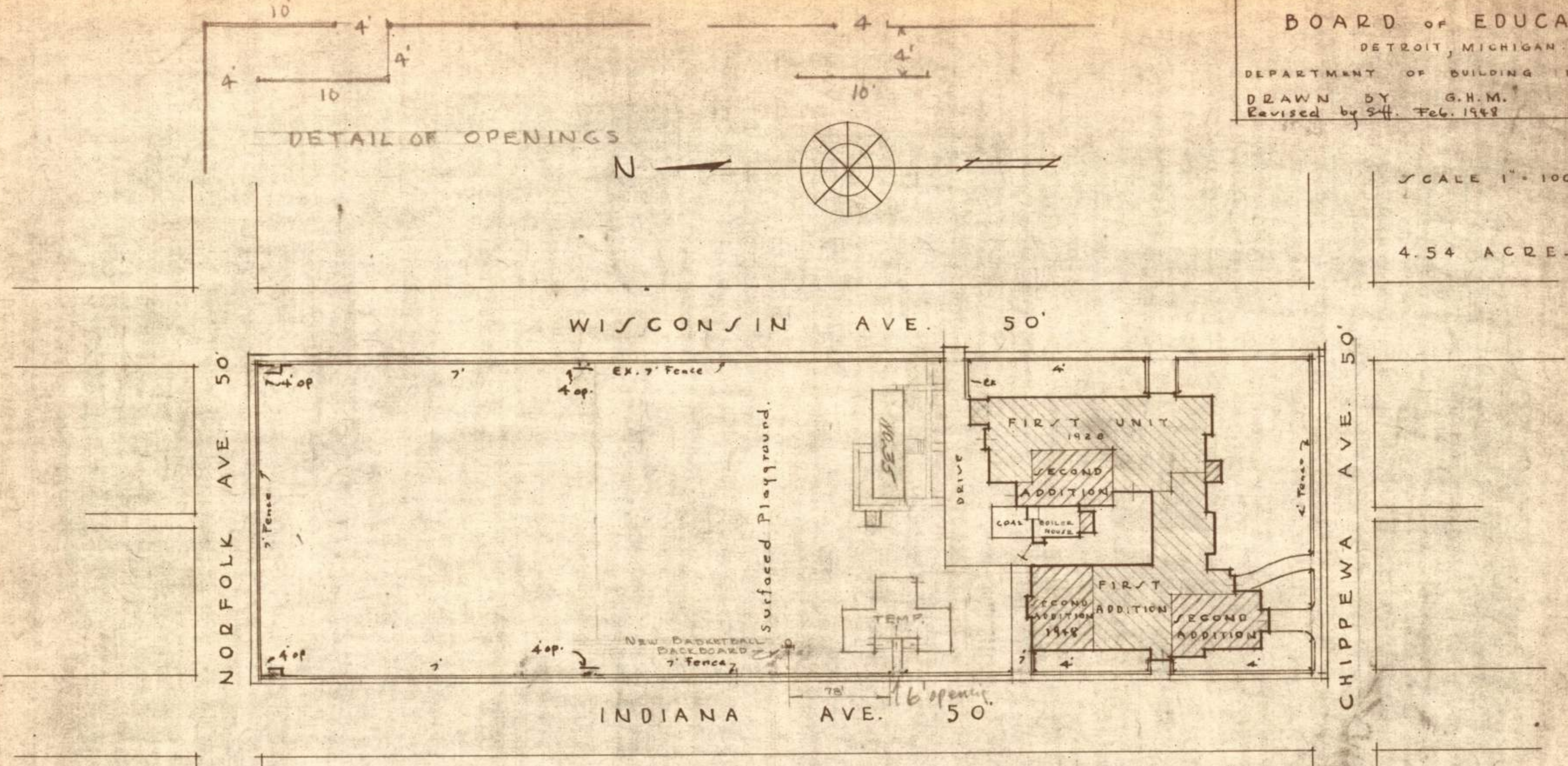
Vertical cracking in the CMU construction of the gymnasium walls is occurring at the bearing of a roof girder at the exterior walls. Similar vertical cracking is visible within the exterior brick veneer surfaces, and above the window openings. The masonry below the gymnasium roof girders is recommended to be further investigated; steel columns, potentially embedded in the masonry, may be corroding resulting in the observed vertical cracking and masonry movements at these locations. Further, the extent and configuration of brick masonry distress above the window openings suggests beam/lintel elements are also likely corroded and causing the observed distress. Vertical and step cracking is present in the CMU walls of the northeastern-most classroom of the west wing (art room) and warrants further review to the identify the cause of the cracking.

The western fan room of the basement level was not accessible during the walkthrough inspection due to approximately two-feet of standing water; however, WJE was able to make observations from both entrances to this room.

PLOT PLAN
HIGGINBOTHAM SCHOOL
BOARD of EDUCATION
DETROIT, MICHIGAN.
DEPARTMENT OF BUILDING PLANNING
DRAWN BY G.H.M.
Revised by S.H. Feb. 1948

SCALE 1" = 100'

4.54 ACRES



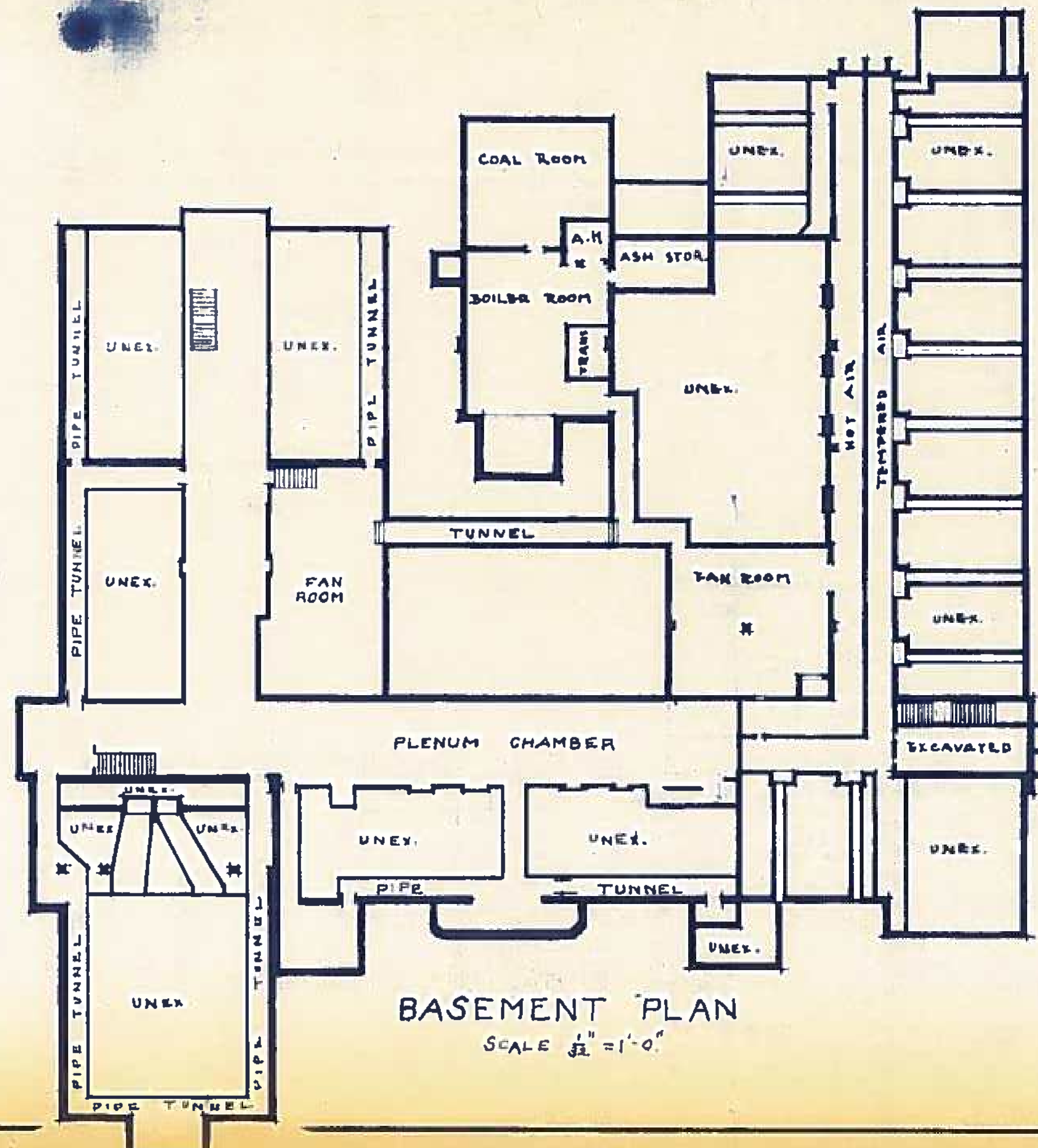
APX. 1128' - 7' Fence
16 End Posts
6 Cor. "

APX. 740' - 4' Fence
8 End Posts
6 Cor. "

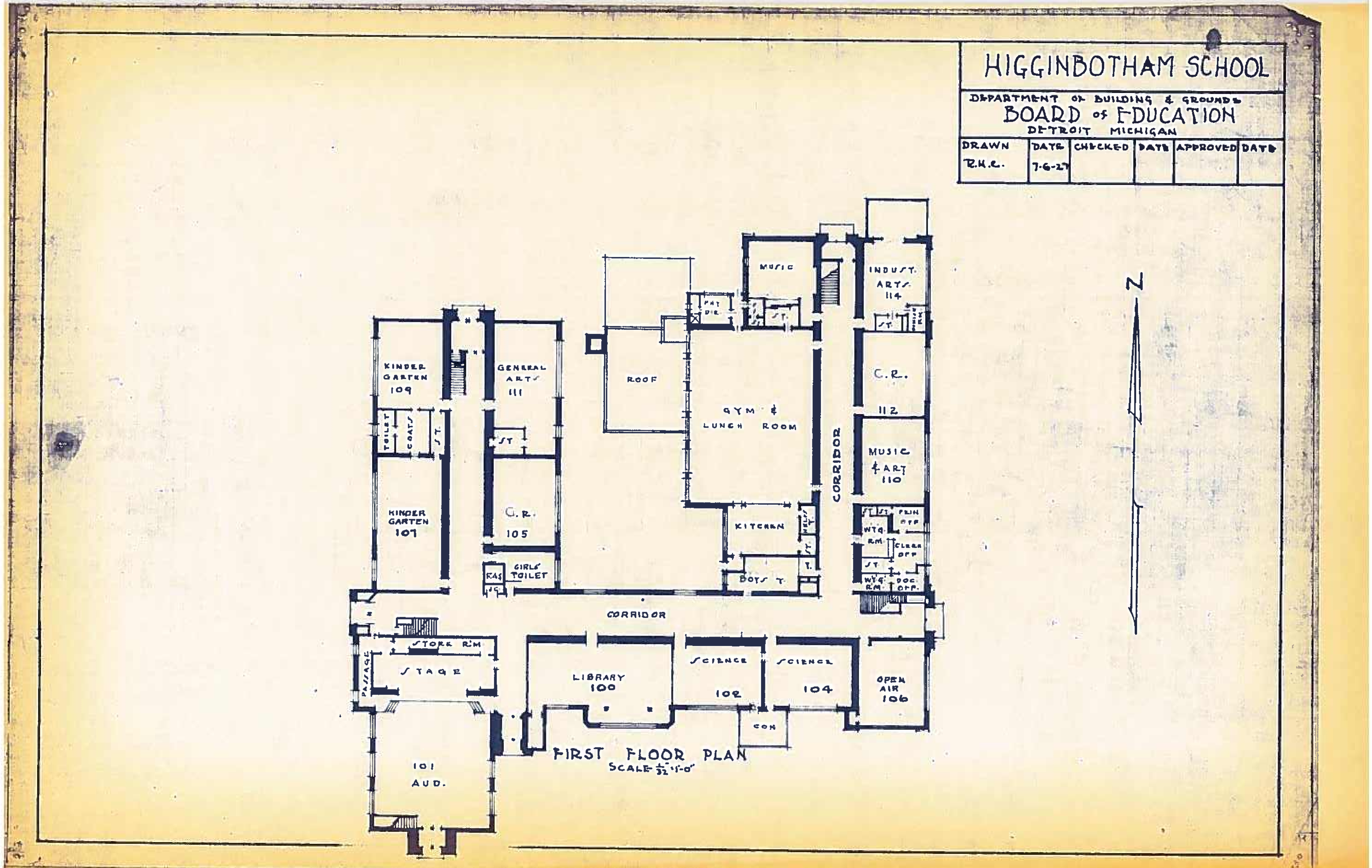
HIGGINBOTHAM SCHOOL

DEPARTMENT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-30-27				



BASEMENT PLAN
SCALE $\frac{1}{32}$" = 1'-0"

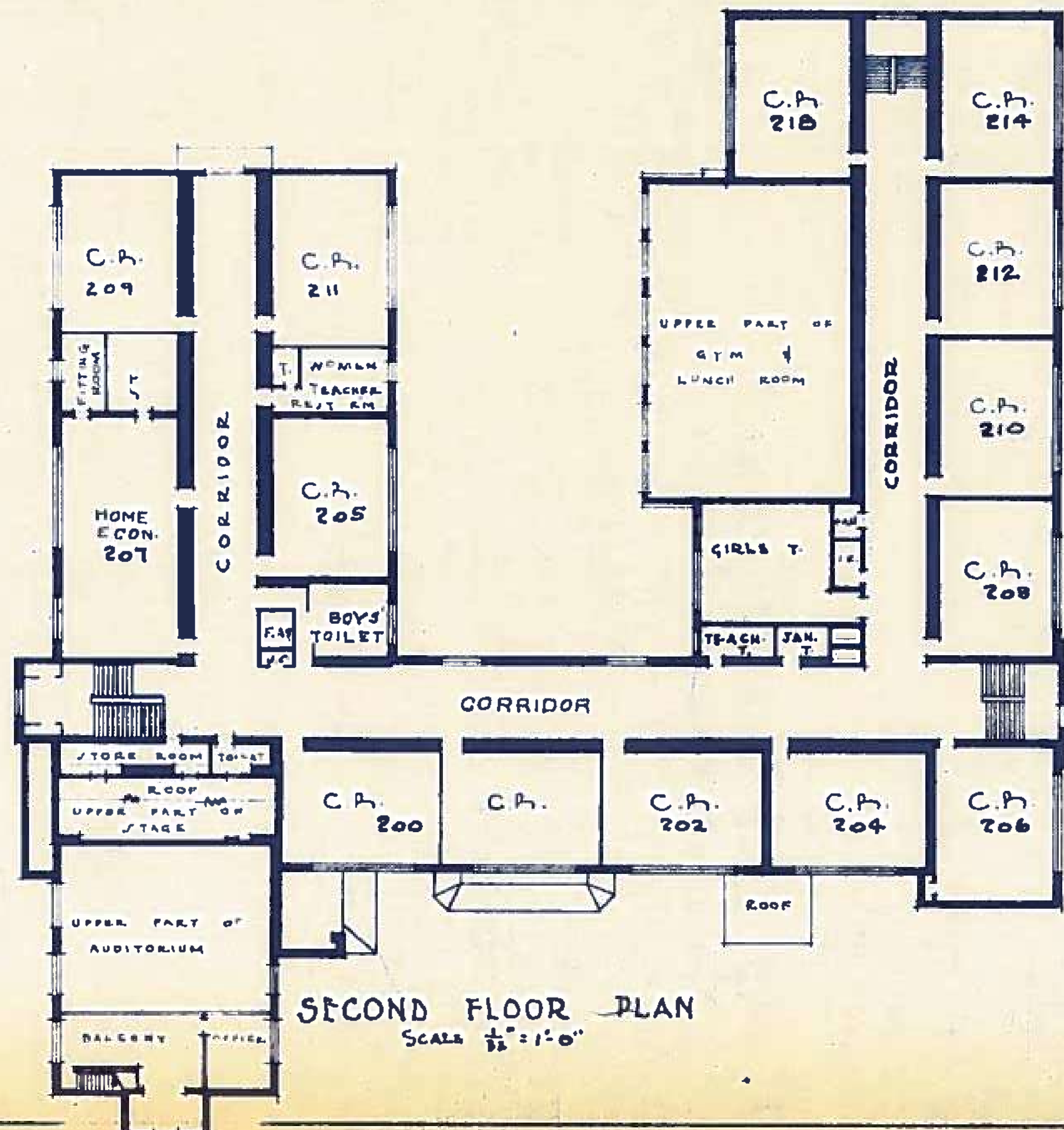


FIRST FLOOR PLAN
SCALE $\frac{1}{32}$"=1'-0"

HIGGINBOTHAM SCHOOL

DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-30-27				



SECOND FLOOR PLAN
SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
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248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Hancock Alternative

Basic Property Information: DPS 2-Hancock-2220 Ewald Circle

Short Name:	Hancock
Address:	2220 Ewald Circle Detroit, Michigan 48238
Year Built:	1963
Additions Built:	None
Outbuildings:	None
Year Vacated:	2011
Building Footprint:	160 feet x 150 feet
Square Footage:	16,724 sq. ft.
Number of Stories:	1
Building Height:	13 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ CMU ▪ Structural Steel
City Council District:	2	**Exterior Wall System:**	▪ Brick ▪ Windows and panels
SNF District:	NA	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof (assumed) ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 23, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 17, 2020
Building Risk Index:	**28.16**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$304,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$1,337,920
Sub-Total	$2,542,420
Contingency (25%)	$635,605
Sub-Total	$3,178,025
Overhead and Profit (15-18%):	$572,044
Sub-Total	$3,750,069
Escalation (6% for 2 years)	$225,004
Sub-Total	$3,975,073
Architectural and Engineering Design Services (20%):	$795,014
TOTAL COST ESTIMATE:	$4,770,088

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. The roof level could not be accessed during WJE's assessment due to a locked roof hatch. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The school building was constructed in 1963 and is generally rectangular in plan with a central courtyard. The central courtyard was not accessed during this assessment because the courtyard doors were locked. A rectangular extension is present at the southeast corner of the building.

The facade consists primarily of clay brick masonry with the brick units typically oriented in a running bond with a header course every six courses vertically and concrete masonry unit (CMU) backup. Fascia panels wrap the top of the exterior walls at all facades and clad the wall surfaces above and below the windows and doors. The panels generally appear to consist of a painted cement board or synthetic stucco, though some panels have been replaced with painted plywood coverings. Aluminum framed windows and steel framed doors are located within punched openings in the exterior walls. The low-slope roofing was not reviewed because the access door was locked but the roof appears to consist of an internally drained, bituminous built-up roofing system based on review of aerial photographs. A large metal smoke stack is located on the northeast corner of the roof.

The building is generally in good, serviceable condition. Localized repairs are recommended at the brick masonry exterior walls. The single-pane aluminum windows and cladding panels may be restored in place to address deterioration of sealants and potential moisture infiltration; however, replacement is recommended for improved thermal performance. The roofing assembly and drainage systems appear in serviceable condition and likely require only localized maintenance repairs.

Facade

The majority of the observed distress within the brick masonry veneer is concentrated at thin (12 in. wide) piers between windows, which is the result of prolonged water infiltration within the wall assembly and subsequent corrosion of the lateral steel brick ties, as well as potential corrosion of support plates for the windows at the jambs. These piers align with interior CMU partition walls between classrooms. The brick veneer at these piers is generally cracked and outwardly displaced due to the extent of corrosion. The cracking often aligns with the horizontal frame joints of the adjacent window systems and corroded steel elements are visible at some joints where the mortar is no longer present. Previous mortar repointing efforts were noted at some piers and are typically failed. Due to the extent of corrosion and displacement, as well as the lack of lateral support connecting the veneer to the CMU backup, the thin brick veneer piers are recommended to be dismantled and rebuilt with new non-corrosive lateral anchorage to the backup. This work should be coordinated with the recommended window and panel work described below. On two larger areas of brick veneer on the east and south facades, similar masonry distress was observed and localized brick removal is recommended to expose and repair the corroded elements, followed by repointing of the cracked and debonded mortar joints. Isolated erosion of mortar joints and spalling of brick units were observed below displaced louver flashing, near grade, and near an exterior water spigot. These areas are to be repointed and the condition of the water spigot and piping in the exterior wall assembly should be investigated and repaired as needed.

The aluminum framed windows and panels are currently covered with temporary protective enclosures. The enclosure fasteners penetrate the storefront framing, creating holes in the frame members. Missing or cracked glass lites were observed at many windows and the sealant at the perimeter joints typically exhibited weathering and bond failure. Some components in the window assemblies were displaced, such as operable sashes and exterior panels. The panels are approximately one inch thick and exhibited paint failure, minor decay of the plywood replacement panels, and localized dents. The window elements may be restored, including replacement of cracked and broken lites, installation of new sealant around the window and panel perimeters, and within the holes in the frame created by the fasteners. However, due to the age of the window assemblies and the observed deterioration and damage, it may be practical to consider replacing all window assemblies with a new system with improved thermal performance. Similarly, the cladding panels can be repaired in-place, though replacement of the panels in conjunction with the window replacement work will be a more economical and durable solution. The exterior steel framed doors exhibit localized paint failure and corrosion, as well as deteriorated perimeter sealant. The exterior doors may be restored in-place.

Roofing

The roof level could not be accessed during WJE's assessment. However, indications of localized water infiltration were visible from the building interior that appeared to be related to a mechanical unit. Based on a lack of visible water intrusion below the field of the low-slope roofing, the roof appears to be performing well and likely requires only maintenance related repairs to extend the service life of the existing roof assembly.

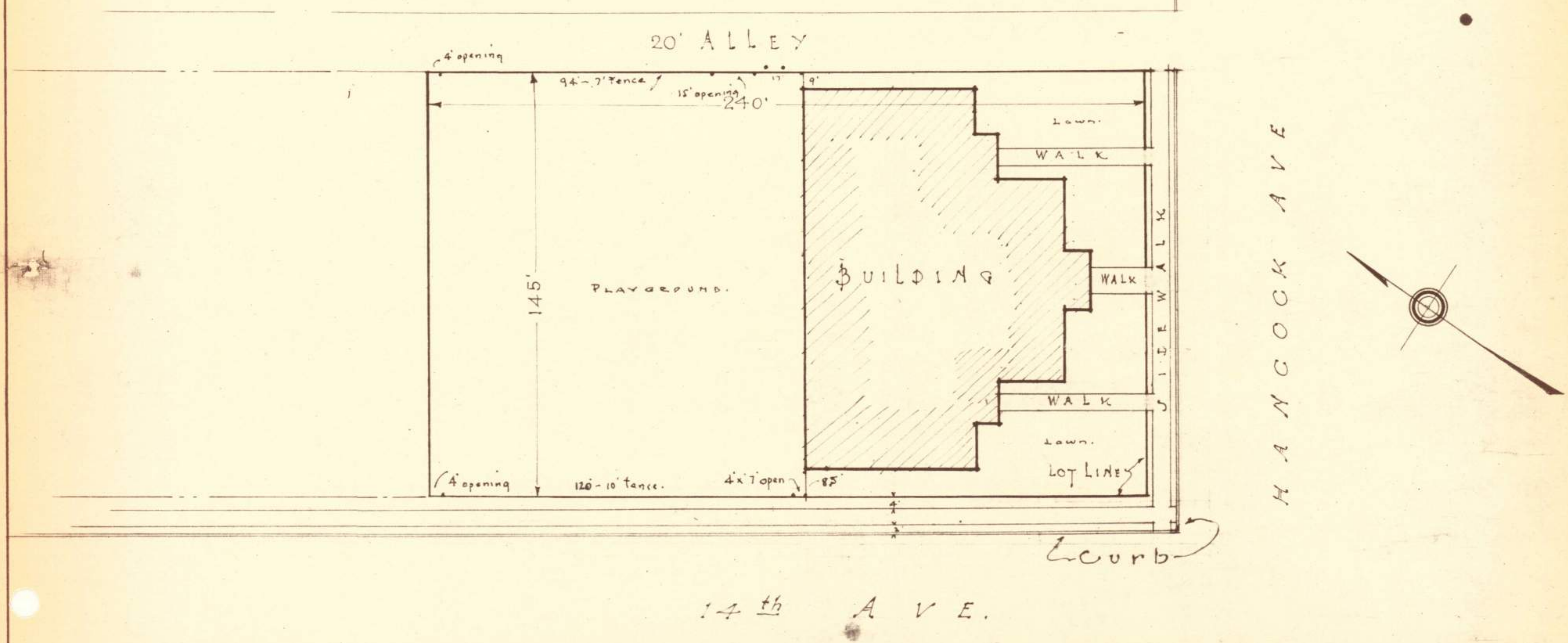
HANCOCK SCHOOL.
DETAIL & SITE

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN BY	DATE	CHECKED	DATE	APPROVED	DATE
GSG	5/17/21	C			

BLDG. CONSTR'D.	1887 1891	BRICK WALLS – WOOD JOISTS

0.80 Acres.



SCALE 1" = 40'

HANCOCK SCHOOL
BASEMENT FLOOR PLAN

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

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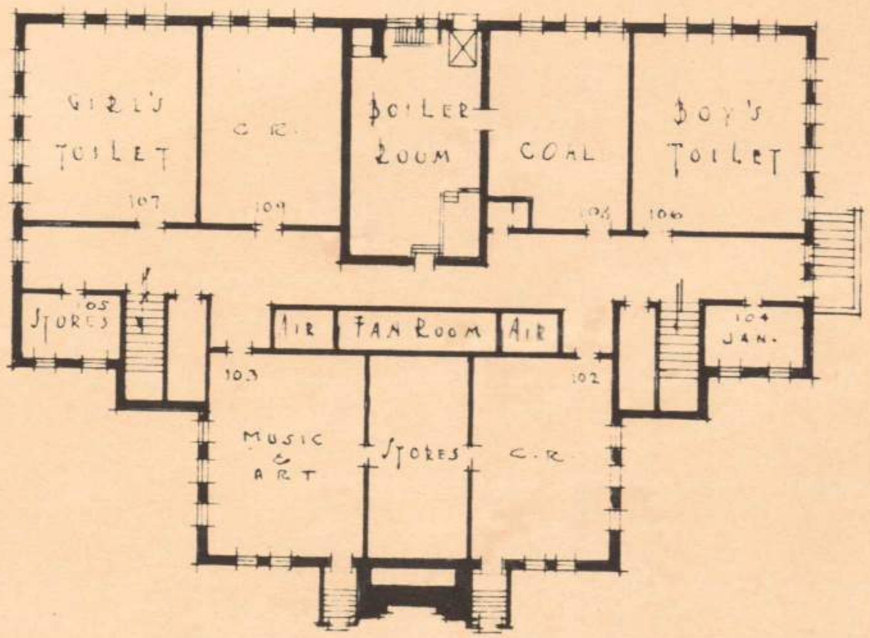
CHG	5/16/21				



BASEMENT PLAN

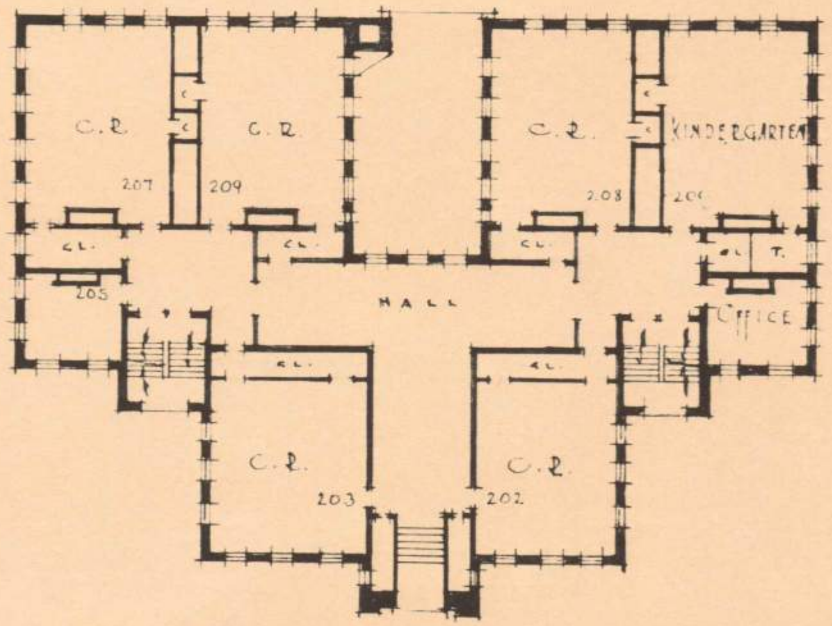
SCALE 1/32" = 1'-0"

HANCOCK SCHOOL
FIRST FLOOR PLAN

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT, MICH.

DRAWN BY	DATE	CHECKED BY	DATE	APPROVED	DATE
HG	5/16/21				

BLDG. CONSTR.	1887 1891	BRICK WALLS - WOOD JOIST



FIRST FLOOR PLAN

SCALE 1/32" = 1'-0"

·HANCOCK·SCHOOL·
·SECOND·FLOOR·PLAN·

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

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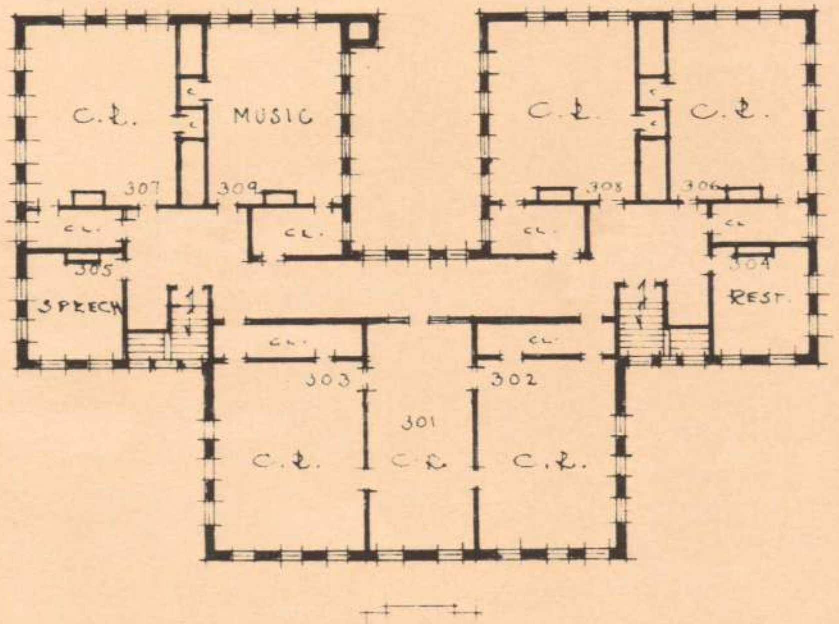

SECOND FLOOR PLAN

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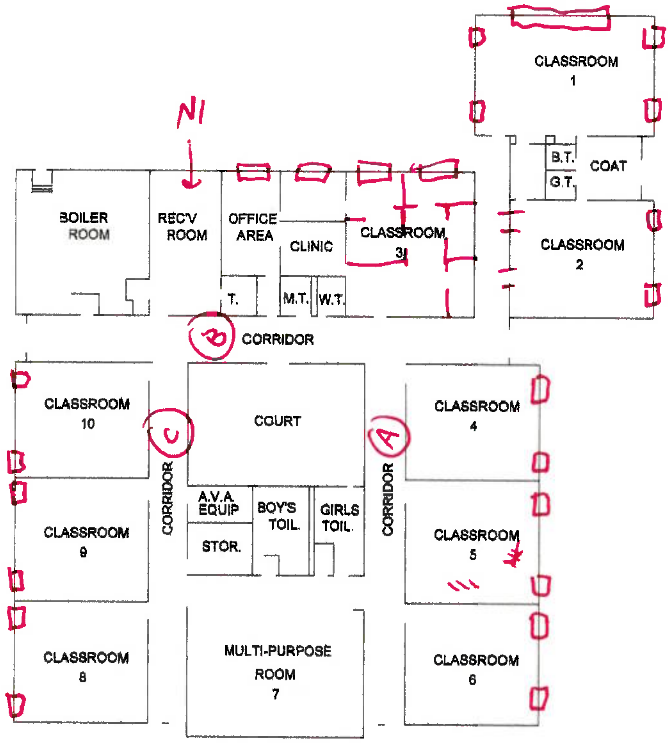

FIRST FLOOR

0' 4' 8' 16' 32' 64' 80'

School Code: 342

N

Hancock Alternative Ed
formerly Arts in Academics Academy
originally Joffe Elementary

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Post Middle School

Basic Property Information: DPS 2-Post-8200 Midland

Short Name:	Post
Address:	8200 Midland Street Detroit, Michigan 48238
Year Built:	1930
Additions Built:	1955
Outbuildings:	Powerhouse
Year Vacated:	2006
Building Footprint:	390 feet x 320 feet
Square Footage:	122,362 sq. ft.
Number of Stories:	2
Building Height:	31 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Structural Steel
City Council District:	2	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone
SNF District:	LM	**Window System(s):**	▪ Metal ▪ Wood ▪ Glass Block
		Roofing System(s):	▪ Built-Up Roof ▪ Gravel Surfaced ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	July 23, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 17, 2020
Building Risk Index:	**90.20**

Cost Estimate

Base Rehabilitation Cost Estimate:	$4,672,300
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$9,788,960
Sub-Total	$15,361,260
Contingency (25%)	$3,840,315
Sub-Total	$19,201,575
Overhead and Profit (15-18%):	$1,920,157
Sub-Total	$21,121,732
Escalation (6% for 2 years)	$1,267,303
Sub-Total	$22,389,036
Architectural and Engineering Design Services (20%):	$4,477,807
TOTAL COST ESTIMATE:	$26,866,843

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelopes from grade, using binoculars as needed. WJE did access portions of the interior of the building for general knowledge of the building layout and condition. The lower north roof levels were accessed; the remaining roof levels were not accessed because of safety concerns near the access hatch. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelopes. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

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recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

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BUILDING OVERVIEW

Overall

The two-story Post Intermediate school building was constructed in the early 1930s with an addition constructed in 1955 off the central north wing, which houses the gymnasium and pool. A powerhouse is located on the west end of the site; it once serviced both Post Intermediate and Mary McLeod Bethune Elementary-Middle School, which remains in operation on the north end of the city block.

The facade of Post Intermediate generally consists of brick and ornate limestone masonry. The brick masonry units are typically oriented in a running bond with a header course every eight courses vertically. Limestone units are located at windowsills, horizontal bands, copings, tops of pilasters, and building entrance surrounds. Original metal-framed and wood-framed windows are present, with some regions of the 1950 addition containing glass block infill within punched wall openings. The building entrances contain conventional steel-framed doors or have been infilled with concrete masonry block units. The low-slope roofs consist of an internally drained, gravel-surfaced, built-up roofing system.

Overall, the building is in poor condition. Masonry and stone repairs are recommended throughout the facade, with distress concentrated near the tops of the walls, the north one-story building wings, and the north addition. Though masonry distress is present throughout the building, the ornate decorative facades on the south end of the building, especially those facing Midland Avenue, are in relatively good condition with only minor distress observed near the top of the wall. The roofing assemblies and drainage systems are recommended for removal and replacement, though repairs may be feasible in some regions. The first-floor wood windows may be restored, but the other windows and door assemblies require replacement. Isolated structural repairs are anticipated and further investigation is required. Further detail is provided below.

Facade

The majority of the observed distress within the brick masonry veneer is a result of prolonged water infiltration within the wall assembly due to missing coping units and deteriorated roofing along the lengths of the walls. Areas of displaced and spalled masonry were observed at the parapets, particularly on the north facades of the building and below areas of missing coping units. The parapet located on the west exterior wall of the northeast wing has collapsed onto the roof surface; most of the brick masonry on the adjacent parapets is displaced outward or spalled within the outer wythe. Localized rebuilding of some of the parapets is recommended. Erosion at the mortar joints was observed throughout the facade, especially concentrated at the parapets. Previous repointing attempts are present, but the repointed mortar, atop of the eroded original mortar, is typically debonded or missing. These regions of eroded masonry should be ground and repointed with appropriate mortar materials.

Corroded steel lintels were observed resulting in spalled and cracked brick masonry at the window heads and adjacent brick masonry, particularly within the north building addition. Replacement of the cracked and spalled brick units, installation of durable flashings at the corroded lintels, replacement of some steel lintels as needed, and cleaning and coating of the exposed steel surfaces is recommended. Some areas of cracked and displaced brick masonry located adjacent to the corroded lintels may require removal and replacement with appropriate lateral reinforcement.

The stone copings on the north building addition are generally in place with localized spalled or cracked units, but most of the stone coping units on the other building sections are missing, resting on the roof level or on grade due to vandal activities. Stone units are missing or displaced at the top of the brick masonry and stone pilasters due to the removal of adjacent coping units. Spalled stone units at the top of the pilasters were observed at the location of post-installed lateral reinforcement anchors. Limestone units that are outwardly displaced should be monitored and stabilized in the near term to prevent a falling object hazard. Repair or replacement of the spalled and cracked units, replacement of missing stone units, and resetting of the displaced stone units with appropriate lateral reinforcement is recommended. The majority of existing coping units may be repaired and reset, though some replacement units are anticipated.

Though masonry distress is present throughout the building, the ornate decorative facades on the south end of the building, especially those facing Midland Avenue, are in relatively good condition with only minor distress observed near the top of the wall. However, the existing distress is anticipated to progress into more significant repairs if the ongoing bulk water infiltration into the wall assembly from deficiencies in the roofing and coping are not addressed.

The chimney attached to the powerhouse is in poor, unstable condition. Bulging, cracking, and missing brick masonry was observed near the top of the chimney on all sides. Approximately half of the coping units are missing with some of the stone currently resting on grade, potentially from a previous partial collapse. A chain link fence surrounds the powerhouse and the attached chimney, deterring direct access below. In the near term, the displaced masonry should be monitored and stabilized to mitigate future falling hazards. Rehabilitation of the brick masonry chimney, including rebuilding the bulging, cracked, and missing masonry with appropriate lateral reinforcement is recommended.

The original wood framed windows on the first floor are intact, but broken and missing glass lites, peeled/flaked paint on the frames, localized decay of the wood frame, and weathered and debonded perimeter sealant were all observed. The second-floor wood and metal framed windows are generally more heavily distressed or are missing. The glass blocks within the steel-framed windows are typically broken. The first-floor windows may be restored or replaced as desired, but the second-floor windows and glass block windows require replacement. The conservatory steel framing is corroded with localized areas of complete section loss and partial collapse. Stone units are cracked and missing, brick units are spalled and missing in localized areas, and the windows are missing. Replacement of the window assembly and framing, and rebuilding of the distressed masonry will be required if the conservatory is to remain.

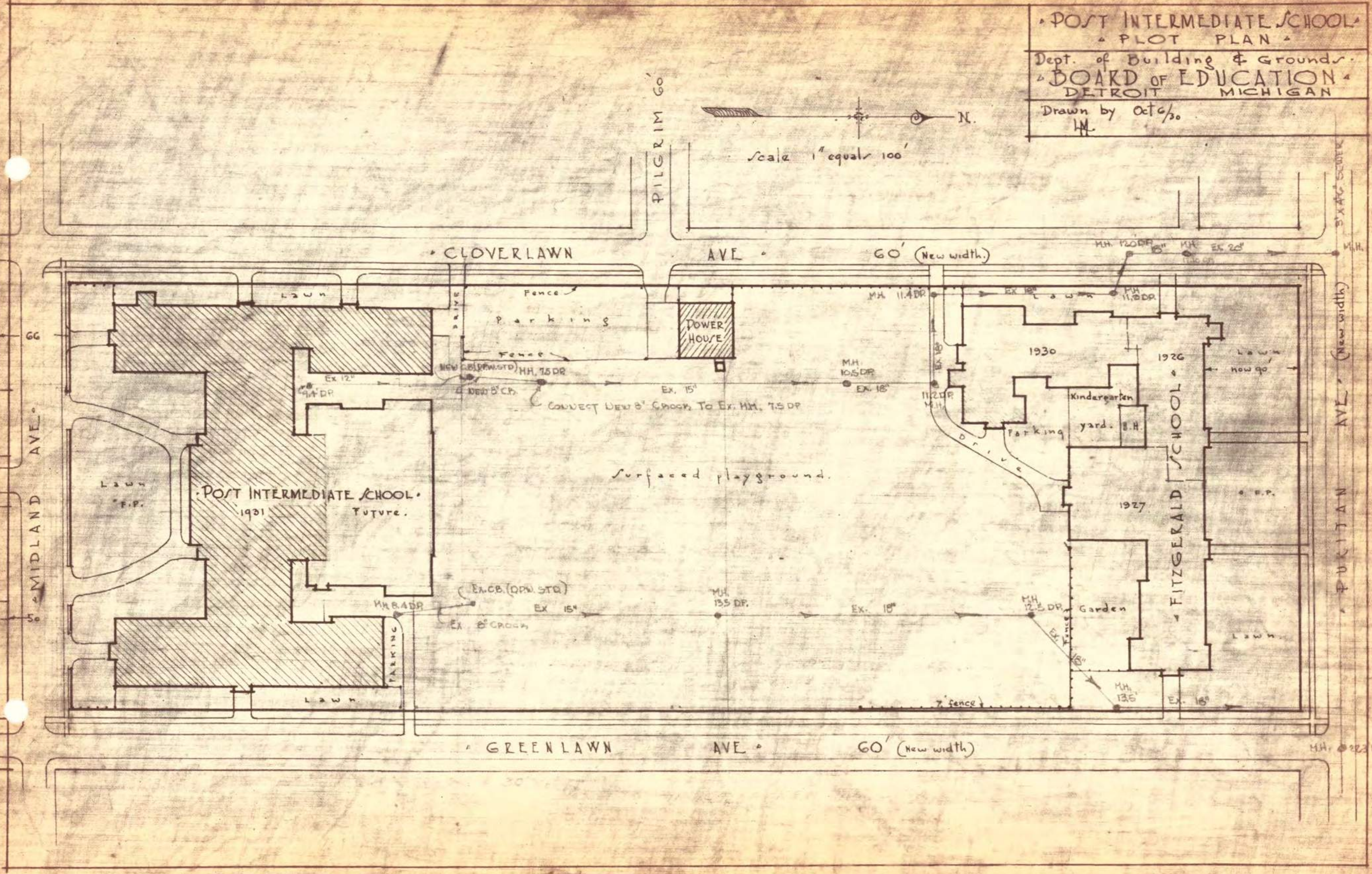
The steel-framed doors are typically corroded or missing, requiring replacement, and several entrances have been infilled with masonry. On the east end of the north facade, an overhead door has been infilled with brick masonry and windows, though the steel frame was left in place. This frame is currently corroded and displaced, resulting in surrounding masonry distress. Removal of the steel frame and localized rebuilding of the brick masonry is recommended to mitigate further masonry distress.

Roofing

The main roof level could not be accessed during WJE's assessment due to limited access. Damaged and deteriorated base flashings and vegetation growth at failed drains and seams were observed from the lower north roofs and grade. Evidence of water infiltration was observed from the interior near drains and missing mechanical units throughout the building. Significant damage to the interior finishes and localized deterioration of structural elements were also observed in these regions, as described in further detail within the *Structure* section below. Masonry distress at the parapets appears to be related to issues with the roof. Rehabilitation of the building should consider removal and replacement of the existing roof assemblies and drainage systems. Repairs may be possible in some regions of the main roof level to extend the service life of the existing assemblies, such as over classrooms that remain dry, though further investigation would be required to determine if repairs are a viable and economical option. Several skylights are present, which are currently covered with roofing materials, and they may be restored if desired as part of the building rehabilitation. In the near term, temporary roofing repairs should be considered, especially at the missing copings, to address the ongoing water management issues and stabilize the observed deterioration within the wall assemblies and building interior.

Structure

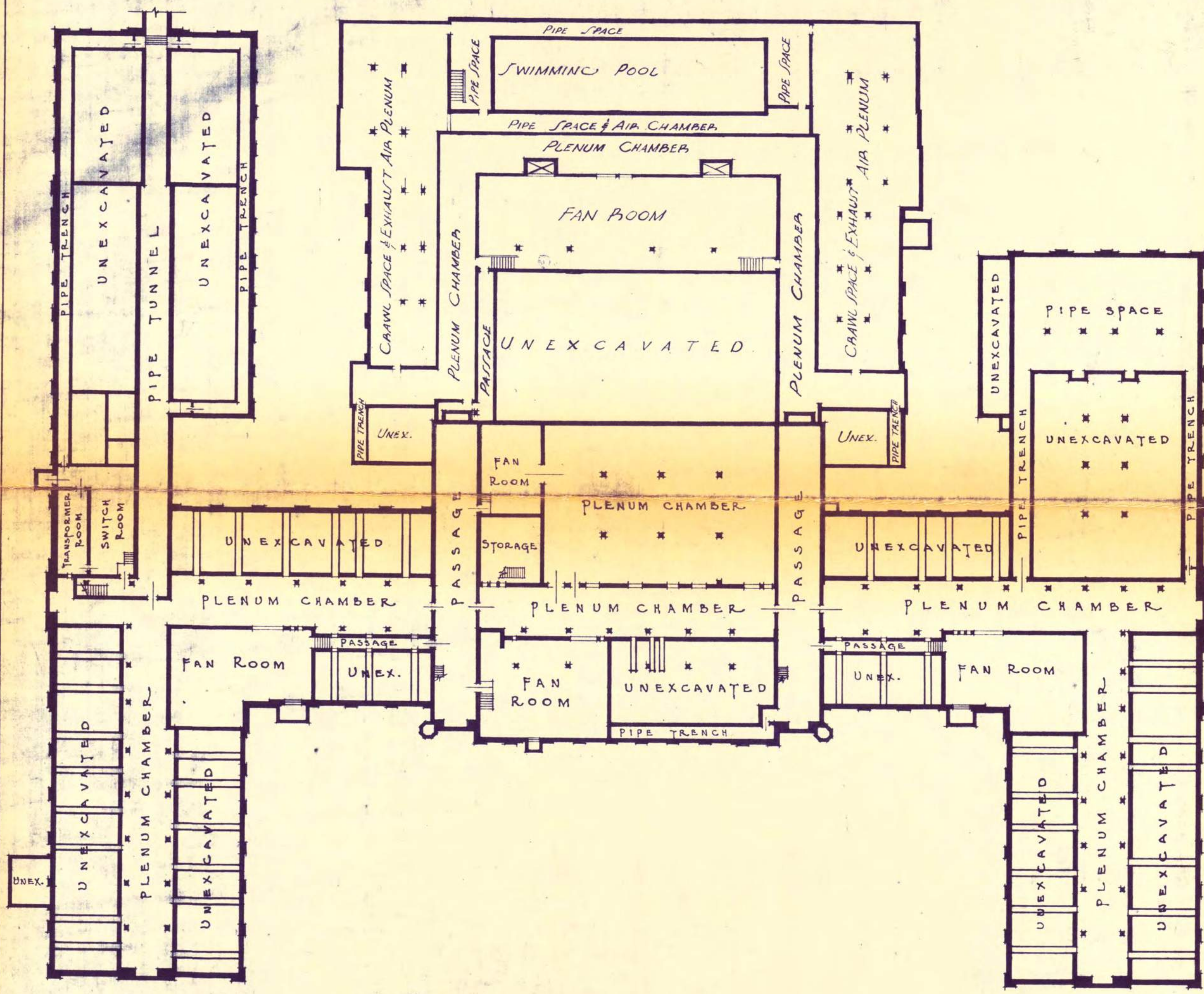
WJE's assessment was limited to the building envelope. However, WJE made the following additional observations of structural conditions in the course of assessing the building enclosure elements. An approximate one-inch wide horizontal crack was observed at approximately one-third height of a masonry wall in the gymnasium, with arched step cracks extending downward to the floor on both ends. Similar cracking was not readily visible on the opposite surface of the wall, which is clad in plaster and faces the auditorium stage. One possible cause of the observed cracking is thrust of the adjacent wood flooring before the wood flooring buckled, and subsequent cracking and rotation of the tile finishes. A competent gravity load path for the roof structure exists (roof girders span in the opposite direction), and the observed distress is not representative of concerns with the foundation integrity. The observed cracking is not expected to progress, and the finishes may be rebuilt in-kind at the base of the wall. Efflorescence, corrosion staining, and cyclic freeze-thaw damage was observed in localized areas of the exposed concrete structural framing, particularly within the roof structure of the southwest wing. Portions of the auditorium roof deck near missing rooftop mechanical units are significantly deteriorated and have collapsed, and portions of the steel framing are displaced and corroded. Collapsed stone coping units and brick masonry resting on portions of the deteriorated roof structure and suspended ceiling framing within the auditorium are at risk of falling further into the building interior. We recommend removing the suspended coping stones to prevent further damage or harm to persons or property in these areas of the building. Assessment of the structure is recommended.



POST INTERMEDIATE SCHOOL
PLOT PLAN
Dept. of Building & Grounds
BOARD OF EDUCATION
DETROIT MICHIGAN
Drawn by Oct 6/30
N.
Scale 1" equals 100'
PILGRIM 60'
CLOVERLAWN AVE 60' (New width.)
GREENLAWN AVE 60' (New width)
MIDLAND AVE
PURITAN AVE (New width)
Lawn
Parking
Fence
Drive
POWER HOUSE
New C.B. (DPW STD)
M.H. 7.5 DR
Ex. 12"
New 8" C.B.
CONNECT NEW 8" CROCK TO EX. M.H. 7.5 DP
Ex. 15"
M.H. 10.5 DR
Ex. 18"
M.H. 11.4 DR
M.H. 11.2 DR
M.H. 11.8 DR
M.H. 12.0 DR
Ex. 20"
1930
1926
1927
Kindergarten yard.
Parking
Now 90'
Surfaced playground.
POST INTERMEDIATE SCHOOL
1931
Future.
F.P.
Ex. C.B. (DPW. STD)
M.H. 8.4 DR
Ex. 8" CROCK
M.H. 13.5 DR
M.H. 12.5 DR
Garden
Fence
7' fence
M.H. 13.6'
FITZGERALD SCHOOL
66
50

LOREN M. POST INTERMEDIATE SCHOOL BASEMENT PLAN					
DEP'T. OF BUILDING & GROUNDS BOARD OF EDUCATION DETROIT-MICH.					
DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
G.	12-20-31				

Revised 1-28-54

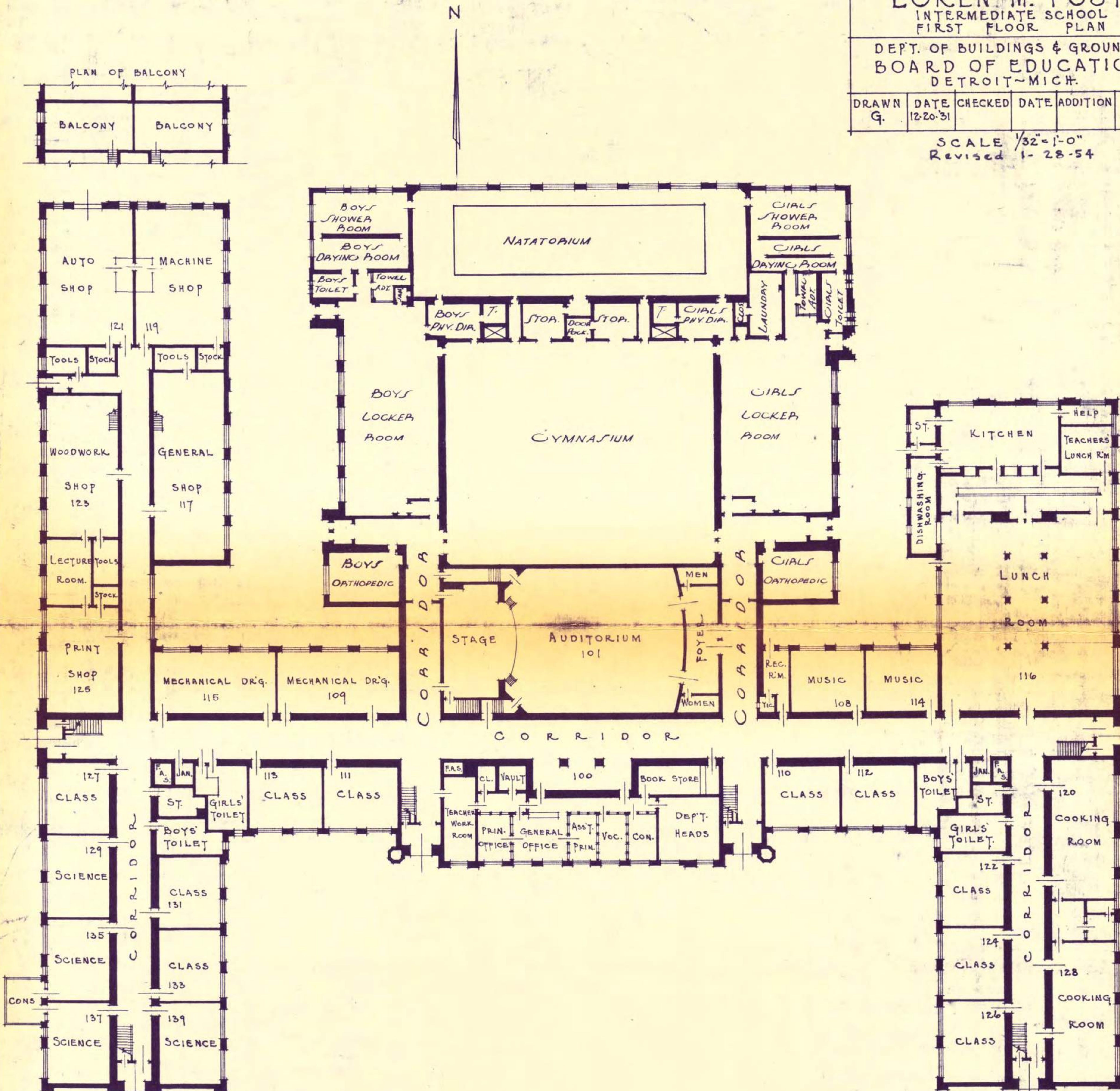


LOREN M. POST
INTERMEDIATE SCHOOL
FIRST FLOOR PLAN

DEP'T. OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT~MICH.

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
G.	12-20-31				

SCALE 1/32" = 1'-0"
Revised 1-28-54

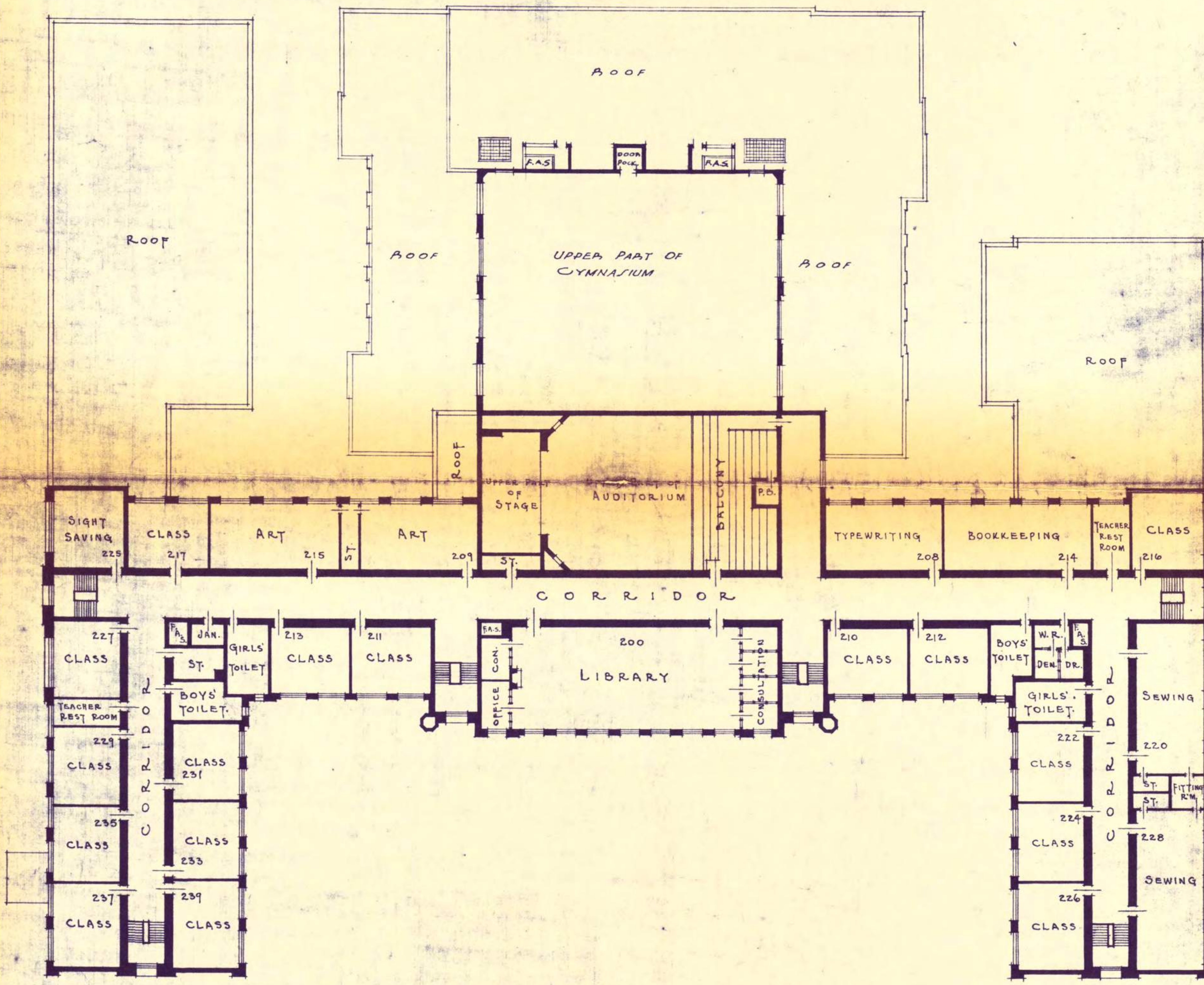


LOREN M. POST
INTERMEDIATE SCHOOL
SECOND FLOOR PLAN

DEP'T. OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT~MICH.

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
G.	12-20-31				

Revised 1-28-54



WJE

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Robeson Early Childhood Center

Basic Property Information: DPS 2-Robeson-14900 Parkside

Short Name:	Robeson
Address:	14900 Parkside Street Detroit, Michigan 48221
Year Built:	1968
Additions Built:	None
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	85 feet x 250 feet
Square Footage:	18,168 sq. ft.
Number of Stories:	
Building Height:	16 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ CMU ▪ Structural Steel ▪ Gypsum Concrete Roof Deck
City Council District:	2	**Exterior Wall System:**	▪ Brick ▪ Thin Cementitious Panels
SNF District:	NA	**Window System(s):**	▪ Metal
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains ▪ Asphalt Shingles

Assessment Summary

Assessment Date:	July 23, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 17, 2020
Building Risk Index:	**38.67**

Cost Estimate

Base Rehabilitation Cost Estimate:	$877,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$1,453,440
Sub-Total	$3,230,440
Contingency (25%)	$807,610
Sub-Total	$4,038,050
Overhead and Profit (15-18%):	$726,849
Sub-Total	$4,764,899
Escalation (6% for 2 years)	$285,893
Sub-Total	$5,050,792
Architectural and Engineering Design Services (20%):	$1,010,158
TOTAL COST ESTIMATE:	$6,060,951

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition, and the roof level was reviewed from the roof access ladder. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The one-story building, constructed in 1968, is rectangular in plan. The roof layout consists of raised pyramidal roof areas that are located along each side of the length of the building with low-slope roofs extending between the raised roof areas and exterior walls. Asphalt shingle roofing is present over the pyramidal areas, while the low-slope roofs consist of an internally drained, gravel-surfaced, bituminous built-up roofing. A large antenna was previously positioned on the low-slope roof surface, but has collapsed and is resting on the roof edge and adjacent grade.

The building facade consists of clay brick masonry, oriented in a running bond, with concrete masonry (CMU) backup. Thin, reinforced cementitious panels with an exposed aggregate finish wrap around the top of the exterior walls on all facades and clad the wall surfaces above and below the windows and doors. Aluminum framed windows are single-pane and conventional steel-framed doors are present. Plexiglass has been installed over all wall fenestrations and has been used to replace glass units in some regions.

The structural system consists of a gypsum concrete roof deck over formboards, which are supported by structural steel bulb tee purlins and structural steel framing. The structural steel members span between load-bearing concrete masonry (CMU) walls that appear to be 4 inches and 8 inches thick at the exterior and interior, respectively.

Overall, the building is in fair condition. Evidence of prolonged water infiltration was observed at roof drains and at transitions between the two roofing systems. The gypsum concrete roof deck is considered unsafe to walk upon in these regions. The low-slope roofing assembly, windows, and exterior doors are recommended for replacement. The cementitious cladding panels are distressed and are recommended for replacement in conjunction with window work. A detailed structural evaluation is recommended based upon observed distress.

Facade

The brick masonry veneer is generally in serviceable condition, though localized mortar joints near the base of the wall are eroded and should be repointed. The thin cementitious panels (approximately 1/4 inch thick) contain localized cracks and chips, exposing areas of corroded mesh reinforcement, as well aggregate loss within the panel surface and deteriorated sealant between panels. These panels could be repaired in-place, though replacement or overcladding the existing panels with alternative materials in conjunction with the window replacement work may be a more economical, aesthetically consistent, and durable solution.

The single-pane windows are currently covered with temporary protective enclosures; the enclosure fasteners penetrate the window framing, creating holes. Missing or cracked glass lites were observed at many windows and the sealant at the perimeter joints typically exhibited weathering and bond failure. The windows may be restored, including replacement of cracked and broken lites, installation of new sealant around the window perimeters and within the holes in the frame created by the fasteners; however, replacement of the existing window assemblies is recommended as a cost-effective alternative and for improved thermal performance. The exterior steel doors are dented and exhibit localized corrosion, and glass lites within the door assemblies, where present, are typically cracked. As part of the measures to secure the building, the doors have been welded shut and protective enclosure bars have been installed, which include bolted elements that penetrate through the door leaves. These observed conditions warrant replacement of the exterior steel doors.

Roofing

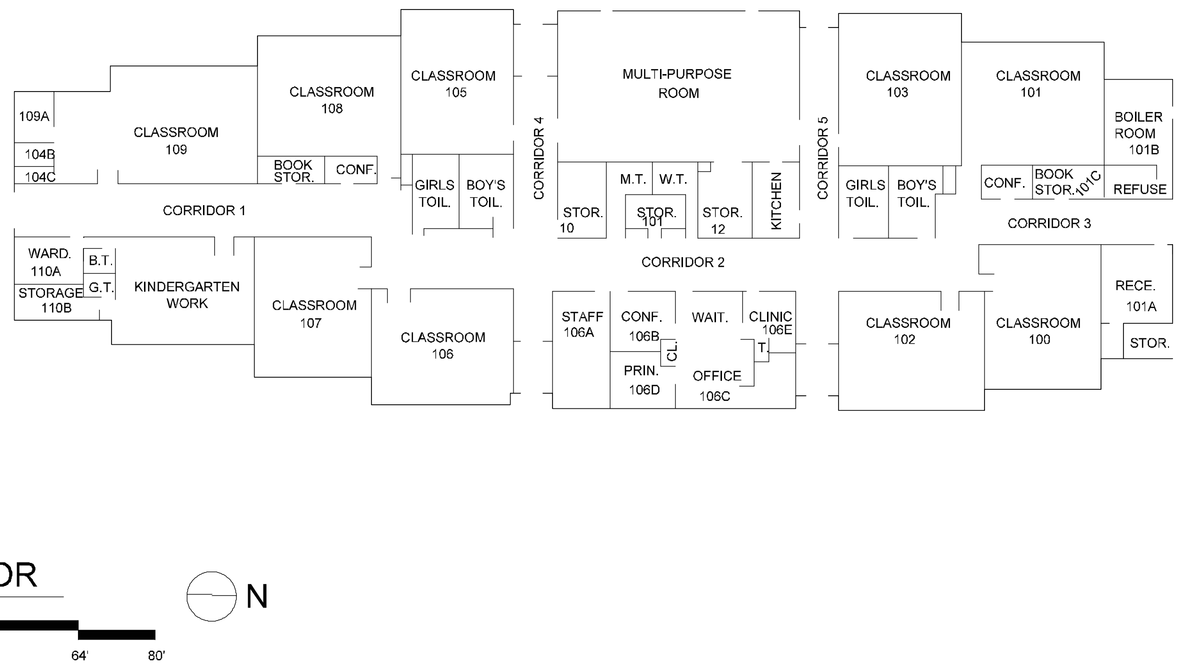
The low-slope roofing is in poor condition and is recommended for removal and replacement, including replacement of the existing drainage systems and removal of the collapsed antenna. Cracking and seam failures were observed throughout in addition to organic growth and ponded water near drains.

Asphalt shingled roofing appears in serviceable condition with only localized areas of missing shingles and displaced flashings observed. Localized maintenance repairs are recommended to extend the service life of the existing asphalt shingle roofing, including replacement of missing or damaged shingles and flashings.

Structure

WJE's assessment was limited to the building envelope. However, during our cursory building walkthrough, significant water staining and deterioration of the structural gypsum concrete roof deck was observed at roof drains and transitions between the two roofing systems. Sustained moisture exposure to gypsum concrete roof decks can reduce its structural integrity due to its absorptive characteristics, which can result in softening and erosion of the material, and corrosion of the vital mesh reinforcing steel. The gypsum concrete roof deck is considered unsafe to walk upon in regions where water staining is present. Damaged structural roof decking should be replaced in conjunction with the roofing work, and the supporting structural steel elements are recommended to be assessed for potential corrosion.

Additionally, depending on the new building use, current building codes may require an evaluation of the exterior wall assembly and connections of the roof framing to the wall assembly for wind and seismic loading conditions.



FIRST FLOOR

School Code: 82

Paul Robeson Academy Annex

formerly Edward M. Turner Elementary

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Stewart Elementary School

Basic Property Information: DPS 2-Stewart-13120 Wildemere

Short Name:	Stewart
Address:	13120 Wildemere Street Detroit, Michigan 48238
Year Built:	1925
Additions Built:	1930
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	190 feet x 280 feet
Square Footage:	63,110 sq. ft.
Number of Stories:	2
Building Height:	33 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel
City Council District:	2	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Aluminum Replacements
		Roofing System(s):	▪ Built-up Roof ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 28, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 19, 2020
Building Risk Index:	**48.00**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$945,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,048,800
Sub-Total	$6,863,800
Contingency (25%)	$1,723,450
Sub-Total	$8,617,250
Overhead and Profit (15-18%):	$1,292,587
Sub-Total	$9,909,837
Escalation (6% for 2 years)	$594,590
Sub-Total	$10,504,427
Architectural and Engineering Design Services (20%):	$2,100,885
TOTAL COST ESTIMATE:	$12,605,313

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building facades to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. The roof level was not accessed due to safety concerns near the top of the ladder. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed between 1925 and 1926 with an additional phase constructed in 1930. The brick masonry units are typically oriented in a running bond with a header course every six courses vertically. Limestone units are located at the horizontal bands, coping, entrance surrounds, and window surrounds and mullions; limestone ornate accent units are also located at the parapets. Punched wall openings contain aluminum replacement windows set within the original wood window frames. The building entrances contain conventional steel-framed doors. The low-slope roofing consists of an internally drained, gravel surfaced, bituminous built-up roof (BUR) with granulated cap sheet base flashing.

Overall, the building is in serviceable condition. The majority of the roof assembly is performing well and the interior spaces are generally dry with the exception of one region near the main west entrance. However, the windows are missing and require replacement and masonry and stone repairs are recommended at various areas through the facade.

Facade

Cracking, spalling, and displacement of the limestone units was observed at many of the window heads due to corrosion of the steel lintels and steel anchors caused by prolonged water infiltration. These stone header units are slotted on the backside for strap anchors, and are hung from the steel lintels above. Cracking and bulging of the brick masonry was also observed at the window heads in localized areas. Removal and resetting of the limestone and brick units is recommended to expose the steel lintels and anchorage. The steel lintels should be cleaned and painted or replaced in areas of significant corrosion or section loss, and flashings should be installed for improved durability. Anchors and pins should be replaced with stainless steel or other non-corrosive hardware. Replacement or repair of the cracked and spalled limestone units and rebuilding of the bulging and displaced brick masonry is recommended as part of this work.

Eroded mortar was observed at isolated regions, which should be repointed. A vertical crack with previous failed repointing attempts was observed at the joint between the 1925 and 1926 building additions, likely due to unaccommodated thermal movement between the structural framing and masonry. At this location, replacement of the localized cracked brick masonry with the installation of appropriate movement detailing is recommended to mitigate further masonry distress.

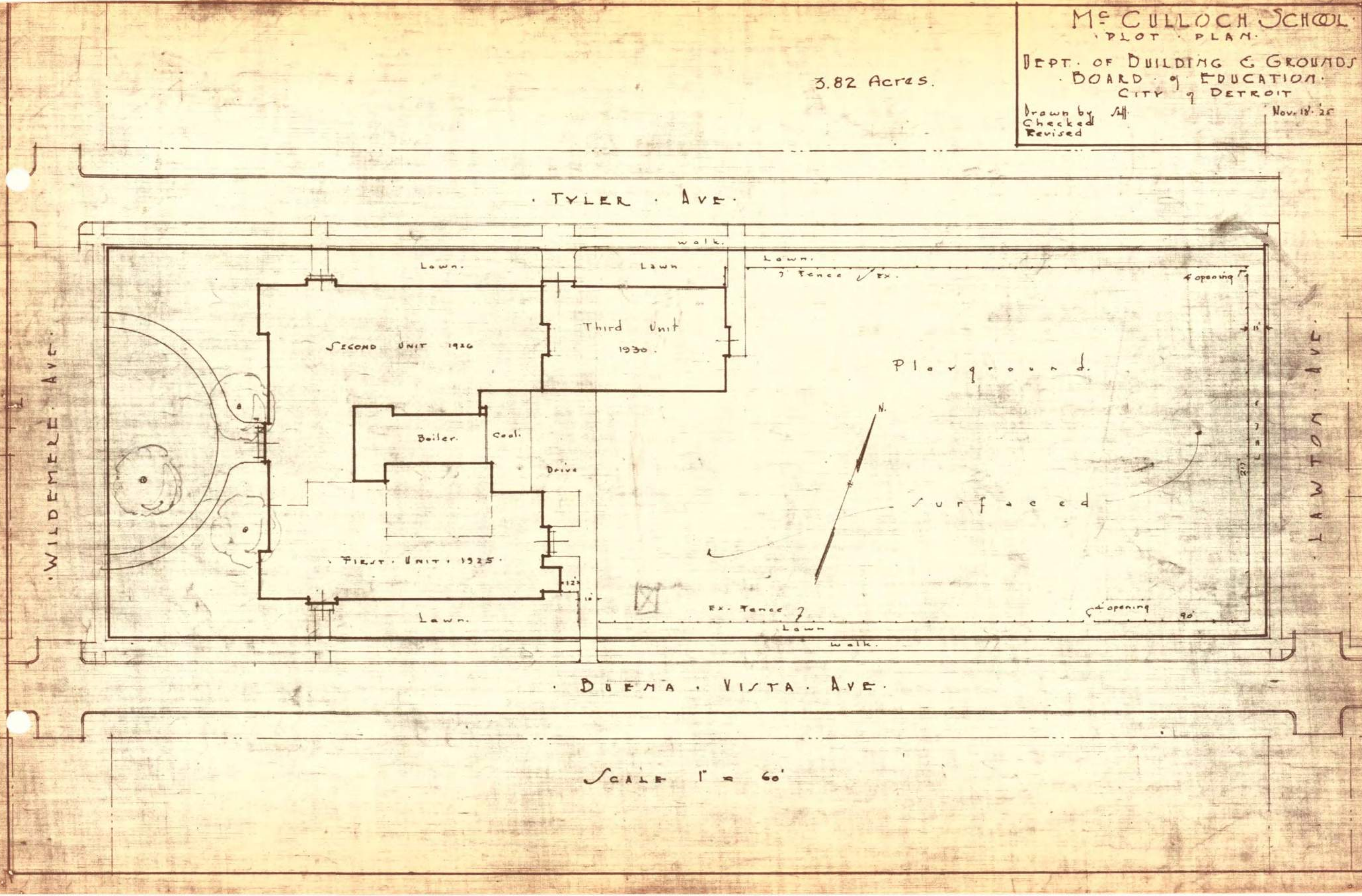
The chimney is in poor condition. Cracked and displaced brick masonry was observed near the top of the chimney on all sides. Restoration of the brick masonry chimney, including rebuilding the cracked and displaced areas of the brick masonry with appropriate lateral reinforcement and installation of new cap flashing, is recommended.

The exterior metal canopies above the east entrances are deflected and corroded with localized areas of complete section loss, caused by moisture infiltration through joints and roofing above. The paint on the underside of the canopy was blistered and failed. Repairs at the canopies are recommended, involving removal and replacement of steel elements with complete section loss and cleaning and coating of exposed, intact steel surfaces in conjunction with replacement of the roofing above. Alternately, replacement with alternative materials or removal of the canopies may be a cost-effective option; one canopy was previously removed.

The aluminum replacement windows are generally missing and the original wood window frames that remain are damaged or decayed. The steel framed doors exhibit corrosion and dents, missing hardware, and are barred shut with steel barricade bars penetrating the steel doors, likely warranting replacement.

Roofing

The main roof level could not be accessed during WJE's assessment. Evidence of water infiltration was observed from the interior near one of the roof top mechanical units near the west entrance, while the remaining interior areas were generally dry. Isolated loose seams, missing downspouts, and vegetation growth were observed on the lower roofs. Based on a lack of water intrusion below the field of the low-slope roofing, the roof appears to be performing well and likely requires only localized maintenance related repairs to extend the service life of the existing roof assembly.

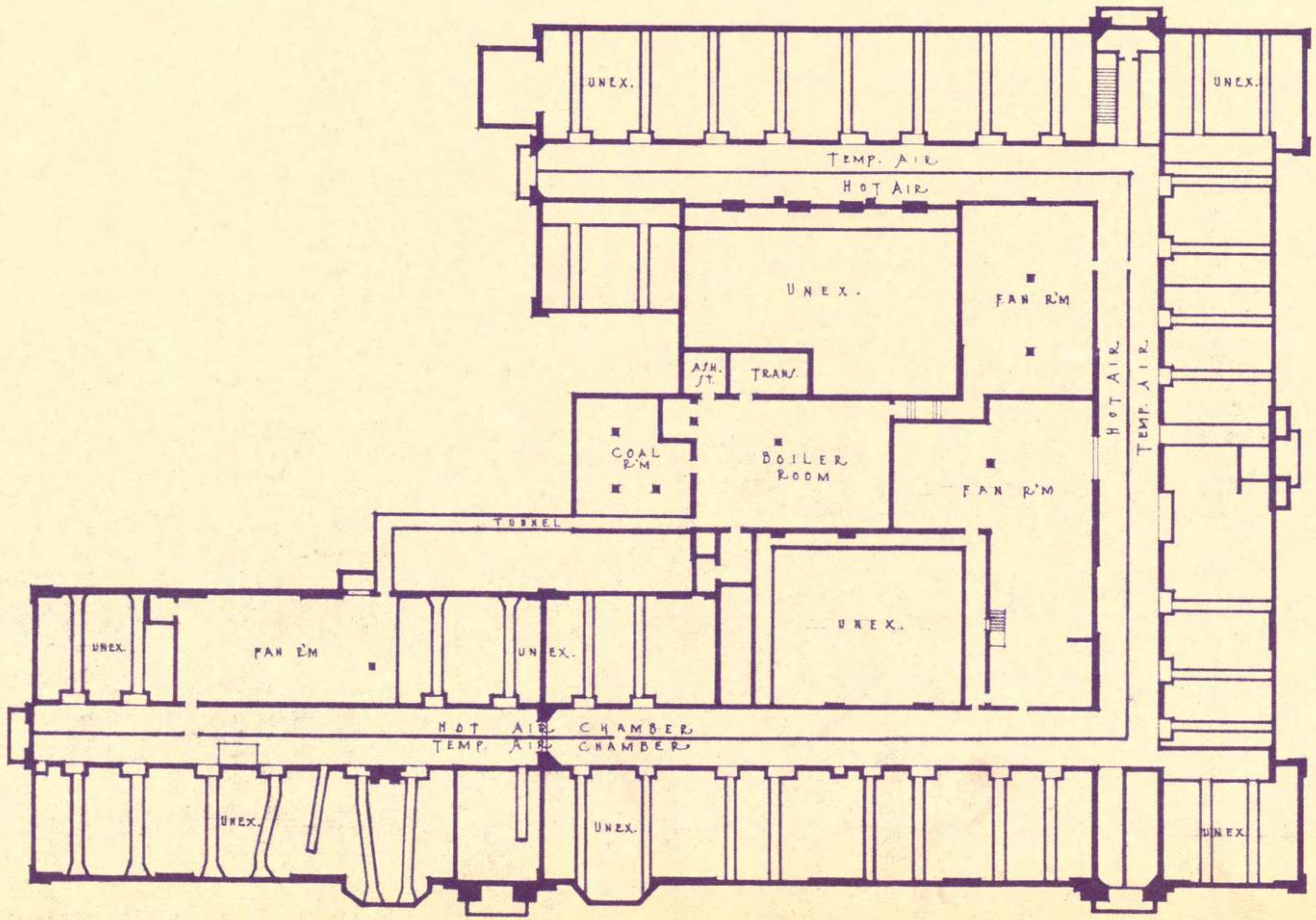


McCULLOCH SCHOOL
PLOT PLAN
DEPT. OF BUILDING & GROUNDS
BOARD of EDUCATION
CITY of DETROIT
Drawn by
Checked
Revised
Nov. 18. 25
3.82 Acres.
TYLER AVE.
walk.
Lawn.
Lawn
Lawn.
7' Fence Ex.
4' opening
Third Unit
1930.
SECOND UNIT 1926
Playground.
N.
Boiler.
Coal.
Drive
Surfaced
FIRST UNIT 1925.
Lawn.
Ex. Fence 7'
4' opening
90'
Lawn
walk.
WILDEMERE AVE.
LAWTON AVE.
BUENA VISTA AVE.
SCALE 1" = 60'

MAC-CULLOCH SCHOOL
BASEMENT PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT - MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	2-9-31	G.L.S.	2-12-31		



MAC-CULLOCH SCHOOL
FIRST FLOOR PLAN

DEPT OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT - MICH

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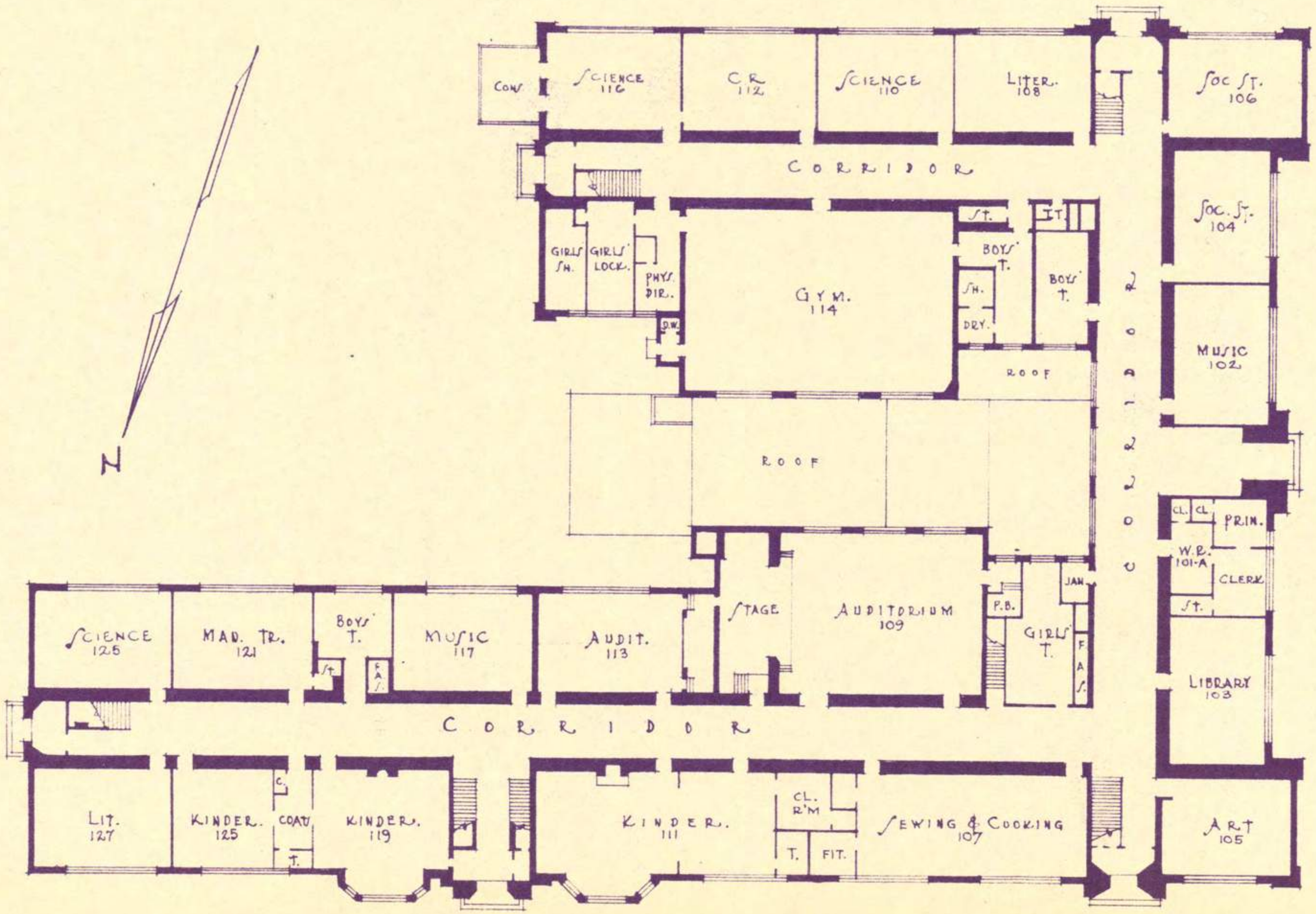
CWS	2-1-31	[illegible]	2-12-31		



MAC-CULLOCH SCHOOL
SECOND FLOOR PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT - MICH.

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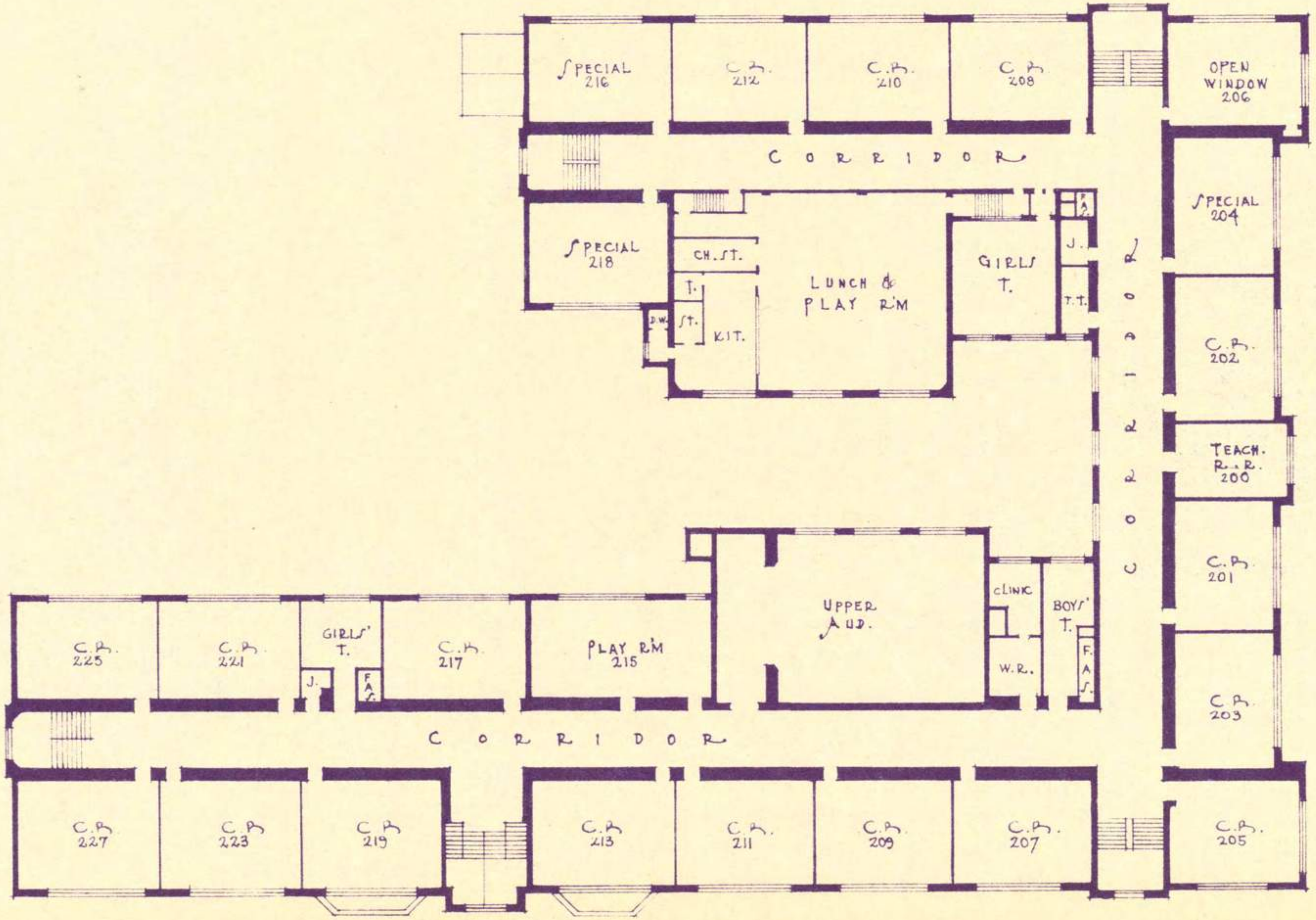
cws	2-1-31	A. S. S.	2-12-31		



District 3

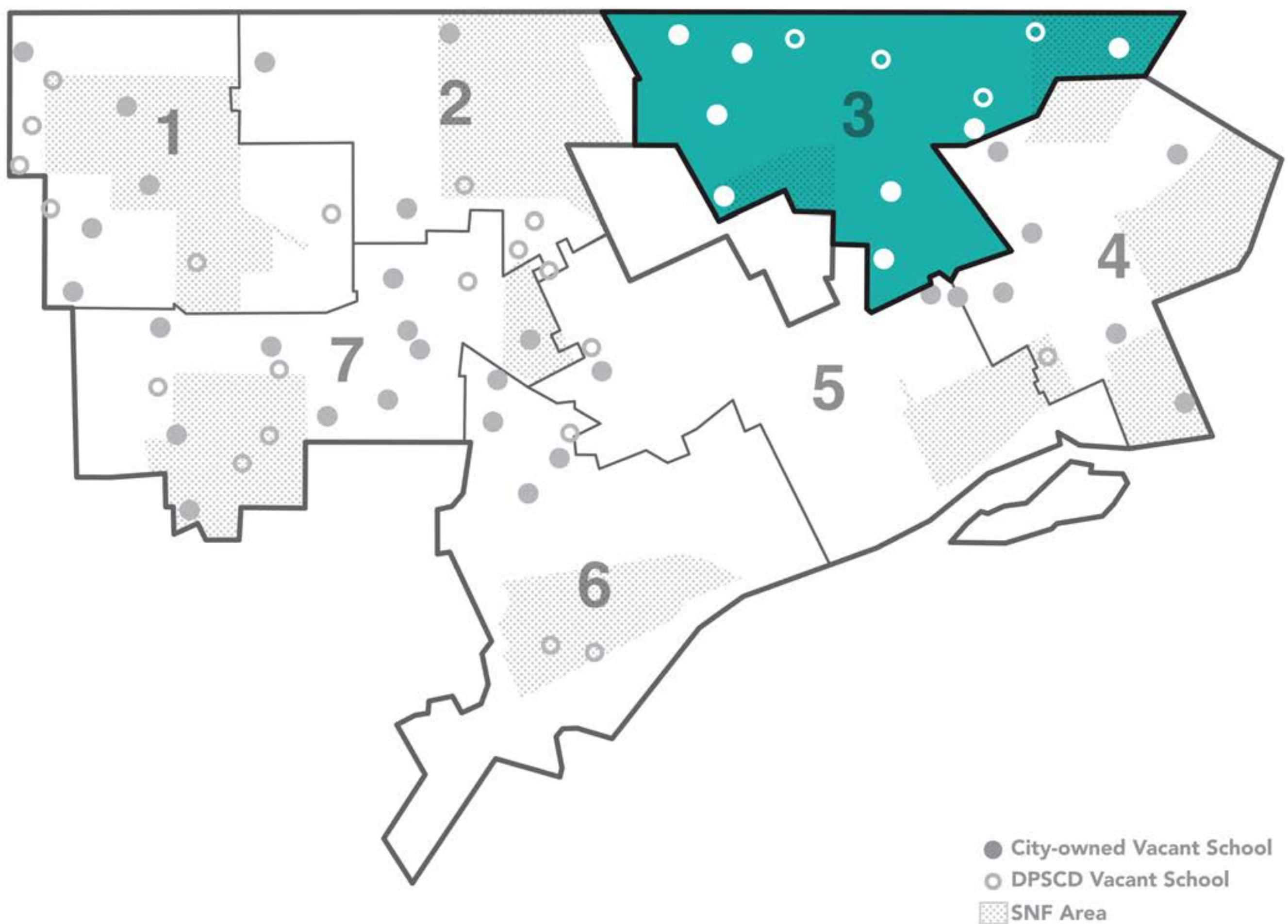
City of Detroit Schools:

Burbank
Courville
Crockett
Lynch
Marshall
Mason
New
Washington

DPSCD Schools:

Law
Trix
Van Zile
Von Steuben

Detroit
City Council District 3



Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Fisher Magnet/Burbank School

Basic Property Information: COD 3-Burbank-15600 E State Fair

Short Name:	Burbank
Address:	15600 East State Fair Street, Detroit, Michigan 48205
Year Built:	1930
Additions Built:	1943, 1948, 1992
Outbuildings:	Powerhouse
Year Vacated:	2006
Building Footprint:	450 feet x 205 feet
Square Footage:	86,346 sq. ft.
Number of Stories:	2
Building Height:	33 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ CMU ▪ Structural Steel ▪ Wood
City Council District:	3	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone ▪ Cast Stone ▪ Terra Cotta
SNF District:	G7M	**Window System(s):**	▪ Steel ▪ Aluminum
		Roofing System(s):	▪ Gutters ▪ Internal Roof Drains ▪ Modified Bitumen (assumed) ▪ Built-up Roofing ▪ Gravel Surfaced

Assessment Summary

Assessment Date:	June 09, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 10, 2020
Building Risk Index:	**64.26**

Cost Estimate

Base Rehabilitation Cost Estimate:	$2,587,600
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$6,907,680
Sub-Total	$10,395,280
Contingency (25%):	$2,598,820
Sub-Total	$12,994,100
Overhead and Profit (15-18%):	$1,299,410
Sub-Total	$14,293,510
Escalation (6% for 2 years)	$857,610
Sub-Total	$15,151,120
Architectural and Engineering Design Services (20%):	$3,030,224
TOTAL COST ESTIMATE:	$18,181,344

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structural systems to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. The roof over the east 1990s addition was inaccessible due to a lack of ladder access to the roof hatch. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded and was not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The building is comprised of multiple building areas with varying facade, roof, and structural assemblies. The school was originally constructed in the early 1930s on the northwest end of the property and was rectangular in plan. A large addition was constructed in the early 1940s at the southwest portion of the property, which completes the U-shaped plan of the current western portion of the building. A second addition was constructed in the late 1940s, which includes a second-story expansion and a small single-story construction on the southeast side of the building that houses a gymnasium/cafeteria. Another large expansion was completed on the east side of the property in the early 1990s, more than doubling its previous footprint. A powerhouse with connecting vaulted slab areas at the basement level is located within the interior courtyard that is confined between the main west and east building areas. A large screen wall with an overhead door is present on the south facade, which serves as the courtyard entrance, and conceals the powerhouse from view from the exterior.

The original building and 1940s facades are similar in construction and generally consist of clay brick masonry with concrete masonry unit (CMU) and concrete brick backup. Decorative brick masonry coursing is present at the building entrances, pilasters, and spandrels. Limestone units accent the building entrances, window sills, parapet copings and are present at horizontal bands below the first floor windows and above the first and second floor windows. Decorative terra cotta units are present at pilasters above the entrances and between windows, as well as in the center of the spandrels. Original steel-framed windows are present in punched wall openings and the building entrances consist of conventional steel doors. Some window openings have been infilled with brick masonry. The low-slope roof consists of an internally drained, smooth surfaced, modified bitumen or built-up roofing (BUR) system. Gutters and downspouts are present on some lower roof areas in lieu of internal drains. Small rooftop penthouses are present at the main roof of the original building, which have pitched roofs covered with asphalt shingles over structural wood framing. The floor and roof structures consist of concrete tee joist-slabs spanning between the exterior walls and concrete beam and column systems located within the corridor walls of the original building. In the 1940s era construction, the floors consist of concrete flat slabs spanning to a concrete beam and column system. The concrete beams and columns for either era of construction could be of structural steel members encased in concrete in lieu of reinforced, cast-in-place concrete.

The facade of the 1990s addition at the east end of the property primarily consists of brick masonry veneer in a running bond and cast stone belt courses with CMU backup. Aluminum windows are present in punched wall openings and building entrances consist of convention steel doors and transoms. A bronze colored sheet metal roof edge flashing extends around the building perimeter and sheet metal copings are present at rising walls throughout the roof areas. The low-slope roof consists of an internally drained, gravel surfaced, bituminous BUR with granular cap sheet base flashing. The roof structure consists of metal deck over open web steel joists which span between load bearing CMU walls. Steel beams are located over openings in the CMU load bearing walls. The roof structure is sloped, and spray-applied fireproofing is present on the steel framing. A fan room with a concrete and steel beam framed floor structure is located above the central most rooms of the addition.

Overall, the original building and 1940s additions are in good condition, though significant masonry and roofing distress will need to be addressed as part of a rehabilitation effort. Damage to these systems are largely related to missing limestone coping units at the parapets and subsequent prolonged water penetration into the masonry wall assembly. The large 1990s addition is in good condition with only minor repairs recommended to maintain the building systems; however, isolated windows facing the courtyard are missing and will require replacement. The structural systems throughout the building are in excellent condition with isolated areas of distress observed which are primarily caused by water infiltration through failed areas of the building envelope or vandalism activity. Further detail of the observed distress is provided below.

Facade

The exterior masonry walls are generally in fair condition. The facade of the original building and 1940s additions exhibit signs of deterioration (i.e. cracking and spalling) consistent with masonry that is exposed to prolonged water penetration and freeze/thaw cycling of entrapped moisture. This water penetration is primarily related to deficiencies in the roofing and copings. These conditions should be addressed in the near term to avoid worsening of the distress to the level at which significant repairs are required. Isolated cracking and masonry displacement were also observed throughout the facade, which is primarily attributed to corrosion of the embedded steel support elements. Though isolated areas of masonry distress are present within the east 1990s addition, the majority of the 1990s facade is in good condition.

At the original building and 1940s additions, cracked and displaced areas of brick masonry were observed near the top of the wall at building corners and spalled brick masonry was observed at both sides of the parapets. The existing limestone coping units have been removed and set on the roof adjacent to the parapets at several locations, likely due to vandalism to access the copper flashing elements previously located below the coping stones. Where flashings have been removed, the top of the masonry parapet is fully exposed and the roofing membrane is typically pulled away from the masonry substrate, resulting in a direct avenue for moisture penetration into the masonry wall assembly below. Therefore, most of the masonry distress at the upper wall areas and parapet is due to water penetration and freeze/thaw deterioration where the copings and flashings were removed and/or failed. On the south end of the west facade, the extent of water infiltration has resulted in significant water staining, efflorescence, and mortar deterioration. Rehabilitation of the building should include a combination of isolated masonry repairs (i.e. repointing, localized brick rebuild) and full-depth rebuild of the parapets where displacement and instability are most severe. In addition, the parapet repairs should include installation of new flashings and resetting, or replacement, of the existing limestone coping stones. In the near term, temporary repairs and coverings over the exposed masonry parapets should be considered to address the ongoing water management issues and stabilize the observed deterioration within the wall assemblies and building interior.

Numerous limestone header units are spalled, cracked, or displaced at the horizontal band above the second floor windows and at the intermittent banding course above the first floor windows. The cracking and spalling is located at the top and bottom edges of the stone units. The localized spalling at the top of the units is due to corrosion of embedded lateral anchors, which are exposed in some locations, and the spalling at the base of the units is due to corrosion of embedded steel lintels below. The limestone header units are recommended for removal and replacement/resetting to adequately repair the corroded steel elements, and in conjunction with the recommended parapet rebuilding work. Some terra cotta units located at the top of the masonry pilasters are cracked near corroded steel window lintels or near corners that are confined by the adjacent masonry and were not able to accommodate differential movement of the surrounding materials. Some terra cotta units exhibit localized spalls or corrosion staining on the surface, which is attributed to water penetration and corrosion or lintels above or embedded anchorage. Rehabilitation of the building should include repair of these limestone and terra cotta elements to mitigate water infiltration into the wall assembly and building interior, and to mitigate further distress in the facade elements.

Beyond the regions of concentrated masonry distress, localized lintels are corroded, resulting in isolated step cracks and debonded mortar. Isolated vertical cracks are present in the brick masonry chimney, which should be repointed. These regions should be repaired by grinding and pointing deteriorated mortar, replacing isolated cracked brick units, and removing masonry to clean and paint the steel lintels with improved water management details and flashings.

The original steel-framed windows are in serviceable condition. Minor levels of surface corrosion, paint failure, and localized areas of damaged framing elements and missing glass were observed. The aluminum windows within the east 1990s addition are in good condition where present, though windows are missing on the facades facing the interior courtyard. Louvers within the rooftop units over the original building are missing. The conventional steel doors generally exhibit minor dents, corrosion near the base, missing glass within lites and transoms, and failed sealant, though several door leaves are missing or are significantly damaged. Rehabilitation of the building should include repair of the existing window and door assemblies and replacement of isolated windows, louvers, and doors as required.

A conservatory is located on the south facade of the original building within the west courtyard. The cast iron frame elements are largely intact with some missing components and minor corrosion observed throughout. Glass is missing in the lites of the original wood window frames and the wood framing exhibits paint failure and wood decay. Significant vegetation has taken root on the interior of the space and is extending through the roof and walls. The window system will likely require replacement after the vegetation is removed. However, the structural frame can be salvaged, cleaned, assessed, and re-coated if desired with isolated framing elements in need of replacement. Alternatively, replacement of the entire conservatory window and structural frame system may be a viable, cost-effective option depending on future building use.

Roofing

The roofing assemblies over the original building and 1940s addition are generally in poor condition, largely due to the missing limestone copings and copper flashing elements, damaged base flashings, and deterioration of the roofing at internal drains. Localized cracking and seam failures were observed throughout the surface of the exposed roof membrane, and “soft spots” were noticed when walking across the surface of the roof, which is indicative of wet, moist, or displaced roof insulation. Several rooftop mechanical units are missing, resulting in openings through the roof into interior space below. Water was ponded at some drain bowls, and organic growth and vegetation were observed in some areas of the roof surface and near failed drains. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and replacement of the internal drains and drain pipe systems at these building areas. Repairs to the roofing perimeter may be possible in some regions to extend the service life of the existing system in lieu of replacement as an immediate temporary measure.

The roofs over the east 1990s addition are in good, serviceable condition and require only minor maintenance-type repairs to extend the service life of the existing systems.

At the original building penthouses, the roofing is missing and significant decay of the wood plank sheathing and wood framing was observed. These roofs will require reconstruction (structural and roofing) during rehabilitation of the building. Alternatively, these penthouses could be demolished and/or modified to fit the needs for the new building use.

Structure

Beyond the wood roof framing for the penthouses at the roof level of the original building and isolated concrete and masonry distress related to water infiltration and vandalism, the structural systems of the original building and additions are in excellent condition. The few structural concerns are described below.

Isolated areas of concrete distress were observed in the 1940s addition, including cracking of the flat concrete slabs and cracking of the spandrel concrete beams. Many of the cracks in the slabs are oriented parallel to the span of the slab, thus may not require repair providing water infiltration is mitigated through envelope repair efforts. Localized areas of partial depth concrete repair are anticipated for select spandrel beams in Classrooms 202 and 205, and isolated locations of the flat slab systems throughout the 1940s addition. The concrete is recommended to be further evaluated for potential freeze-thaw material distress in areas of significant water infiltration.

Isolated areas of masonry distress were observed throughout the interior of the building. Arch action appears to be supporting a segment of brick masonry wall at the doorway for Classroom 205; proper support for this masonry should be provided if the doorway is to remain with the new building use. In the 1990s addition, the CMU has been vandalized and removed in the locker rooms, leaving steel roof beams minimally supported on the CMU that remains. Proper support for the roof beams is to be provided.

In the 1940s gymnasium, corrosion is present along the length of at least one of the box beams located below a perforated metal ceiling system which is also visibly corroded. Step cracking, previously repaired, was observed in the CMU exterior wall below a box beam and may be related to corrosion of the beam at that location. Further investigation of the condition of the box beams, especially at the beam bearings, and the roof structure above the ceiling system is recommended.

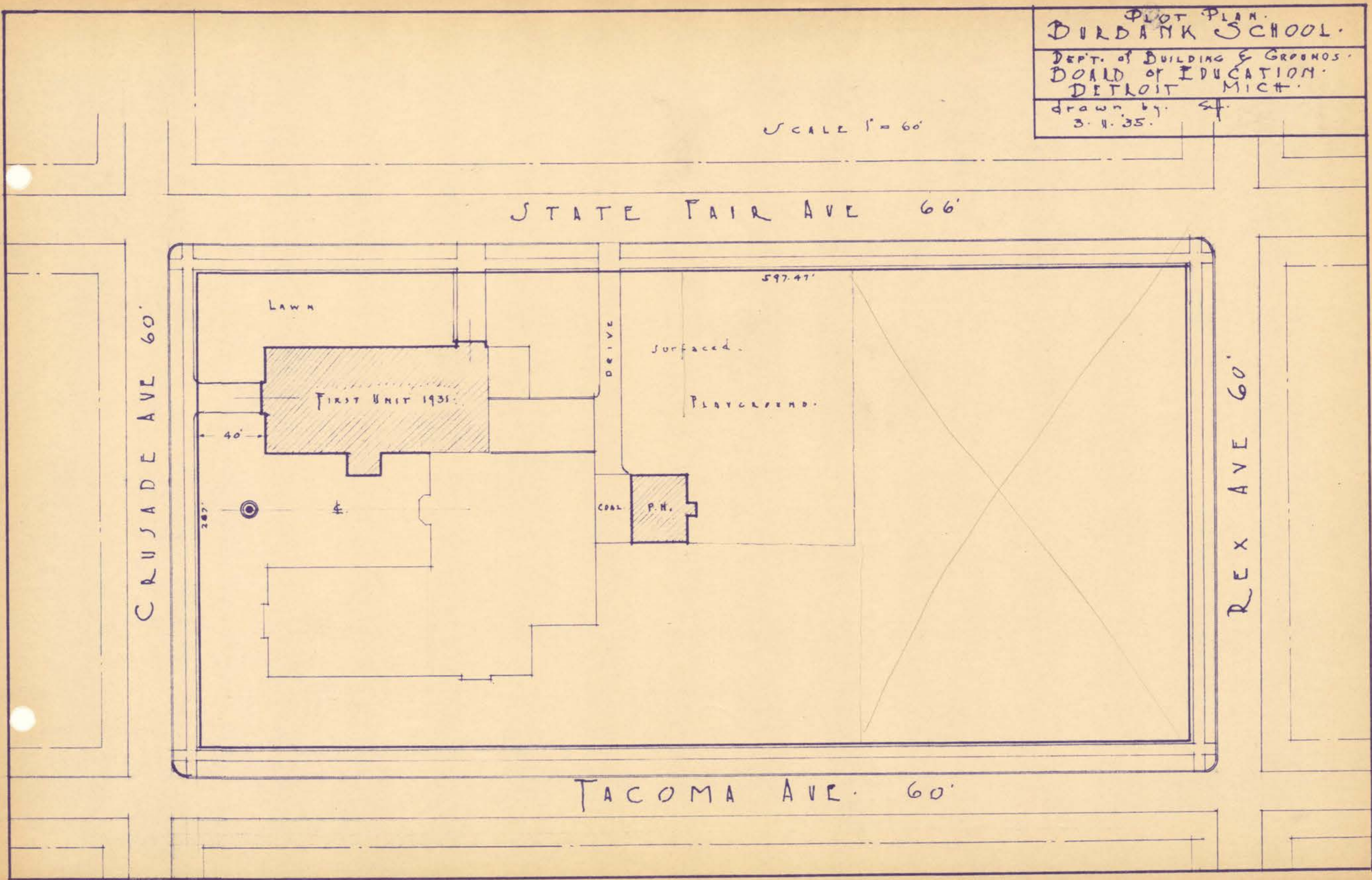
The basement was not fully accessible during the walkthrough inspection due to ponding water in the fan room. However, WJE was able to make observations from the basement plenum in the northeast corner of the building. The concrete slab-on-ground, walls, beams and slab exhibited no distress where accessible. The basement should be de-watered allowing for additional assessment of the basement level prior to the implementation of the recommendations stated herein.

Miscellaneous

Cracking within select walls and wall finishes, such as interior classroom and stairwell walls, may be related to the water infiltration occurring, thermal or volumetric changes in the wall materials, or the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked CMU units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated. Vertical cracking in the CMU walls was also prevalent in the gym and auditorium spaces of the 1990s addition. The vertical cracking is suspected to be related to roof drainage systems constructed within these walls, and the masonry can be repointed and cracked units replaced after the drainage systems are properly repaired.

Some localized masonry infill areas and partition walls are damaged resulting from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

The extant attic catwalk over the second-floor corridors consists of nominal 2x boards on flat supported on steel ceiling framing members. Water staining and fungal growth were common on these boards. Consideration to replace the catwalk to meet current code requirements as required for potential new building use is recommended.


PLOT PLAN.
BURBANK SCHOOL.
DEPT. of BUILDING & GROUNDS.
BOARD OF EDUCATION.
DETROIT MICH.
drawn by.
3. 4. 35.
SCALE 1" = 60'
STATE FAIR AVE 66'
CRUSADE AVE 60'
REX AVE 60'
TACOMA AVE. 60'
597.47'
LAWN
DRIVE
Surfaced.
PLAYGROUND.
FIRST UNIT 1931.
40'
287'
COAL
P.H.

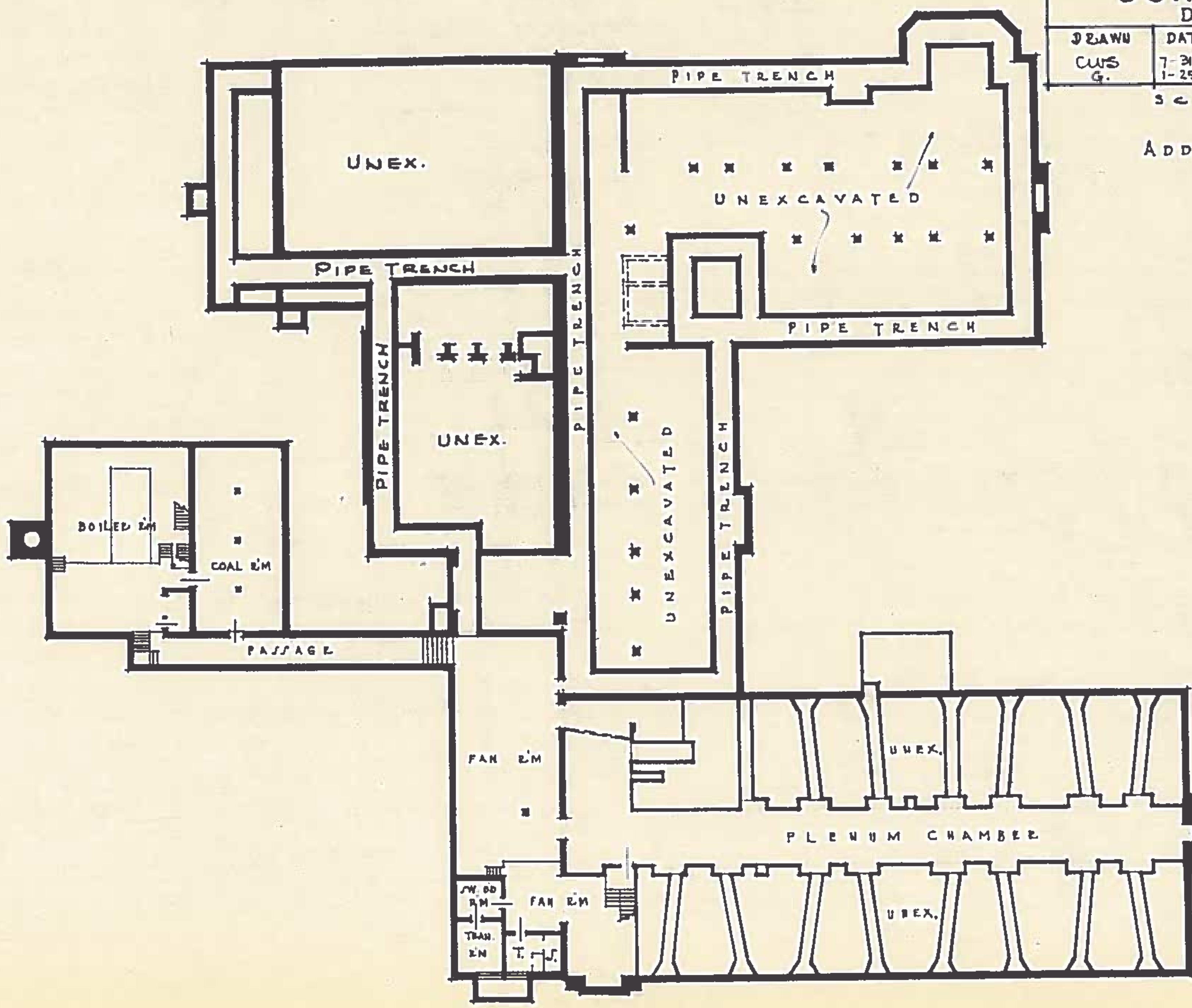
BURBANK SCHOOL
BASEMENT PLAN

DEPARTMENT OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT – MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS G.	7-31-31 1-25-43				

SCALE 1/32" = 1'-0"

ADDITION FEB. '44.

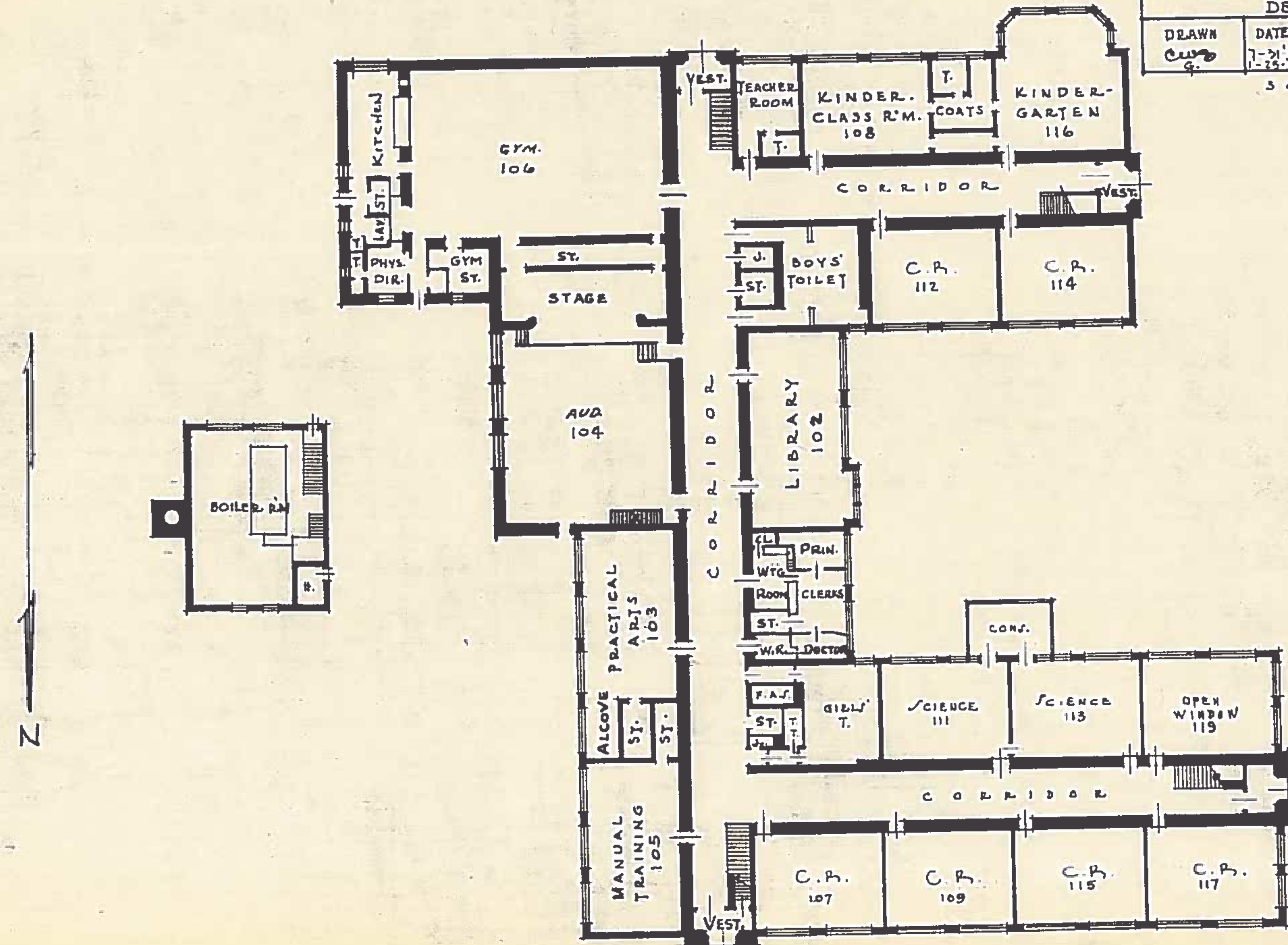


BURBANK SCHOOL
FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT — MICH

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
C.W.S. G.	7-31-'? 1-25-'43				

SCALE 1/32" = 1'-0"

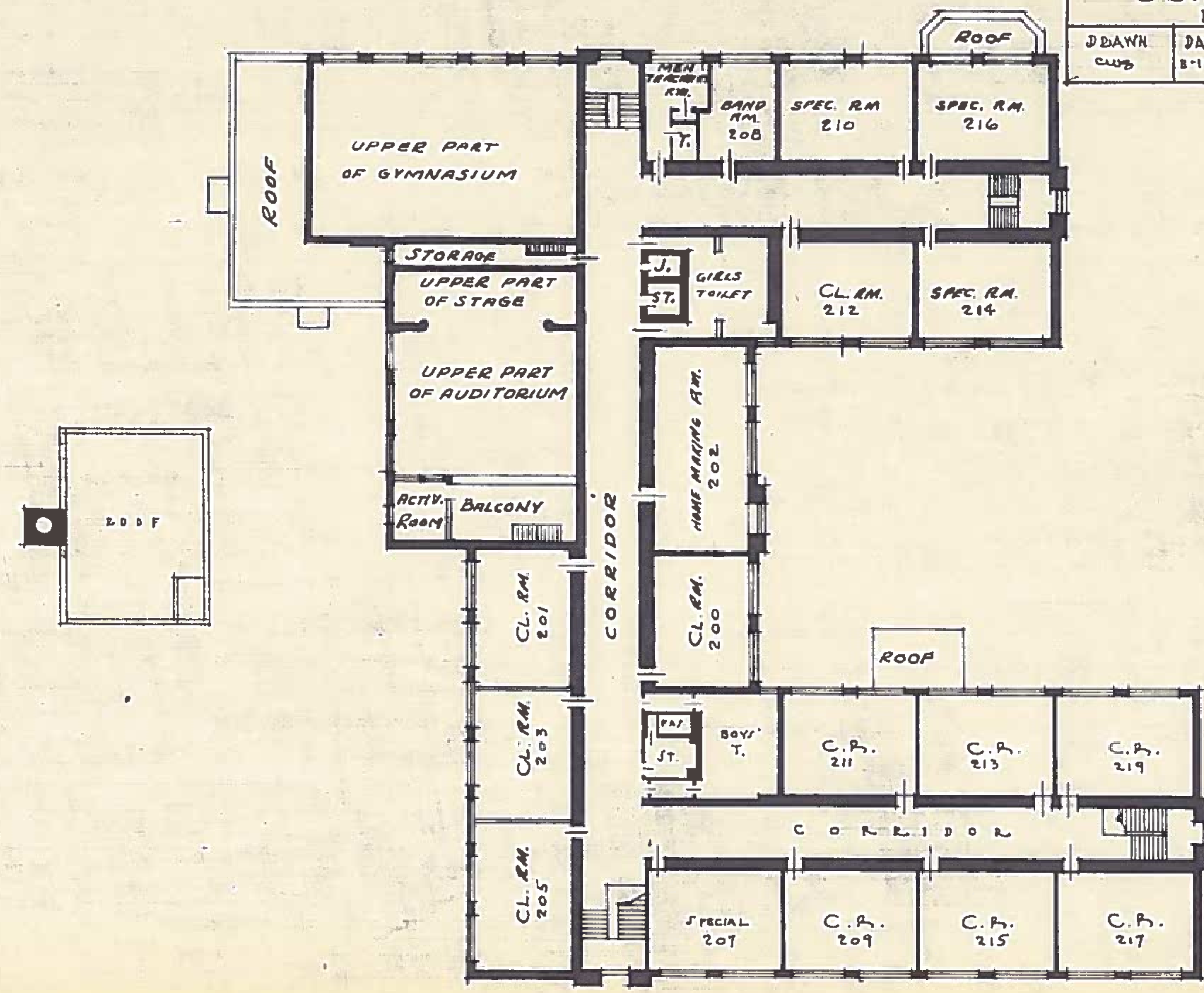


BURBANK SCHOOL
SECOND FLOOR PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT — MICH

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWB	8-1-31				

SCALE 1/32" = 1'-0"



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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Courville Elementary School

Basic Property Information: COD 3-Courville-18040 St Aubin

Short Name:	Courville
Address:	18040 Saint Aubin Street Detroit, Michigan 48234
Year Built:	1922
Additions Built:	1926, 1929
Outbuildings:	None
Year Vacated:	2007
Building Footprint:	200 feet x 345 feet
Square Footage:	83,403 sq. ft.
Number of Stories:	2
Building Height:	41 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	3	**Exterior Wall System:**	▪ Brick ▪ Stone
SNF District:	NA	**Window System(s):**	▪ Wood ▪ Metal framed
		Roofing System(s):	▪ Asphalt Shingle ▪ Built-up Roof

Assessment Summary

Assessment Date:	June 16, 2020
WJE Inspector(s):	Cheryl Early; Meredith Crouch
Report Date:	November 20, 2020
Building Risk Index:	**50.13**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,460,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$6,672,240
Sub-Total	$9,032,240
Contingency (25%):	$2,258,060
Sub-Total	$11,290,300
Overhead and Profit (15-18%):	$1,129,030
Sub-Total	$12,419,330
Escalation (6% for 2 years)	$745,159
Sub-Total	$13,164,489
Architectural and Engineering Design Services (20%):	$2,632,897
TOTAL COST ESTIMATE:	$15,797,387

ASSESSMENT METHODS

Visual Survey

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WJE performed a visual review of the building envelope from grade, using binoculars as needed. Roof levels were inaccessible due to a missing ladder at the access hatch. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded, and thus, was not accessed. The structure is minimally exposed due to the relatively good condition of the floor, wall and ceiling finishes. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The school was originally constructed in 1921 as a two-story building with a generally rectangular footprint. An addition was constructed to the north and to the east of the original building in 1926, with the east portion being relatively small in footprint. Four years later, in 1930, a second addition was constructed east of the northern addition creating the general "U" shaped footprint of the current building with a central courtyard space between the northern additions. Both the 1926 and 1930 additions are of similar construction as the original building.

The facade generally consists of buff-colored clay brick masonry in English bond with a brick or clay tile masonry substrate. The parapets of the low-slope roof areas are crenellated. Arched limestone units accent the entrances and select first floor windows, while additional limestone units are present at the sills, copings, and ornamental horizontal bands near grade and the roof level. The windows are ganged together to create larger window areas, and generally align vertically between the first and second floors. Aluminum replacement windows have been set in the original wood frames, and aluminum caps cover the wood frames on the exterior. The building entrances generally consist of conventional steel doors.

The roof layout generally consists of steep-sloped roof surfaces at the perimeter of the building and low-sloped areas extending between the steep-sloped surfaces. The steep-sloped roofing assembly consists of asphalt shingles draining to gutters along the roof perimeter with downspouts located periodically throughout all facades. The low-slope roofing areas are internally drained and appear to consist of a smooth surface, built-up roof (BUR) assembly with an aluminumized roof coating. Dormers are present on the west facade.

The structure consists of a steel frame with perimeter brick masonry walls and interior steel columns embedded within the central corridor walls. The ornate decoration of the exterior masonry is mimicked on the interior of the building in the larger assembly areas. The sloped roof areas consist of wood plank decking spanning between steel framing members. The second-floor structure is a concrete tee joist-slab system spanning between the exterior masonry walls and a beam and column assembly located within the central corridor walls. The roof structures of the larger assembly spaces consist of concrete slabs supported on concrete beams, or concrete encased steel beams, which span between masonry walls which define the space.

In general, the building is in serviceable condition with the majority of observed distress resulting from water infiltration due to damaged and deteriorated steep-slope roof assemblies and failed drainage elements. Flashing elements and downspouts have been vandalized within these sloped roof areas, and the asphalt shingles are significantly deteriorated, exposing decayed wood roof decking below. Addressing these damaged or missing roofing elements is essential to mitigate additional distress to the building. The majority of observed masonry deterioration, including efflorescence, freeze-thaw damage, and corrosion of embedded steel support elements, is attributed to water infiltration into the wall assembly and subsequent efflorescence, freeze-thaw damage, and corrosion of embedded steel support elements. The window assemblies exhibit significant distress due to damage from vandalism and deterioration from prolonged exposure to the elements with deferred maintenance, warranting replacement. The structure is in good condition; interior finishes are primarily intact and, where exposed, the structural elements exhibit only minor distress. Further detail of the observed distress is provided below.

Facade

The facade is generally in fair condition. The observed masonry distress is largely attributed to prolonged water penetration into the wall assembly, and subsequent cyclical freeze-thaw damage. Localized cracking and displacement of the brick and limestone masonry was observed near upper corners of walls and at window heads due to corrosion of adjacent steel window lintels and/or confined expansion of the brick masonry. Repairs should include grinding and pointing cracked and debonded mortar joints, replacing isolated cracked brick units, rebuilding displaced masonry with appropriate lateral tie and expansion joint detailing, and repairing corroded lintels with improved flashing details. Previous repairs include localized repointing and steel lintel repairs, which are generally in serviceable condition.

The brick gable end walls contain minor stairstep cracking that aligns with the roof level, and may be caused by corrosion of the structural steel roof purlins that bear on the masonry wall. Further investigation is recommended to verify the cause and extent of distress and to develop appropriate repairs. At a minimum, the cracks should be grinded and pointed or sealed, and monitored for continued distress.

Significant masonry deterioration is present at the projecting bay entrances and the projecting bay of the kindergarten room on the south facade due to prolonged water penetration into the wall assembly. The observed distress includes efflorescence, water staining, mortar erosion, and spalled brick and limestone masonry from cyclical freeze-thaw conditions. Similar deterioration was also observed in areas adjacent to missing downspouts. At the projecting bays, further investigation is required to determine the source of the water, though likely sources include failed roofing, base flashings, and/or drain conductors which may be concealed within the exterior walls. Water-related distress within the interior finishes was not readily visible at the entrances or near the missing downspouts, though localized water damage was observed within the kindergarten room. Repairs should include replacing localized spalled brick and limestone units, grinding and pointing deteriorated mortar, and cleaning the masonry surfaces once the sources of water infiltration have been verified and addressed.

Multiple limestone units contain minor surface spalls near the drip edge, which is indicative of prolonged moisture exposure, though repair of these units is not required for serviceability. Corrosion staining is present in isolated regions of the limestone sills, though distress is not readily visible in the adjacent masonry. This staining could be from corrosion of steel hardware components in the original wood window assemblies that have since been removed, or from the protective metal coverings currently installed over the windows. Corrosion staining on the masonry surfaces can be cleaned. Isolated limestone units are displaced at windows where the aluminum replacement windows are missing. These units should be removed and reset.

The clay brick masonry chimney is distressed, exhibiting cracking and displacement near the top of the chimney. The brick should be rebuilt and the limestone coping units should be reset with improved cap flashings. Isolated regions of cracked or debonded mortar should be grinded and pointed.

A majority of the aluminum replacement windows on the second floor, and approximately half of the windows on the first floor, are missing and require replacement. The operable sashes are also typically missing within the first floor windows that remain, leaving only the non-operable lites above. The interior aluminum trim is generally missing from the first floor windows and cracked glass is present in isolated regions. Exterior trim that conceals the original wood frames is missing or displaced in some regions, exposing wood decay, though this condition was most prevalent where the aluminum replacement windows were completely missing. Windows within the higher-to-reach areas, such as the stairwells, are intact with little-to-no distress. Due to the extent of missing and damaged components, a majority of the windows within the building will likely require replacement, though repairs will be possible in some regions, particularly within the first floor and stairwells. A majority of the exterior doors are missing, damaged, corroded, or barred/welded shut, and warrant replacement.

The conservatory on the east side of the courtyard is overgrown with vegetation. Approximately half of the glass and aluminum frame enclosure is missing. Although vandalized with graffiti, the glass of the remaining half is intact. The partial height brick masonry walls at the perimeter are in good condition. The conservatory can be cleared of the vegetation and the enclosure repaired or replaced.

Roofing

The roof level was not accessible, but the visible portions of the perimeter asphalt shingled roof areas were assessed from grade. The asphalt shingles appear to be racked rather than staggered, so that joints between shingles typically align, which may contribute to the roofing failures by allowing water to penetrate the joints. The steep-sloped roof areas exhibit localized distress and areas with missing asphalt shingles and flashing, including areas where the wood plank decking is exposed. The flashing at the transition from the low-slope roof to the gabled roof was also damaged or missing in isolated areas. Replacement of the missing and damaged shingles and flashing elements are needed to mitigate further distress, and localized repairs to the wood sheathing will be required. Temporary measures are recommended in the near term to stabilize the observed deterioration and mitigate additional distress to the structural system. Missing downspout sections should be replaced to alleviate additional deterioration to the masonry exterior. Paint on the galvanized steel gutters and downspouts is peeling and should be recoated for improved durability and aesthetic.

Though the low-slope roof areas were inaccessible, nor visible from grade; ponded water visible in aerial photographs and isolated water damage observed within the interior ceiling finishes indicate localized areas of roof damage are present above the southern play room and above the projected entrance bays. Replacement of the roofing assembly in these regions is anticipated. The remaining interior ceiling finishes below the low-slope roofs are dry, suggesting the roofing is performing well and likely only requires maintenance-type repairs.

Structure

Although areas of the plaster finishes are water damaged in many locations throughout the building, the structure is minimally exposed. Generally, the condition of finishes is indicative of the condition of the structural elements behind.

Where exposed, the second-floor concrete structure is in good condition. The slab portions of the tee joist-slab construction are cracked and water stained in isolated locations, including the bay window located on the south facade. Although some of the cracks are recommended to be repaired depending upon location and severity of the cracking, not all of the cracks require repair. Other minimal concrete distress is present in the northeastern play room along the north wall where corrosion staining is present on the underside of the concrete slab and the steel reinforcing is partially exposed. Up close assessment is required to determine if concrete repairs are required of these regions once water infiltration into the roof assembly is addressed.

The structure of the steep-sloped roofs consists of wood plank decking spanning between steel purlins which are supported on built-up steel trusses. The wood decking is water stained with fungal growth present. For an approximate two-foot width along the exterior wall at the southernmost stair, the decking is missing which is permitting a direct path for water infiltration into the building. An estimated twenty-five percent of the wood decking of the steep-sloped roof area is recommended to be replaced due to water infiltration from the damaged and missing roofing. The structural steel elements are recommended to be cleaned, assessed and recoated with a rust inhibiting paint as part of the roof deck replacement effort.

Approximately five feet of ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Cracking in the plaster walls between the classrooms and in stairwells may be related to water infiltration into the building, thermal or volumetric changes in the wall materials or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

·ELIZABETH·COURVILLE·SCHOOL
·DETAIL·OF·SITE·

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·BOARD·OF·EDUCATION·
·DETROIT·MICH·

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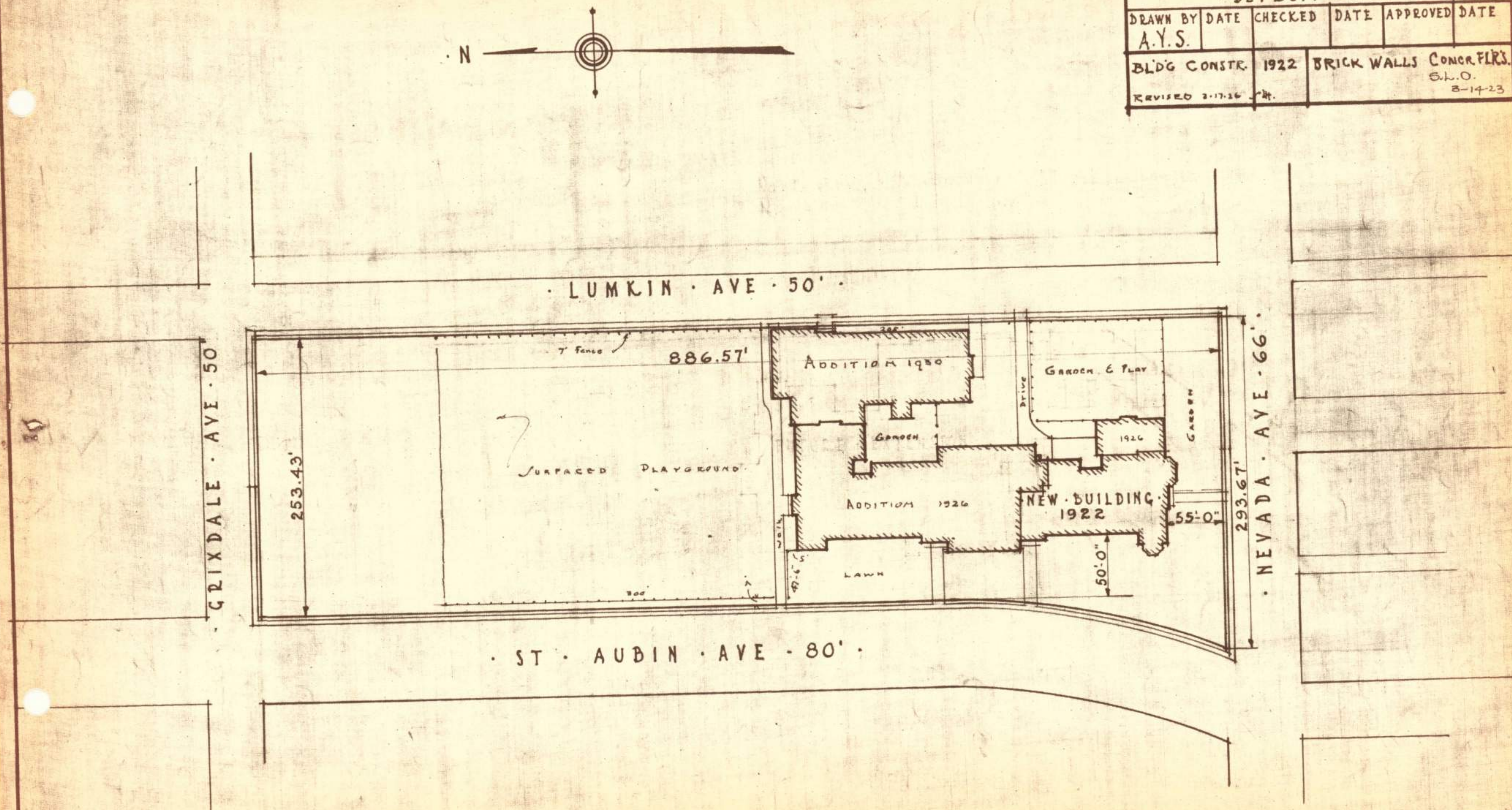
REVISED 3-17-26			S.L.O. 8-14-23



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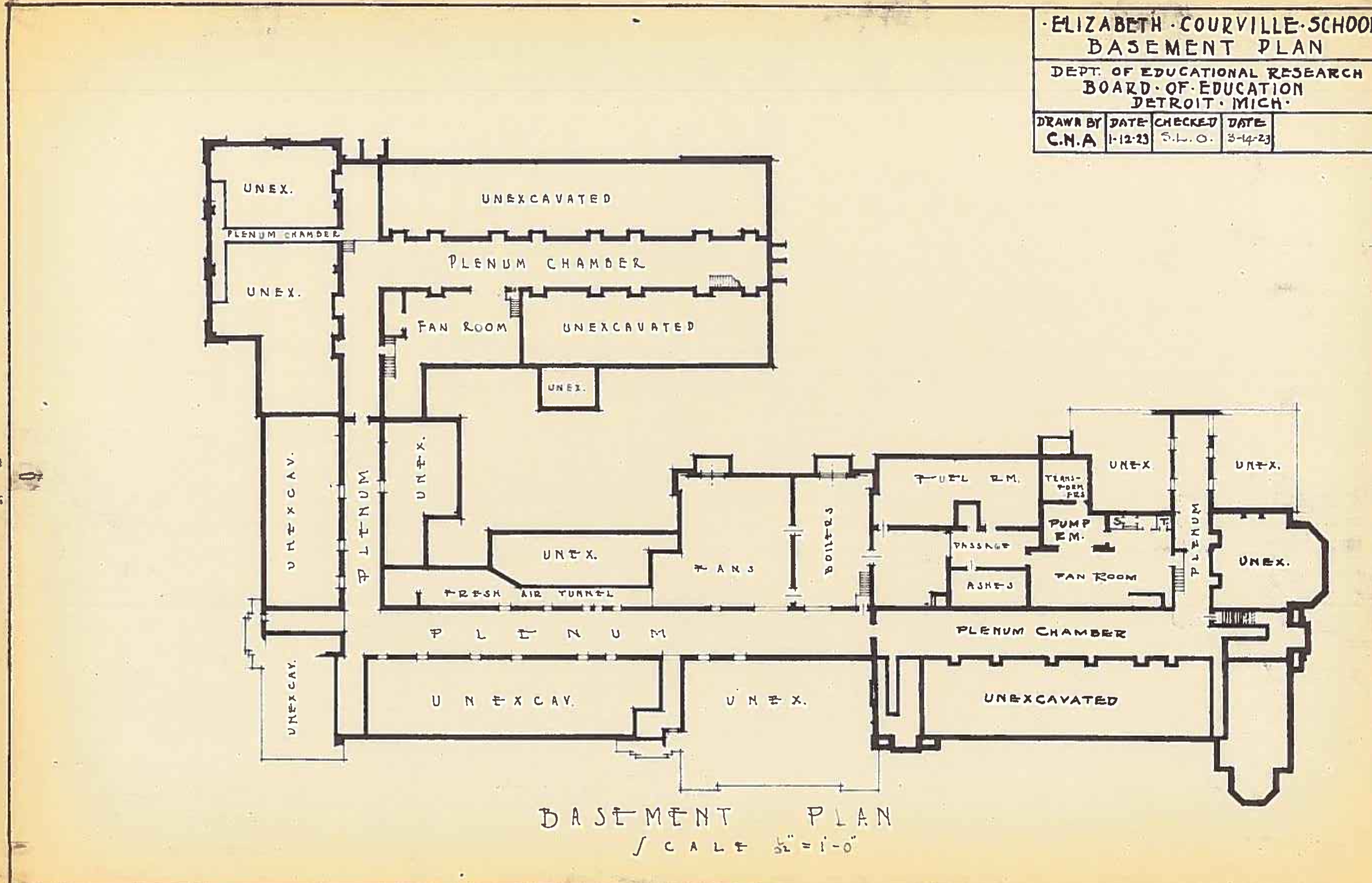
·ELIZABETH·COURVILLE·SCHOOL·
BASEMENT PLAN
DEPT. OF EDUCATIONAL RESEARCH
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DETROIT·MICH·
DRAWN BY C.N.A
DATE 1-12-23
CHECKED S.L.O.
DATE 3-14-23
UNEX.
UNEXCAVATED
PLENUM CHAMBER
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FAN ROOM
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FUEL RM.
TRANSFORMERS
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PUMP RM.
PASSAGE
ASHES
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BASEMENT PLAN
SCALE 1/32" = 1'-0"

ELIZABETH · COURVILLE · SCHOOL
FIRST · FLOOR · PLAN

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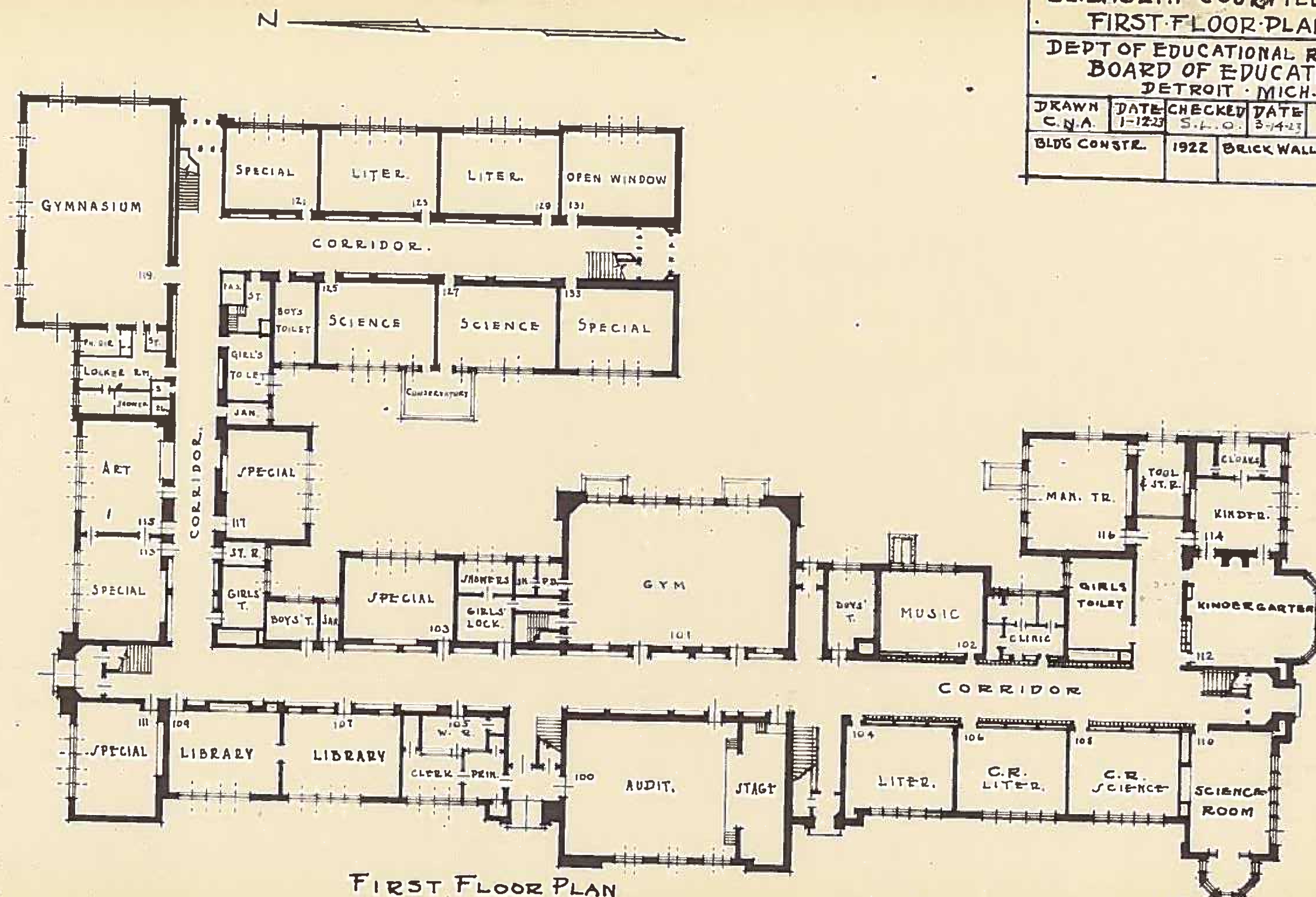

FIRST FLOOR PLAN

Scale 1/32" = 1'-0"

ELIZABETH · COURVILLE · SCHOOL
SECOND · FLOOR · PLAN

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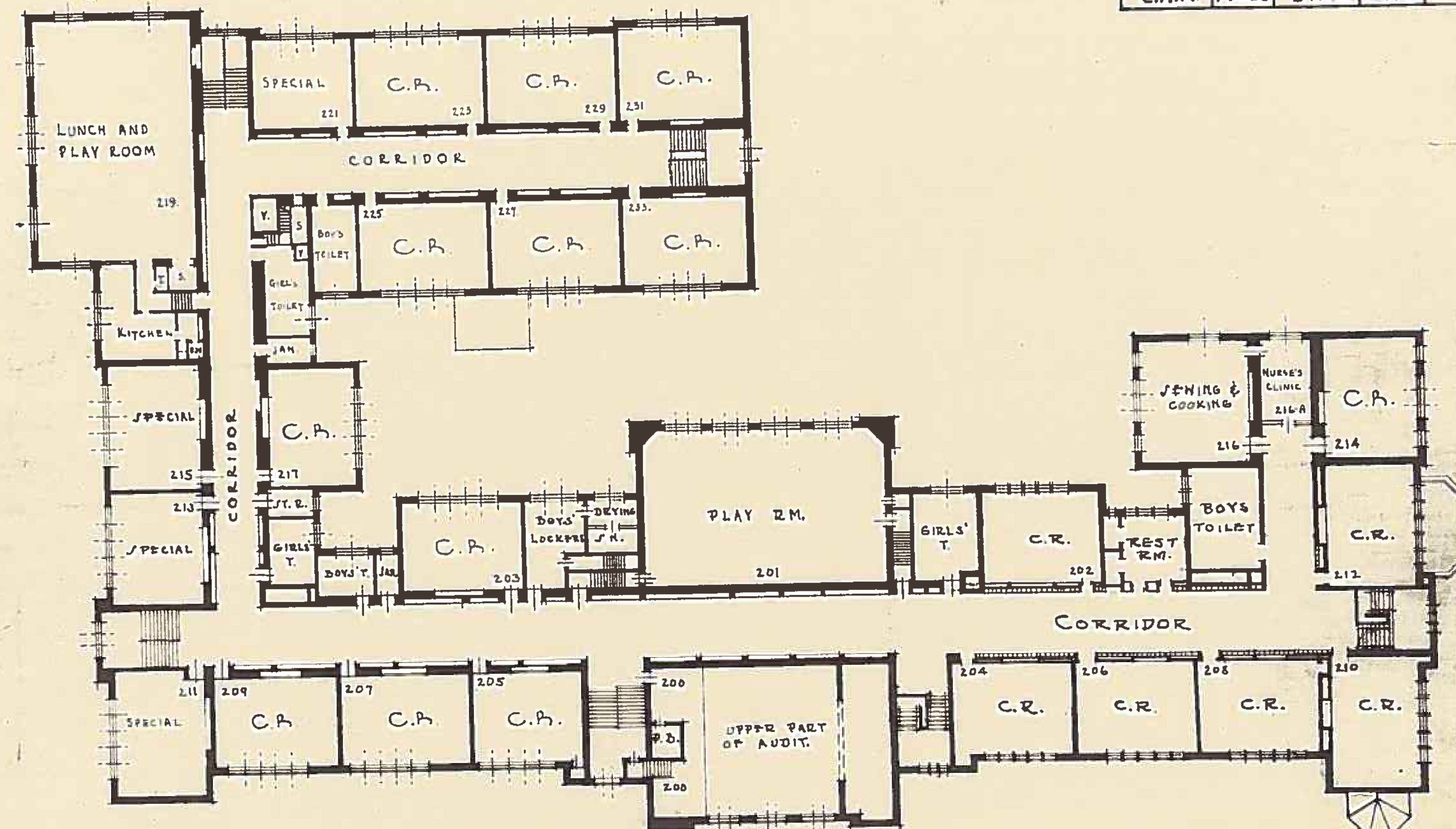
DRAWN	DATE	CHECKED	DATE
C.N.A.	1-12-23	S.L.O.	3-14-23



SECOND FLOOR PLAN

Scale $\frac{1}{32}$" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Crockett High School

Basic Property Information: COD 3-Crockett-8950 St Cyril

Short Name:	Crockett
Address:	8950 Saint Cyril Street Detroit, Michigan 48213
Year Built:	1925
Additions Built:	None
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	200 feet x 365 feet
Square Footage:	108,457 sq. ft.
Number of Stories:	3
Building Height:	40 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	3	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood ▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains ▪ Gravel Surfaced

Assessment Summary	
Assessment Date:	June 11, 2020
WJE Inspector(s):	Sarah Rush; Andrew Lobbestael; Meredith Crouch
Report Date:	November 20, 2020
Building Risk Index:	**76.50**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,808,950
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$8,676,560
Sub-Total	$11,385,510
Contingency (25%)	$2,846,377
Sub-Total	$14,231,887
Overhead and Profit (15-18%):	$1,423,188
Sub-Total	$15,655,076
Escalation (6% for 2 years)	$939,304
Sub-Total	$16,594,380
Architectural and Engineering Design Services (20%):	$3,318,876
TOTAL COST ESTIMATE:	$19,913,256

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
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- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The footprint of the building is E-shaped in plan with the primary facade and entry at the west elevation, facing St. Cyril Street. The building facade generally consists of clay brick masonry laid in common bond with header courses every six units and concrete masonry (CMU) backup. Limestone units are present at the window surrounds, building entrances, horizontal belt courses, and crenellated parapet copings. Architectural metal panels are present within the spandrels at the punched openings at the gymnasiums. Aluminum replacement inserts were set within the original wood window frames, though the aluminum components are now missing. The entrances consist of conventional steel doors. The low-slope roofing generally consists of an internally drained, gravel surfaced, built-up roof (BUR), though the roofing over the pool consists of a modified bitumen roofing system. Vaulted mechanical spaces are located beneath the south courtyard. The waterproofing assembly over this region appears to consist of a bituminous system covered with asphalt pavement.

The structure consists of joist-slab systems spanning to interior concrete beams and columns and the exterior mass masonry walls. Clay tile and gypsum plank forms were observed at some elevated floor slabs, but the steel forms removed after construction were most common. Steel girders clad with plaster span over the gymnasiums and support the concrete roof slab of this area. Steel trusses span over the natatorium.

In general, the building is in serviceable condition with many of the interior finishes intact. The roofing is in good, serviceable condition with minor maintenance-type repairs recommended within the majority of the roof surface, though the roofs over the gymnasium and pool are in poor condition and are recommended for replacement. Significant masonry repairs are recommended to address corroded embedded steel elements and consequent masonry distress. The windows and exterior doors require replacement. Notable distress to the structure includes deteriorated concrete in the locker room showers which will require repair. Additional localized concrete repairs are anticipated in other areas of the floor framing as well. Localized corrosion of the steel trusses over the natatorium should be further evaluated, cleaned, recoated, with localized steel repairs, if needed. Further detail of the observed distress is provided below.

Facade

The facades of the building are in fair condition, though significant localized distress is distributed throughout. The observed masonry distress includes cracked, spalled, and displaced brick and limestone units primarily attributed to water infiltration and subsequent corrosion of the embedded steel window lintels and limestone anchors. Cracked and displaced areas of brick masonry are located near the top of the walls at building corners, which is attributed to unaccommodated movement of the masonry and corrosion of adjacent steel lintels; these areas of masonry should be rebuilt. Other localized areas of cracked, spalled and displaced or missing brick units distributed around the facades should be repointed or rebuilt as required. Vertical cracks are present within the brick masonry piers at the east wall of the gymnasiums and outward displacement is visible across some of the cracks. Steel columns encased within the masonry may be corroding. The cause of the distress should be further investigated as part of the facade repair work, but at minimum, the anticipated repairs include repointing, localized brick replacement, and monitoring in conjunction with lintel repairs. Beyond these regions, the brick masonry in the field of the wall is in good condition. Previous repairs have been performed at the building, including rebuilding of localized areas of brick masonry, repairs to the steel lintels, and miscellaneous repointing, which generally appear in serviceable condition.

Many limestone units are distressed, including cracks, spalls, displacement or missing units. Header units are slotted on the backside for strap anchors, which are hung from the steel lintels above. Corrosion of these steel lintels and strap anchors is resulting in a majority of the observed limestone distress. Limestone units at the jambs do not appear to have mechanical anchorage to the surrounding masonry; several units are displaced as a result of, or following the removal of, the aluminum window assemblies. Repairs should include repair of distressed steel lintels with installation of a durable repair detail including through-wall flashing and repair or replacement of distressed limestone units. A limestone belt course at the base of the gymnasium wall is heaved upwards, which is attributed to cyclical freeze-thaw damage. These displaced units should be reset. Mortar at the limestone units, particularly at the water table, is cracked, eroded, debonded, or missing. Repointing should be performed at the water table mortar joints in addition to other miscellaneous repointing in other areas of distress.

Distress was observed in localized areas within the brick masonry chimney, including vertical cracks, step cracks, and sections of brick masonry that were cracked and outwardly displaced. These conditions are attributed to water infiltration and subsequent freeze-thaw damage and are generally more prevalent near the top of the chimney. Rehabilitation of the building should include crack repairs and rebuilding the displaced areas of masonry. New cap flashings should be installed to mitigate further water infiltration and the existing caps should be repaired or replaced.

The aluminum replacement windows are missing and the exposed original wood-framed window frames are significantly decayed, damaged, or missing. An aluminum window assembly at the conservatory is also missing. The exterior doors are also significantly damaged or are missing. Rehabilitation of the building should include replacement of all windows and exterior doors. The original architectural metal panels at the gymnasium spandrels are exposed and exhibit paint failure and minor corrosion, in some regions the panels are missing or displaced, exposing the brick infill. These original panels appear to have been covered with another material when the aluminum replacement windows were installed. Rehabilitation of the existing panels, or replacement of the panels in-kind, should be considered as part of the window replacement.

Roofing

The roofing assembly over the main building is generally in good, serviceable condition. Localized deterioration within the roof surface includes a few missing drain strainers and conductors, and isolated open seams. Minor maintenance-type repairs are recommended to extend the service life of the existing roofing assembly. However, the roofs above the pool and upper gymnasium are in poor condition and are recommended for removal and replacement. Observed distress within these areas includes water infiltration and associated damage to interior finishes and structural members, displaced and missing flashings, base flashings that are pulled away from the perimeter rising walls, and ponded water and vegetative growth on the roof surface and near failed drains.

The waterproofing above a small, raised vault within the south courtyard is cracked and delaminated. A large mechanical opening within the center of the vault is missing a cover, the steel mechanical curb is corroded through, and the concrete spandrel beam at the perimeter of the opening is deteriorated due to prolonged moisture exposure. Based on the size of the raised area, which is approximately 60 square feet in plan, and extent of distress, the vaulted slab and waterproofing are recommended for removal and replacement, though repairs to the existing concrete structure may also be warranted upon further investigation.

Structure

Overall, the structure is in serviceable condition with localized areas of distress. Because the interior finishes, typically plaster over lath, were generally intact with only localized missing or distressed areas, only limited portions of the structural frame corresponding to these damaged finishes were accessible for review. The damaged interior finishes and structure are generally due to roof leaks or missing storm conductors and open roof drains.

The most severe distress to the structure is the deteriorated concrete floor framing supporting the boy's and girl's showers at the locker rooms. This deterioration includes efflorescence and cracking of the slab as well as moderate to severe corrosion of the longitudinal steel reinforcement of the joists, including areas of debonded and exposed reinforcing steel. Concrete repairs will be required in these areas.

WJE also observed localized areas of concrete distress to select areas of the roof slab due to long-term exposure to water. This includes the southwest corner of the gymnasium and above the cafeteria. Such localized concrete deterioration typically occurred near roof drains. Concrete repairs in these areas should be anticipated as well. The source of the water infiltration should be addressed to prevent additional deterioration in these areas.

There are three exposed steel trusses supporting the roof of the natatorium. The trusses are composed of double angle chords and webs with gusset plates and riveted connections. All three trusses exhibit failing paint and surface corrosion. Additionally, where the trusses intersect the masonry walls, moderately more severe steel corrosion is present with localized areas of pack rust and an unknown extent and severity of steel section loss. The water intrusion through the roof should be addressed and the truss members should be cleaned and coated. The extent of truss corrosion at the masonry wall should be investigated further and repaired as necessary.

The steel girders in the gymnasium exhibit surface corrosion due to water infiltration through the roof above. These areas are exposed in regions were the plaster cladding has failed. The water intrusion through the roof should be addressed so the girders can be cleaned and painted with a corrosion inhibiting paint. Cracks exist in the brick masonry interior walls of the gymnasium where corroded steel stair elements are embedded. The corroded steel should be cleaned and coated and the cracks should be repointed.

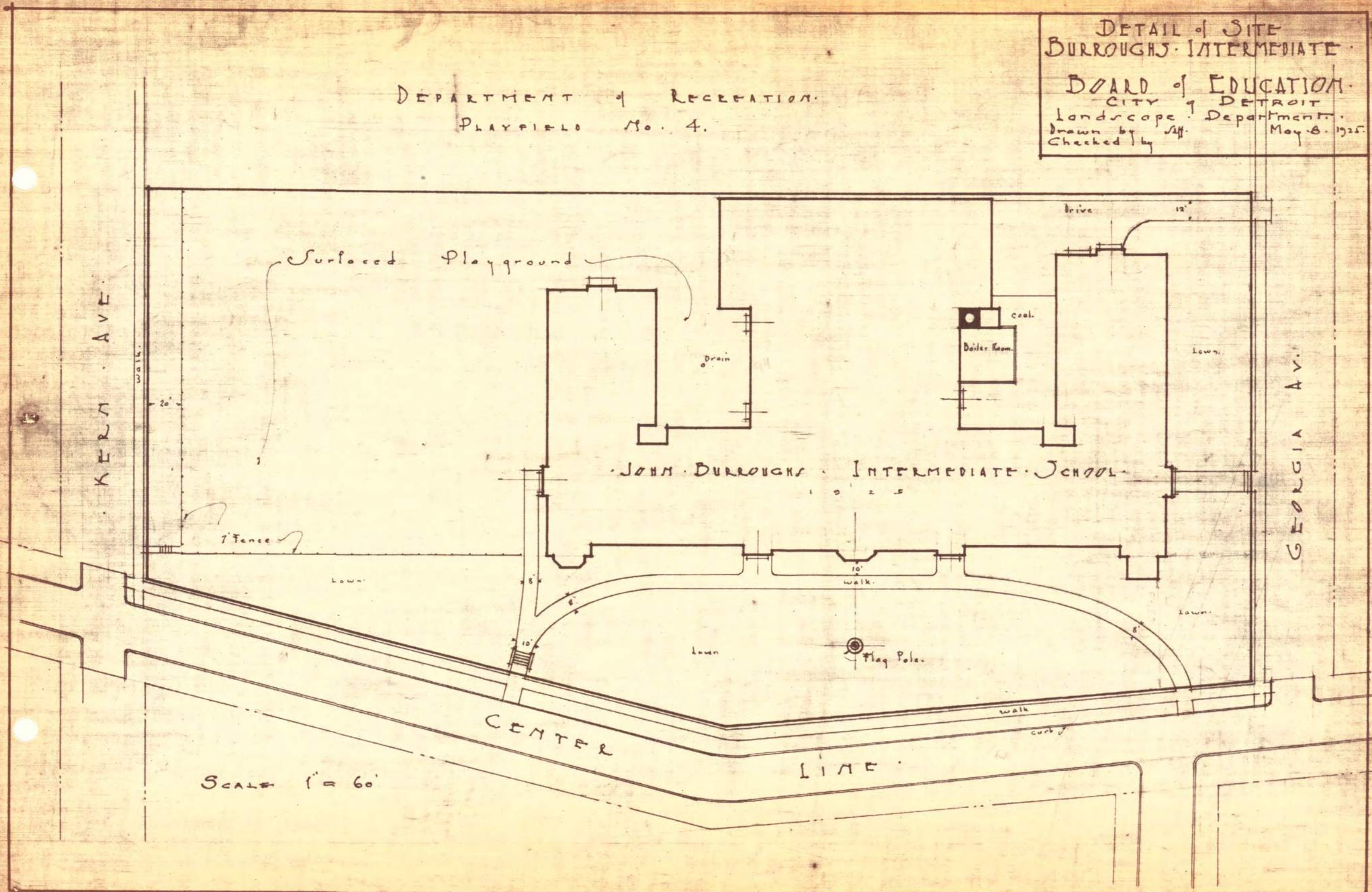
The steel lintel above the door at the top of the stairs from the corridor to the Boy Scout Room on the third-floor mezzanine is corroded. The corrosion is due to an active roof leak at a missing roof drain. The roof drain should be reinstalled, and the steel lintel should be cleaned and painted.

Miscellaneous

The plaster ceiling and ornamental grilles in the auditorium are deflected and precariously supported. The ornamental grilles should be removed to mitigate the potential falling object hazard. The plaster at the walls and ceiling was cracked in several locations. The interior finishes should be removed in these locations to expose the structure for further investigation.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Portions of the basement were not accessible due to standing water. This includes the boiler room, fan rooms, pump room, transformer room and ash storage room. Basement flooding should be addressed prior to a recommended follow-up assessment of the structure supporting the first floor.


Detail of Site
Burroughs · Intermediate ·
Board of Education ·
City of Detroit
Landscape · Department ·
Drawn by Sff.
May 8. 1925.
Checked by
Department of Recreation.
Playfield No. 4.
Surfaced Playground
Kern · Ave.
walk
20'
7' Fence
Lawn
Drain
Drive
12'
Coal.
Boiler Room.
Lawn.
Georgia Av.
· John · Burroughs · Intermediate · School ·
1925
10'
walk.
8'
8'
10'
Lawn
Flag Pole.
8'
Lawn.
walk
curb
Center Line.
Scale 1" = 60'

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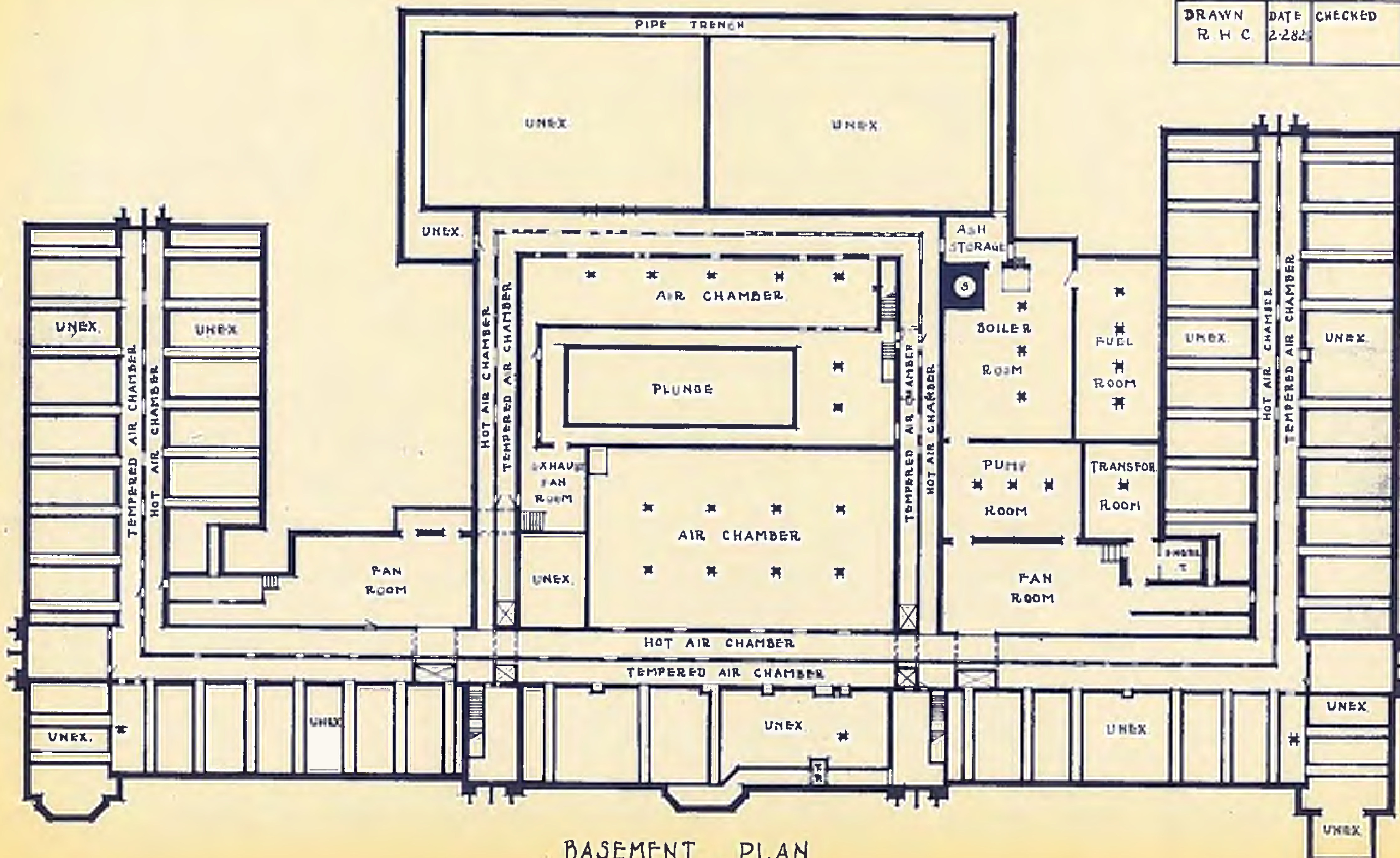
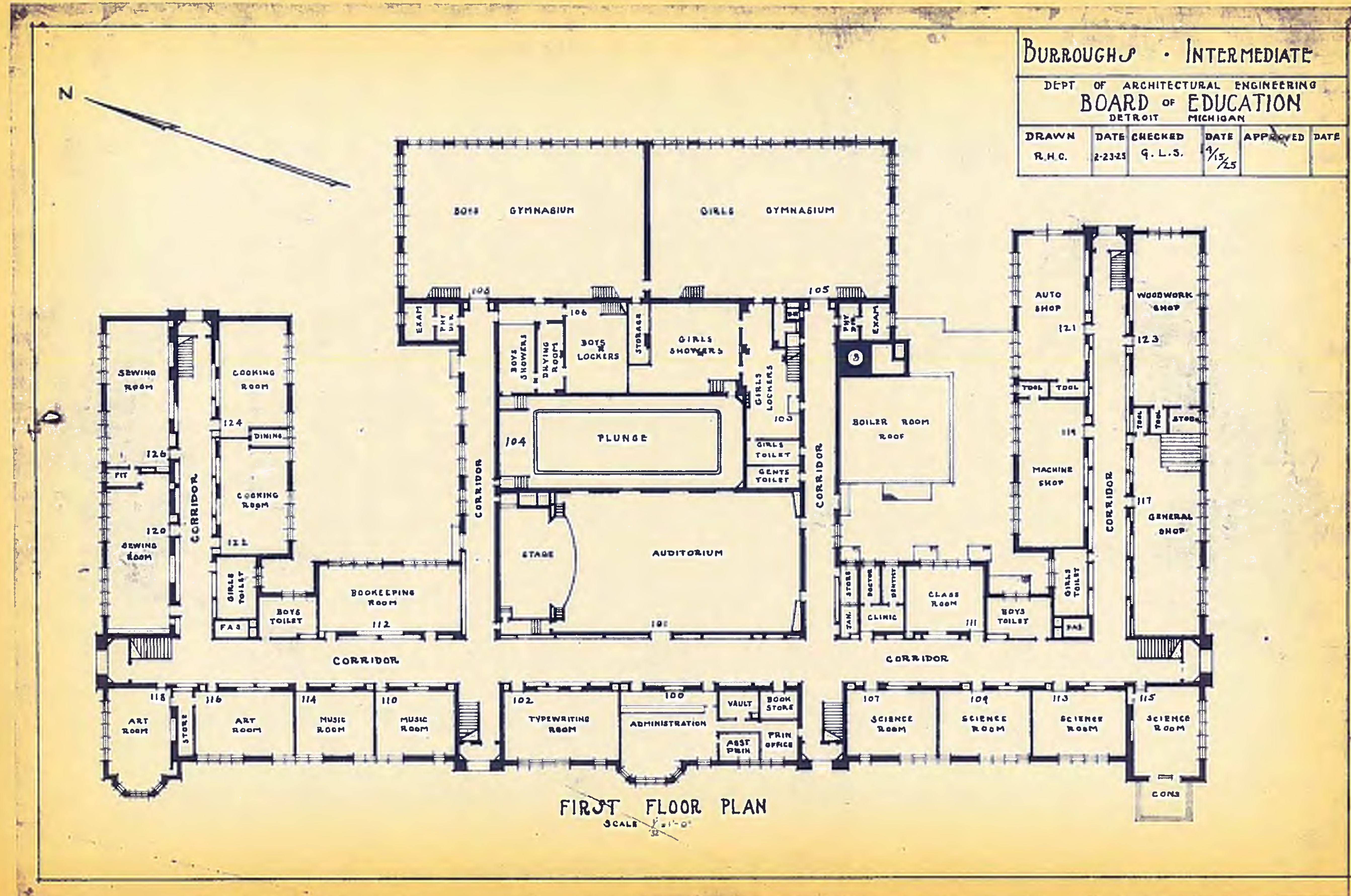


BASEMENT PLAN
SCALE 1/32" = 1'-0"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BOYS GYMNASIUM
GIRLS GYMNASIUM
EXAM
PHY DIR.
BOYS SHOWERS
DRYING ROOM
BOYS LOCKERS
STORAGE
GIRLS SHOWERS
GIRLS LOCKERS
PLUNGE
104
103
GIRLS TOILET
GENTS TOILET
STAGE
AUDITORIUM
101
BOILER ROOM ROOF
AUTO SHOP
121
WOODWORK SHOP
123
TOOL
MACHINE SHOP
119
STOR.
117
GENERAL SHOP
SEWING ROOM
126
FIT
120
COOKING ROOM
124
DINING
122
CORRIDOR
GIRLS TOILET
BOYS TOILET
FAS
BOOKKEEPING ROOM
112
STORE
DOCTOR
DENTIST
JAN.
CLINIC
CLASS ROOM
111
ART ROOM
118
STORE
116
114
MUSIC ROOM
110
102
TYPEWRITING ROOM
100
ADMINISTRATION
VAULT
BOOK STORE
ASST PRIN
PRIN OFFICE
107
SCIENCE ROOM
109
113
115
CONS
105
106
108
FIRST FLOOR PLAN
SCALE 1/32"=1'-0"

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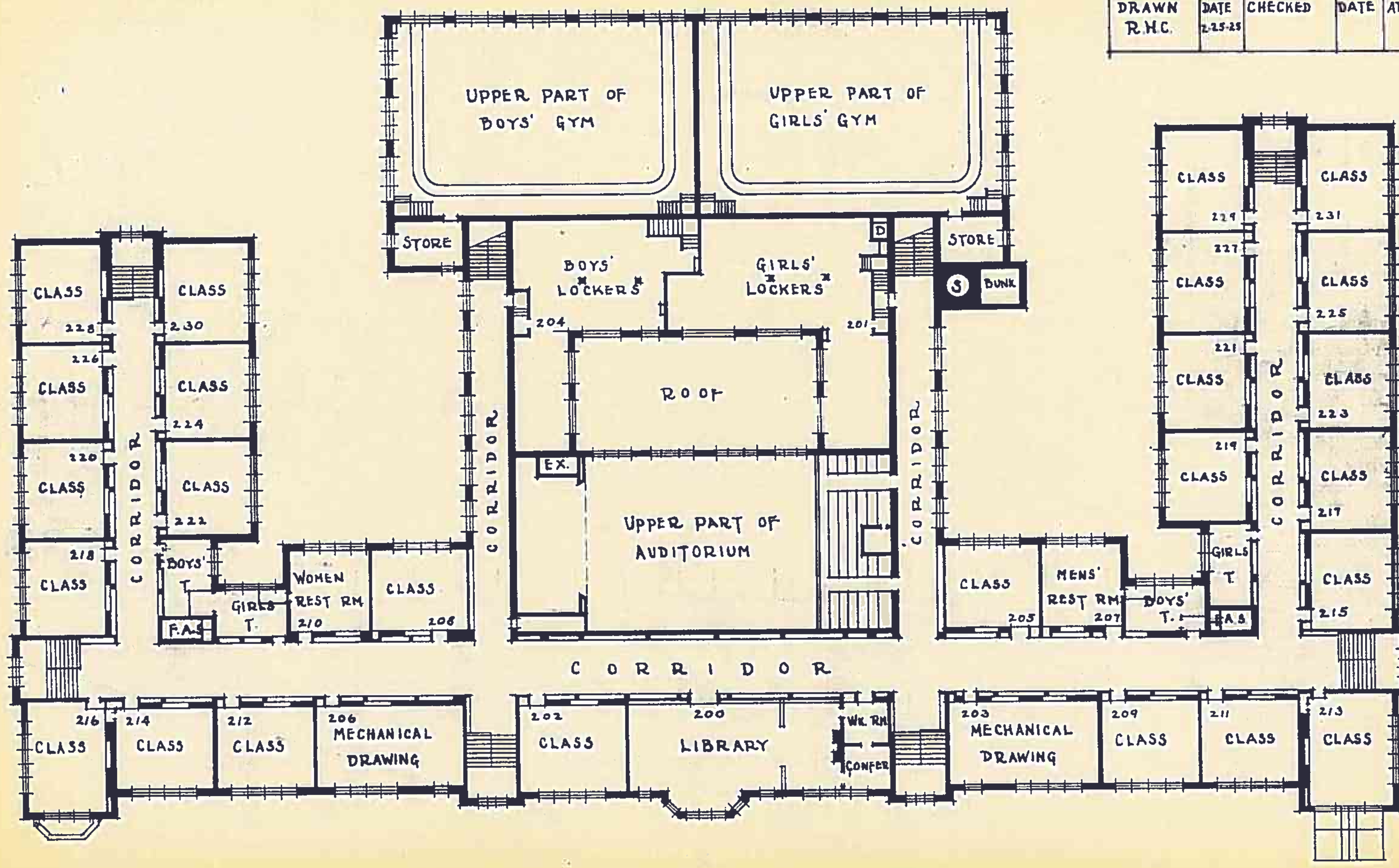
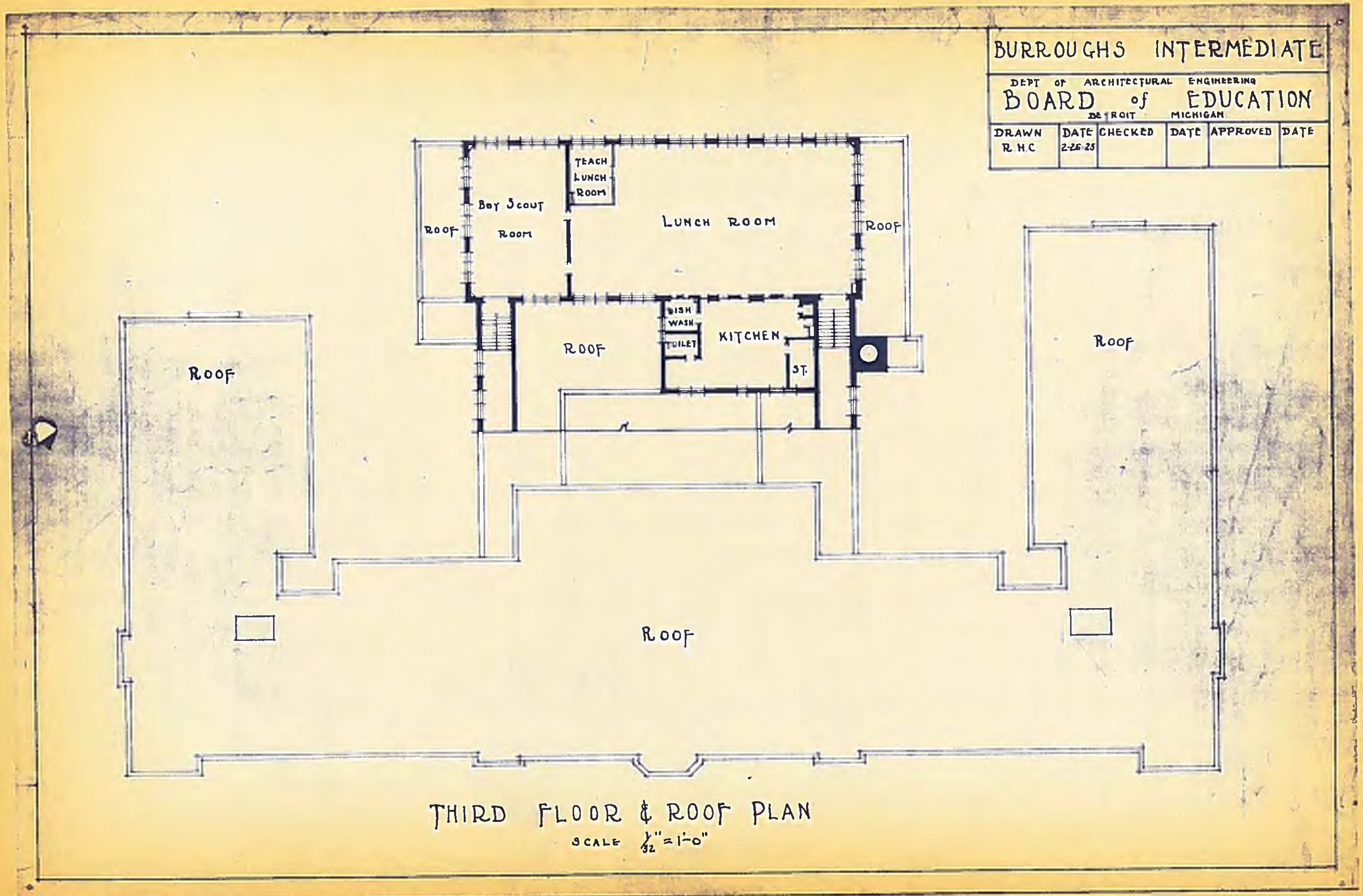


SECOND FLOOR PLAN

SCALE $\frac{1}{32}$" = 1'-0"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DATE 2-26-25
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DATE
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DATE
TEACH LUNCH ROOM
BOY SCOUT ROOM
LUNCH ROOM
ROOF
ROOF
DISH WASH
TOILET
KITCHEN
ST.
ROOF
ROOF
ROOF
ROOF
THIRD FLOOR & ROOF PLAN
SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Lynch Elementary School

Basic Property Information: COD 3-Lynch-7575 Palmetto

Short Name:	Lynch
Address:	7575 Palmetto Street, Detroit, Michigan 48234
Year Built:	1916
Additions Built:	1922, 1975
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	335 feet x 90 feet
Square Footage:	41,219 sq. ft.
Number of Stories:	2
Building Height:	49 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU ▪ Structural Steel ▪ Wood
City Council District:	3	**Exterior Wall System:**	▪ Brick Masonry ▪ Cast Stone ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Steel-framed ▪ Wood
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains ▪ Gravel Surfacing ▪ Asphalt Shingles ▪ Gutters

Assessment Summary	
Assessment Date:	June 11, 2020
WJE Inspector(s):	Andrew Lobbestael; Sarah Rush
Report Date:	October 29, 2020
Building Risk Index:	**100.50**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,240,250
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,297,520
Sub-Total	$5,437,770
Contingency (25%)	$1,359,442
Sub-Total	$6,797,212
Overhead and Profit (15-18%):	$1,019,581
Sub-Total	$7,816,794
Escalation (6% for 2 years)	$469,007
Sub-Total	$8,285,802
Architectural and Engineering Design Services (20%):	$1,657,160
TOTAL COST ESTIMATE:	$9,942,962

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a cursory visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a cursory visual review of the building envelope from grade and main low-slope roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including the basement. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

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BUILDING OVERVIEW

Overall

The original three-story building was constructed between 1914 and 1916 with a two-story annex addition constructed in 1921 and a one-story addition at the west end of the annex portion of the building constructed in 1975. There is a two-story corridor that attaches the original building to the annex. The 1975 addition includes space for a gymnasium, an auditorium, and classrooms, among other ancillary spaces.

The facade of the original building generally consists of clay brick masonry with cast stone at the horizontal accent bands, entrance surrounds, window sills, and ornate accent units. The brick masonry units are typically oriented in a running bond with no visible header brick. The 1921 annex addition consists of clay brick masonry with limestone at the copings, horizontal bands, and window sills. The brick masonry is typically oriented in a running bond with a header course every seven courses vertically. The 1975 addition facade consists of clay brick masonry veneer over concrete masonry unit (CMU) back-up walls, and few fenestrations. Original wood-framed windows are present within the original building construction and the 1921 annex addition, while metal-framed windows are located in isolated regions of the 1921 annex addition and the 1970s addition. The exterior entrances consist of conventional steel-framed doors.

Steep-slope hip roofs covered with asphalt shingles are present on the original portion of the building, surrounding a low-slope roof located in the middle of the roof. The hip roofs slope to gutters and downspouts at the eave. The additions are covered with low sloped-roof consisting of an internally drained, slag-surfaced, bituminous (suspected to be asphaltic) built-up roofing system with granular surfaced base flashings.

The roof framing of the original building consists of wood decking supported by wood joists and rafters supported by wood trusses, wood columns, and loadbearing masonry walls. The floor framing at the lower levels of the original building consist of wood joists that span between loadbearing clay brick masonry walls. The roof framing of the 1921 Annex consists of gypsum deck over bulb tee purlins supported by wide flange steel beams. The supported floor framing of the 1921 Annex consists of cast-in-place concrete joist slabs with steel forms. The structure of the 1974 building addition consists of corrugated steel roof deck spanning over open-web steel joists supported by load bearing concrete masonry unit (CMU) walls with a concrete slab-on-ground.

In general, the building is in serviceable condition with concentrated locations of more severe deterioration and distress. Repair of the damaged open-web steel joists and the gypsum concrete within the building annex passageway is needed, and further investigation of the wood and concrete structural framing is recommended. The low-slope roofs are recommended for replacement due to the extent of the observed distress within the roofing assembly and/or deterioration of the structural elements below. Significant masonry distress was observed throughout the facade of the original building and 1921 annex, with collapsed areas of brick observed in two areas of the annex facades. The majority of the observed masonry distress is attributed to prolonged moisture penetration through the masonry walls. The existing windows are generally in serviceable condition and may be restored in place.

Facade

The masonry facade of the 1975 addition is in good condition with isolated minor distress; however, more significant masonry distress is present within the original 1916 building and 1921 annex.

The brick masonry near the top of the 1921 annex walls is commonly bowed or outwardly displaced, and a portion of the face brick have partially collapsed at the west ends of the north and south facades. The masonry surrounding the collapsed regions is also displaced outward and at risk of further collapse. Several of the limestone units within the horizontal header band are also cracked and displaced outward. Below the regions of displacement, the mortar is generally spalled or significantly deteriorated. Vertical cracks within the masonry are present near midspan of the windows due to deflection of the lintel supports, while step cracks often extend from the edges of the corroded steel lintels. The observed distress in these regions is attributed to prolonged water infiltration within the wall assembly and subsequent freeze-thaw damage, as well as corrosion of the embedded steel lintels. The collapsed region on the south facade may also have been influenced by impact damage from the adjacent overhanging tree branches. Temporary measures should be taken to remove loose and displaced masonry units or, at a minimum, barricades should be provided on the grounds below to mitigate pedestrian access until repairs can be conducted. Rehabilitation of the building should include rebuilding the displaced and collapsed portions of masonry, repointing deteriorated mortar joints near the top of the annex walls, and repairing the corroded steel lintels in conjunction with repairs to the coping and roofing elements to mitigate further water infiltration within the wall assembly. We anticipate that some repair of the masonry back-up will also be required.

Severe corrosion and deflection of the steel lintels was also noted at the original building facade, particularly above the basement windows, with some lintels exhibiting significant section loss and pack rust. The surrounding brick masonry and cast stone units are often cracked and displaced above these windows. Repairs should include removal and replacement of the masonry in order to expose the distressed lintels and repair the masonry distress, and replacement of the loose-laid lintels with new steel and improved flashing details.

Widespread mortar erosion and spalling of mortar is present throughout the facades of the original building and annex, as well as localized biological staining on the surface of the masonry. Beyond the regions of the more severe mortar deterioration near the top of the annex walls, deterioration is also common at locations of failed or missing gutters and downspouts, or near the base of the walls. Once the sources of water are addressed, grinding and pointing of deteriorated mortar joints and cleaning should be performed to remove biological growth and miscellaneous surface staining.

Several cast stone units are spalled or cracked at the south entrance of the original building, which is attributed to water infiltration and subsequent freeze-thaw deterioration due to failure of the roofing assembly located above the projecting entrance bay. Additionally, localized stone units are spalled at corroded steel anchors. Repair or replacement of the distressed stone elements is recommended in order to stabilize unsound stone units and mitigate further distress to the stone and surrounding masonry facade.

The exterior wood canopy above the south entrance has localized areas of decay of the soffit and fascia elements caused by moisture infiltration through the roofing above. The paint on the underside of the canopy was flaked and cracked. Repairs at the canopy, involving removal and replacement of the decayed wood elements and cleaning and coating of the exposed wood surfaces in conjunction with replacement of the roofing above is recommended.

The chimney attached to the 1921 annex addition is distressed. Cracking and shifting of the brick masonry were observed near the top of the chimney on multiple sides with some areas exhibiting signs of instability. Based on the observed level of distress at the top of the chimney, we recommend dismantling and rebuilding the brick masonry walls above the lower limestone band, where the overall footprint of the chimney decreases. Rehabilitation should also include removal and resetting or replacement of the copings with new through-wall flashing. Depending on whether the chimney is functional, consideration could be given to capping the chimney at the lower horizontal band in lieu of rebuilding full height. Cracked masonry and eroded mortar is also present on the chimney attached to the original building. Rehabilitation should include the replacement of the localized cracked brick units and grinding and repointing the eroded mortar joints.

Overall, the original wood windows are in fair, serviceable condition. However, minor distress such as cracked, broken, or missing glass lites and localized decay of the wood framing near the window sills was observed. Additionally, the sealant at the perimeter of the window frames typically exhibited weathering and bond failure. Restoration of the windows is recommended, including replacement of cracked and broken lites, installation of new sealant at the window perimeter, and replacement of the localized decayed wood elements. Similarly, the steel-framed and metal-framed windows are in serviceable condition and may be repaired in-place. The exterior metal doors are typically corroded, dented, or missing, and warrant replacement.

Roofing

The asphalt shingle roof over the original building was generally in good, serviceable condition with minor distress observed such as localized missing metal fascia elements and downspouts. Maintenance repairs within the roofing assembly over original building portion, in coordination with repair of the structural wood roof deck, including replacement of missing fascia and downspouts, painting of the sheet metal elements to mitigate corrosion, and trimming the overhanging trees is recommended. WJE was not able to access the low-sloped roof over the original building due to the condition of the roof access ladder. However, aerial images indicated it is a smooth surfaced roofing with an aluminized coating. The wood decking below the roofing is generally in serviceable condition with localized decay at a pipe penetration and around a copula. It is not clear if the decay is from a previous issue that has been addressed or if the roof leak causing the decay is ongoing. We recommend repairing the flashing at these locations if they are from an ongoing roof leak.

The low slope roofs over the two building additions and the annex corridor are generally in poor condition and are beyond the end of their useful service life. Displaced and missing flashing, loss of adhesion of the flashing, displaced and missing coping, missing drain strainers and rooftop units, vegetation growing from seams in the roofing, missing and displaced gutters and downspouts, and cracking of the roof surface was observed. Damage to the interior finishes and structural roof decks were also observed at locations of missing drains and roof top units. Additionally, the roof damage and deterioration has caused accelerated distress to the adjacent masonry walls leading to localized masonry instability and collapse. Replacement of the low slope roofing assemblies and drainage systems are recommended.

There are multiple openings in the low-slope roof areas that are permitting water into the building. This includes two missing roof access hatches and several roof curbs with missing mechanical equipment. We recommend that the holes be covered in the near-term to prevent additional water infiltration.

Structure

In the 1976 addition, four of the open-web steel joists have been cut and are missing a portion of their bottom chord and web members. The remaining sections of the joists are not adequate to resist code required loads, and this portion of the structure is susceptible to partial collapse. In a letter dated June 17, 2020, WJE recommended temporary shoring be installed to support the roof at the cut joists or, at minimum, provide barricades to prevent access below or on top of this area of the roof. Rehabilitation of the building should include removal and replacement of the existing damaged joists in conjunction with roofing replacement work. Alternatively, it may be feasible to install new joists adjacent to the existing damaged joists.

The wood decking in the original building is decayed and has areas of water staining on the wood decking and joists. The decay is generally more concentrated at the transition from the steep slope roof to the low-slope roof and near the eave. However, plywood sheathing was installed over the original wood decking, likely during the previous roofing replacement project. Provided that the plywood is well attached to the roof rafters, then repair to the decayed wood decking is not necessary. We recommend a further investigation to verify the attachment condition of the plywood.

Long-term exposure to moisture intrusion has caused cracking, erosion, and holes in the gypsum roof deck and corrosion of the bulb tees and steel beam at the east end of the roof deck within the passageway between the original building and annex addition. We recommend replacing the deteriorated regions of gypsum deck in-kind, in coordination with the roofing replacement. Alternatively, full removal and replacement of the structural framing and decking over the passageway may also be considered to compare the economical and schedule impacts.

Most of the concrete floor slabs and joists within the annex building addition are concealed by plaster finishes. Only limited distress or deterioration of the concrete structure was observed, and significant concrete repairs are not anticipated at this building. In the annex building, water intrusion has damaged the ceiling finishes, exposing the structural roof deck. Localized erosion, moisture staining, efflorescence, and cracking was observed at the joist slab roof deck. Full-depth concrete repairs may be required in these localized areas; however, further investigation to determine the extent of concrete deterioration is recommended.

In the original building, efflorescence and moisture staining are present on the inboard side of the below-grade portions of the exterior walls. This is likely due to deficient conditions in the wall's waterproofing or damp proofing. One approach to this condition is to use moisture-tolerant interior finishes and permit the moisture intrusion to continue. The moisture intrusion can likely be reduced by sloping the exterior grade away from the building and having operable downspouts and drain extensions. Alternatively, the wall can be excavated, exposed, and waterproofed. Water infiltration testing could also be conducted to better understand the severity and magnitude of the water intrusion; this may help provide information to determine whether new waterproofing is warranted.

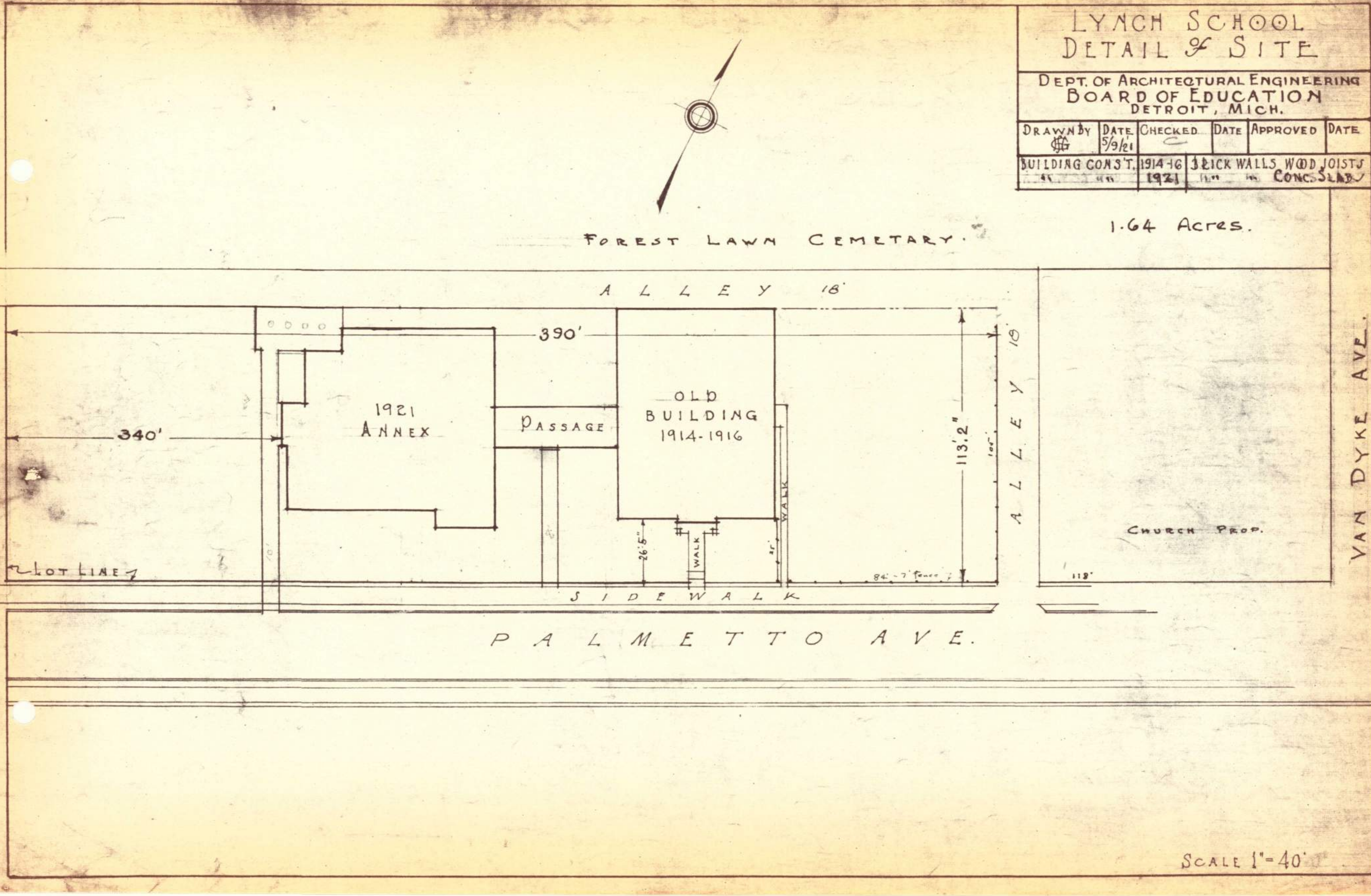
A steel lintel with significant corrosion is present within the basement of the annex addition. Cleaning the steel surfaces and coating the steel is recommended to minimize additional corrosion. Replacement of the steel may be warranted long-term if left unaddressed.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Cast-in-place concrete steps and landing at the south building entrance approach are cracked and displaced due to differential settlement and loss of support below the concrete. Replacement of the steps and landing with improved grade materials is recommended. At the rear of the original building portion, masonry retaining walls at a basement egress door are displaced and should be rebuilt.

A sinkhole near the northeast corner of the building was observed posing a potentially hazardous condition. We recommend investigating the cause of the washout, filling the sinkhole with appropriate sub-grade materials, re-grading the surrounding areas, and reinstalling the asphalt drive.


LYNCH SCHOOL
DETAIL OF SITE
DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.
DRAWN BY | DATE 5/9/21 | CHECKED | DATE | APPROVED | DATE
BUILDING CONS'T. 1914-16 BRICK WALLS WOOD JOISTS
" " 1921 " " CONC. SLAB
1.64 Acres.
FOREST LAWN CEMETARY.
ALLEY 18'
390'
340'
1921 ANNEX
PASSAGE
OLD BUILDING 1914-1916
113'2"
ALLEY 18'
105'
26'5"
WALK
WALK
LOT LINE
SIDEWALK
CHURCH PROP.
118'
VAN DYKE AVE.
PALMETTO AVE.
SCALE 1"=40'

R2/21

LYNCH SCHOOL
BASEMENT FLOOR PLAN

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN BY	DATE	CHECKED	DATE	APPROVED	DATE
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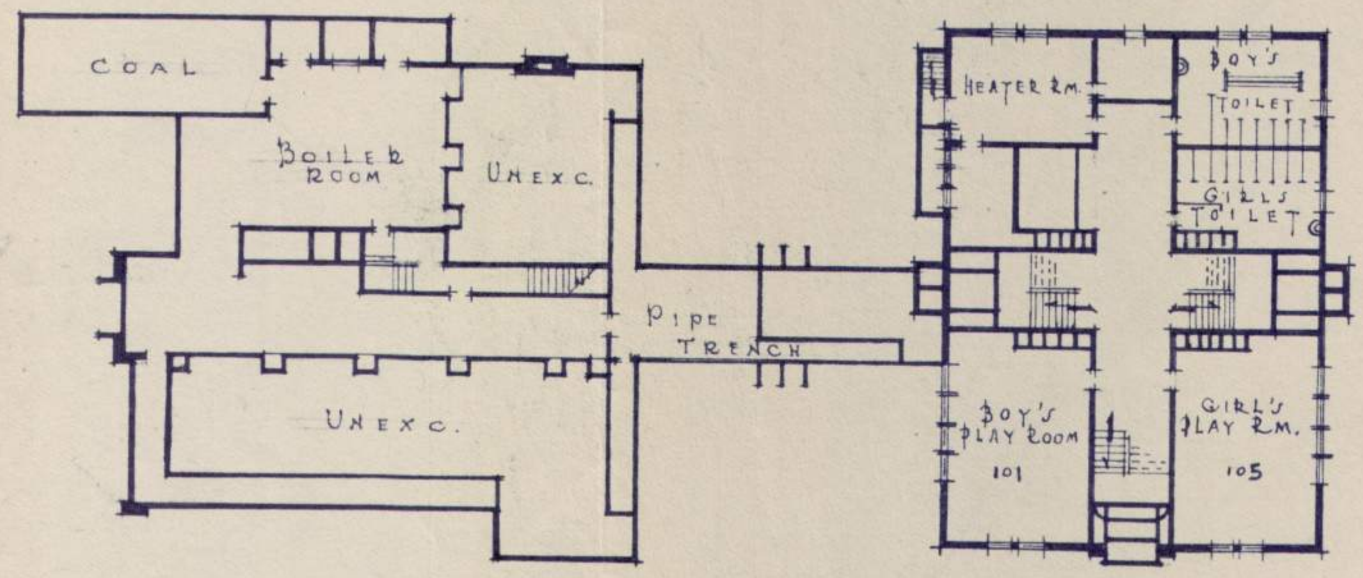

BASEMENT FLOOR PLAN

SCALE 1/32" = 1'-0"

LYNCH SCHOOL
FIRST FLOOR PLAN

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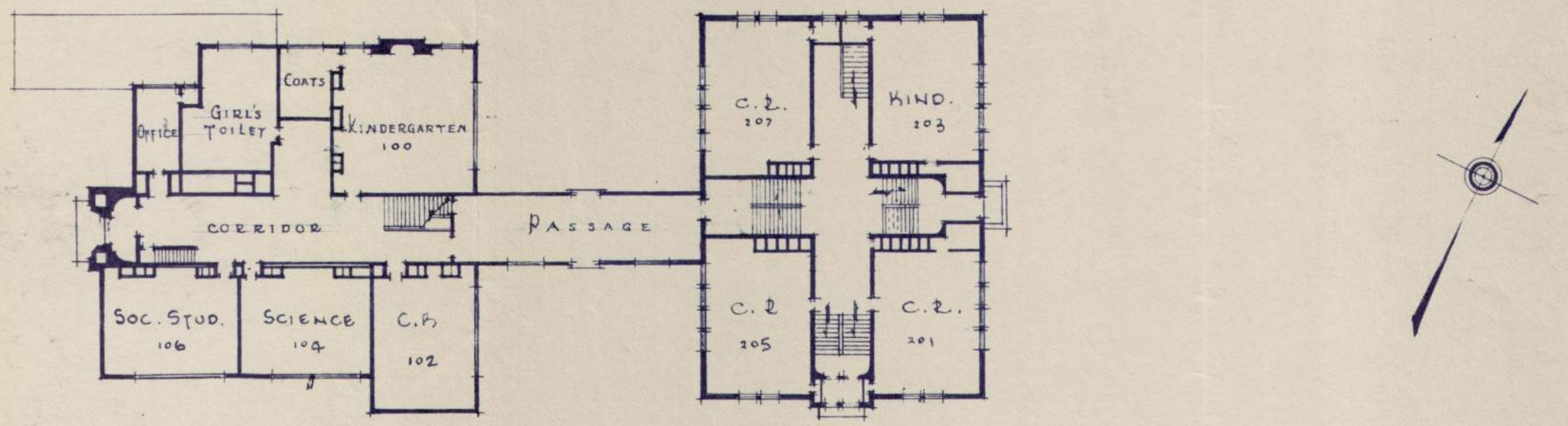
DETROIT, MICH.

DRAWN BY	DATE	CHECKED	DATE	APPROVED	DATE
	5/6/21				

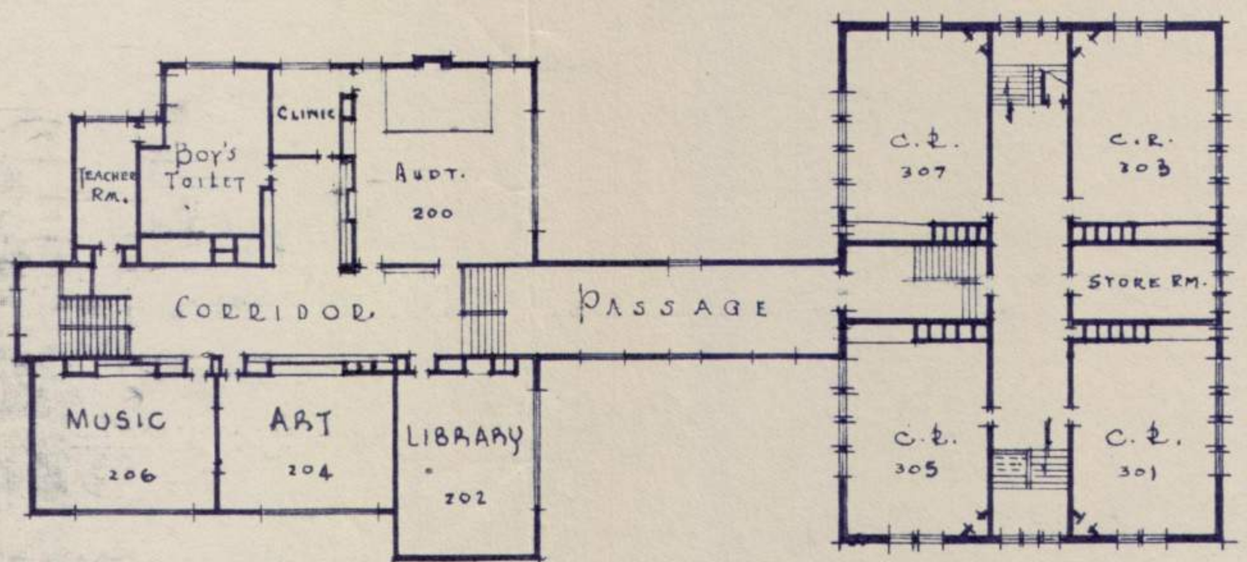
BL'D'G. CONST R'	1914-16	BRICK WALLS--WOOD JOISTS
" "	1921	" " CONC. SLABS



FIRST FLOOR PLAN

SCALE $1/32$" = 1'-0'

LYNCH SCHOOL SECOND FLOOR PLAN					
DEPT. OF ARCHITECTURAL ENGINEERING BOARD OF EDUCATION DETROIT, MICH.					
DRAWN BY	DATE	CHECKED	DATE	APPROVED	DATE
	5/7/21				



SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

J. Marshall Elementary School

Basic Property Information: COD 3-Marshall-1255 E State Fair

Short Name:	Marshall
Address:	1255 East State Fair Highland Park, Michigan 48203
Year Built:	1928
Additions Built:	1930
Outbuildings:	Powerhouse
Year Vacated:	2009
Building Footprint:	170 feet x 325 feet
Square Footage:	63,020 sq. ft.
Number of Stories:	2
Building Height:	28 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU ▪ Wood
City Council District:	3	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Metal ▪ Wood
		Roofing System(s):	▪ Built-Up Roof

Assessment Summary

Assessment Date:	June 18, 2020
WJE Inspector(s):	Cheryl Early; Meredith Crouch; Justin Barden
Report Date:	November 20, 2020
Building Risk Index:	**83.84**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,955,800
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,041,600
Sub-Total	$7,897,400
Contingency (25%):	$1,974,350
Sub-Total	$9,871,750
Overhead and Profit (15-18%):	$1,480,762
Sub-Total	$11,352,512
Escalation (6% for 2 years)	$681,150
Sub-Total	$12,033,663
Architectural and Engineering Design Services (20%):	$2,406,732
TOTAL COST ESTIMATE:	$14,440,395

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The lower levels of the basement are flooded, and thus, were not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original two-story 1929 building is "U" shaped in footprint with the central courtyard space open on the north side of the building. A 1931 addition extended the eastern wing of the "U" to the north. A powerhouse is located north of the original building and is connected to the east wing of the main building at the basement level. The assembly spaces are located at the south end of the building.

The main building and powerhouse facades generally consist of clay brick and limestone masonry with concrete masonry unit (CMU) backup. The brick units are laid in running bond with every sixth course laid in header bond. Replacement spandrel panels with an exposed aggregate finish are set within metal frames between the upper and lower level windows. Ornate and colorful glazed tiles decorate the facade, including the end bays and the parapets above the entrances and pilasters. Limestone entrance surrounds, horizontal belt courses, window sills, accent units, and copings also decorate the facades. Conventional steel-framed doors are set within the building entrances. The windows are primarily composed of aluminum replacement units set into the original wood window frames. The low-slope roofs were not accessible, but at locations of partial roof collapse and based on a review of aerial photographs, the assembly generally consists of an internally drained, bituminous built-up roofing (BUR) system with gravel surfacing.

The roof structure over the southern assembly spaces is of steel construction with wood plank decking spanning between the steel purlin beams. In other areas of the original 1929 building, the roof and floor structures are of both concrete tee joist-slab and flat slab systems spanning between dropped concrete (or concrete encased steel) beams. The beams span to column lines aligned with the interior corridor and exterior walls. Based on the exposed framing at the basement level and minimal access to the attic plenum space, the structure of the northern 1931 addition is assumed to be cast-in-place concrete throughout. CMU walls infill the space between the concrete columns and beams in both the original construction and addition.

Overall, the building is in serviceable condition with areas of distress related to water infiltration into the wall assemblies and interior spaces. Coping stones that have been removed at the parapets are allowing water directly into the wall assemblies and causing distress within the masonry parapets and other elements below. The coping stones have broken through the wood roof deck and are precariously supported on the deteriorated steel ceiling members. Except for these areas damaged by the coping stones, the structure is in good condition with few areas of distress present in the concrete structure. Replacement of the roofing is recommended as part of a building rehabilitation effort. The windows are in place, protected with temporary barricades, and are generally in good condition with only minor, isolated repairs anticipated. The doors are damaged and distressed and recommended to be replaced.

Facade

The facade is generally in good condition with isolated regions of distress largely concentrated above roof level. Corrosion of the steel lintels, due to water penetration into the wall assembly, was observed at most of the wall openings. Repairs should include removal of the masonry to expose the steel, repair or replacement of the lintels as needed based on the extent of corrosion, and installation of improved through-wall flashing details for improved durability.

Large sections of the brick masonry on the west facade of the 1931 addition are outwardly displaced above the second floor windows, including the parapet. This condition is attributed to water infiltration, subsequent freeze-thaw damage, failure of the lateral support for the veneer units, and corrosion of the steel lintels. Additionally, previous repairs, including repointing efforts and localized areas of rebuilt masonry, are present within this region and are likely contributed to the observed distress due to the inadequacy of the repairs. Masonry repairs should include grinding and pointing of deteriorated mortar joints observed in localized areas throughout all facades, as well as rebuilding of the displaced areas of masonry.

Distress was also observed at the top of the brick masonry pilasters, including areas of brick masonry that were outwardly displaced away from the wall surface. Where the masonry has been previously repaired or rebuilt, the repairs are failed. Some of the adjacent parapets are displaced inward, away from the roof surface. The decorative tiles are missing in some regions, which is attributed to water infiltration and spalling of the brick substrate. Repairs should include rebuilding the displaced areas of masonry with appropriate detailing, as well as the replacement of the decorative tiles and repair of the spalled masonry substrate.

Distress was observed near the top of the brick masonry chimney, including sections of brick and attached stone coping units that were outwardly displaced. These conditions are attributed to water infiltration and subsequent freeze-thaw damage. Rehabilitation of the building should include rebuilding the displaced areas of masonry and improved through-wall flashing below the coping.

Most of the limestone coping units have been removed, thereby exposing the exterior masonry wall cavity to direct moisture penetration and damaging the roof. The majority of the removed coping units appear to be sitting on the roof surface and may be salvaged and reinstalled, though some are damaged and require replacement. Rehabilitation should include replacement of the missing coping units in coordination with the parapet and roofing repairs. Additionally, mortar deterioration is present throughout the limestone cladding, which should be grinded and pointed.

The replacement spandrel panels with an exposed aggregate finish are generally in serviceable condition; repairs are not anticipated at this time. These elements were likely installed in conjunction with the aluminum replacement windows.

The aluminum replacement units set into the original wood frames are intact and in good condition. Isolated glass units are missing or cracked, and a few interior trim pieces are missing, which should be replaced. The metal exterior doors are typically corroded and welded shut with missing hardware. Rehabilitation of the building should include replacement of the doors and repair of the existing window systems.

Roofing

Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. However, distress was observed from the interior, including water damage to the ceiling finishes, missing hood vents, missing drains and conductors, and isolated areas of roof collapse at the building perimeter (described in further detail below). Based on the missing coping and extent of masonry distress near the top of the walls, the roofing base flashings are likely damaged. Vegetation growth near the building perimeter was also visible in some regions from grade. Rehabilitation should include the removal and replacement of the existing roofing system, including drains and conductors.

Structure

Beyond localized areas of distress related to vandalism and subsequent water infiltration, the structure is in good condition. Water damage of interior plaster finishes is more prevalent in the north addition, and cracking of the painted concrete flat slab ceilings in the classroom spaces is more prevalent in the original building.

The flat concrete slabs of the classroom spaces are cracked on the underside in the original portion of the building in nearly every classroom; however, the majority of the cracks may not be of significant structural concern and likely will not require repair following further investigation to verify the cause and extent of distress. Spalling of the concrete roof structure has exposed corroded steel reinforcing in the southern corners of the corridor and the toilet room in the southeast corner. Partial depth concrete repairs are recommended for these small areas.

Along the southern end of the building, the wood plank roof decking is decayed, damaged, and missing as a result of the coping stones being removed and placed on the roof. Several coping stones have fallen through to the second floor or are precariously supported on a suspended, corroded steel frame for the plaster ceiling finish. At these locations, corrosion is present on the roof structural steel members and the brick masonry is cracked and displaced. Removal of the coping stones from the roof structure is recommended to prevent further partial roof collapse in other areas. Once removed, the roof assembly and adjacent masonry wall assembly can be rebuilt, re-securing the interior of the space from additional water damage.

Minor distress was noted of the exterior CMU backup wall in the projection room where the interior face shell of the CMU is deteriorated with mortar erosion, efflorescence, and minor surface spalling due to prolonged water infiltration and freeze-thaw damage. This small area of wall is recommended to include grinding and pointing of deteriorated mortar joints at minimum and further review of other structural elements in this area.

Approximately three feet of ponded water was observed in the lower levels of the basement preventing access to those basement spaces and the interior of the powerhouse. The portions of the basement walls and underside of the first-floor structure observed are in good condition with no readily visible distress. The basement should be dewatered allowing for assessment of the lower level basement rooms and powerhouse interior, prior to the implementation of the recommendations stated herein.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Many of the CMU walls are cracked below beam bearings and at approximate mid-length of interior walls. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as stairwells and interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

The attic plenum access walkway is decayed in locations where substantial water infiltration has occurred. If the attic access is required for the new building use, the attic catwalk is recommended to be improved to meet current code requirements, otherwise replacement of individual boards is recommended.

·MARSHALL·SCHOOL·
·PLOT·PLAN·

Dept. of Building & Grounds.
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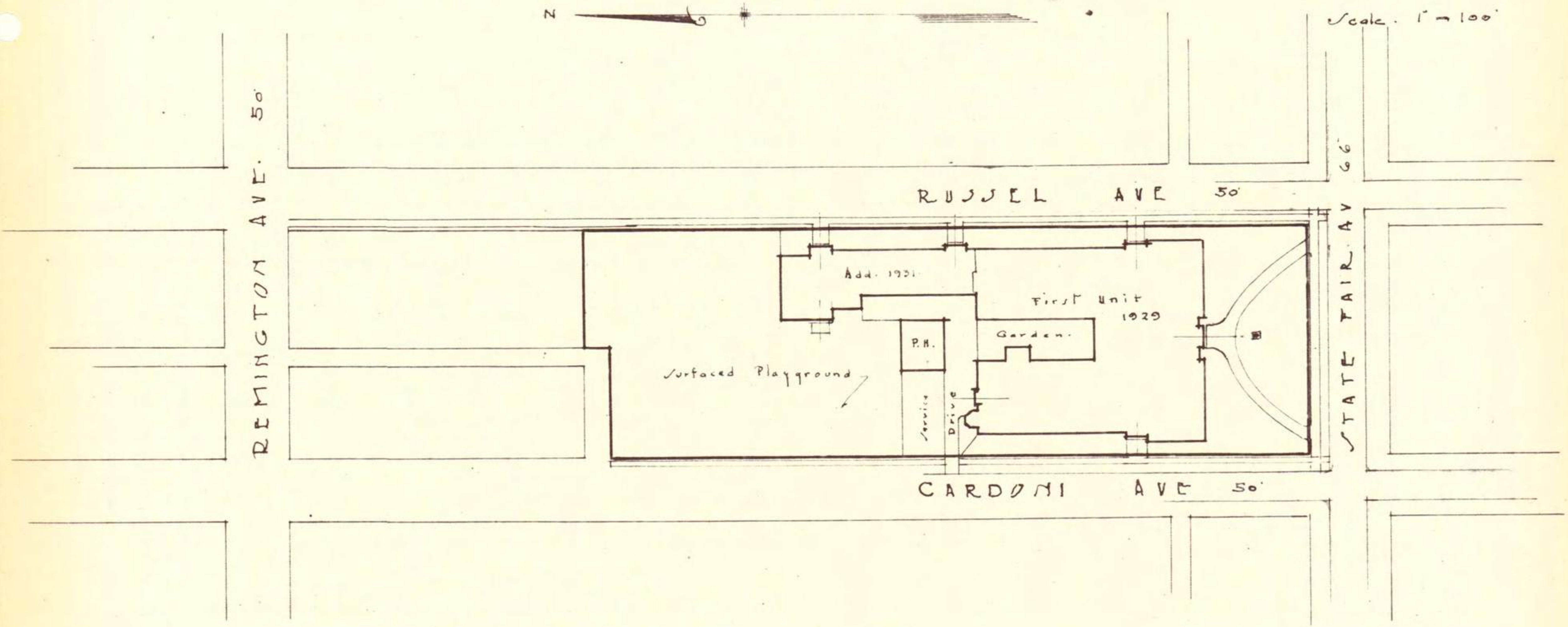
Drawn by SH. 3·17·1932.

2.67 Acres.



MARSHALL
ELEM. SCHOOL
BASEMENT PLAN.

DEP'T. OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT ~ MICH.

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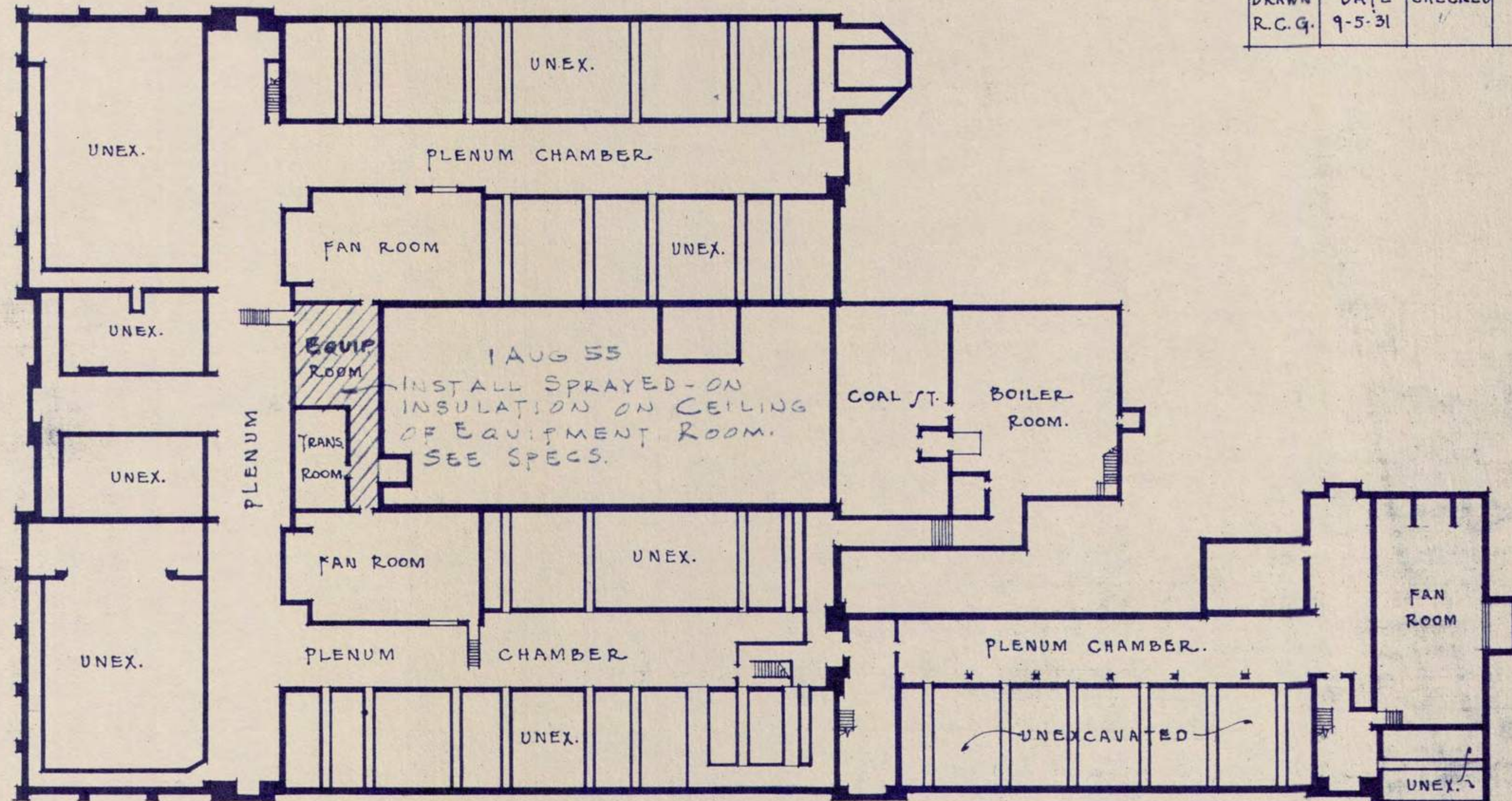
R.C.G.	9-5-31				



MARSHALL
ELEM. SCHOOL
FIRST FLOOR PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT ~ MICH.

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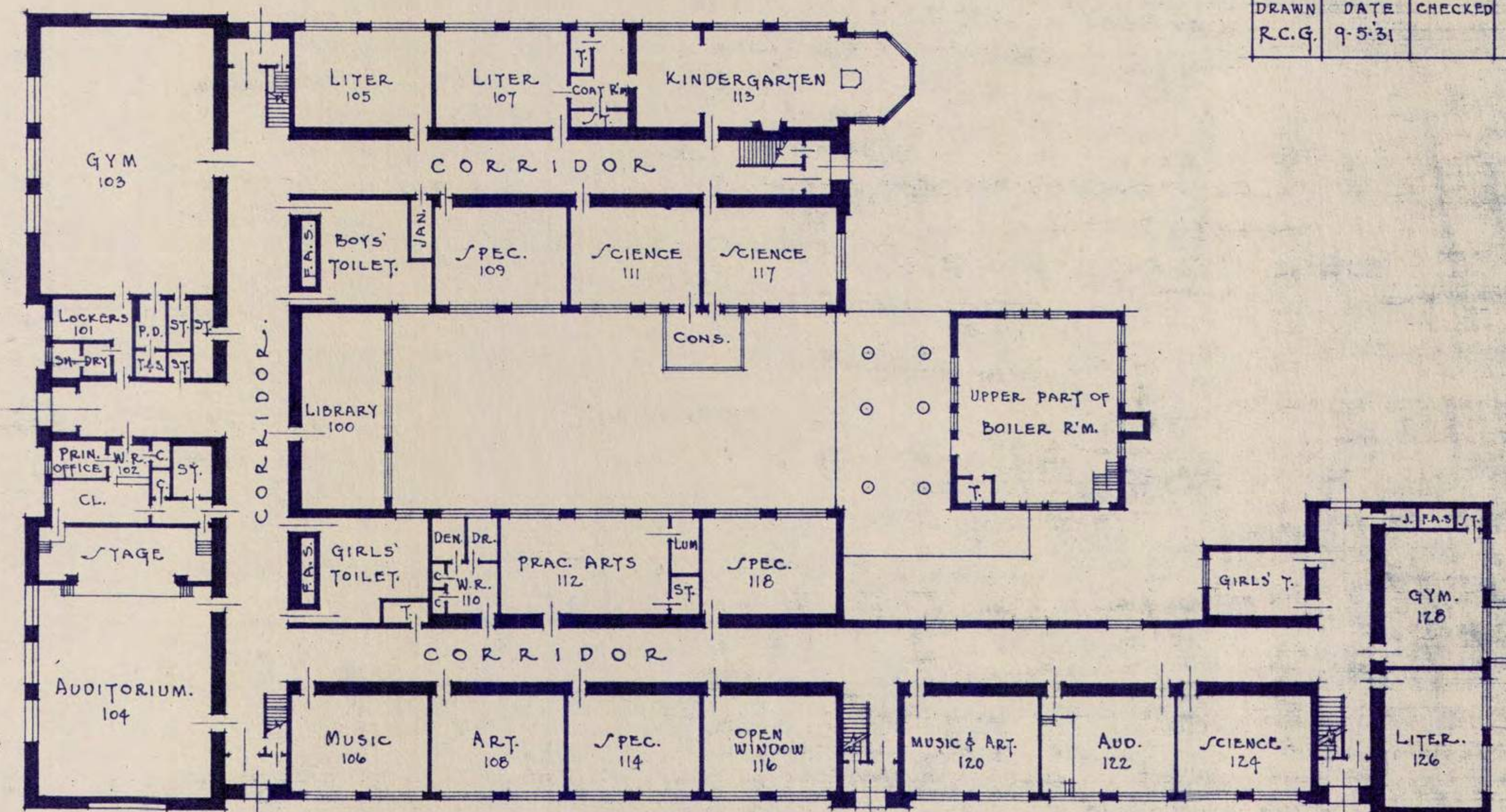

MARSHALL
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SECOND FLOOR PLAN

DEP'T. OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT — MICH.

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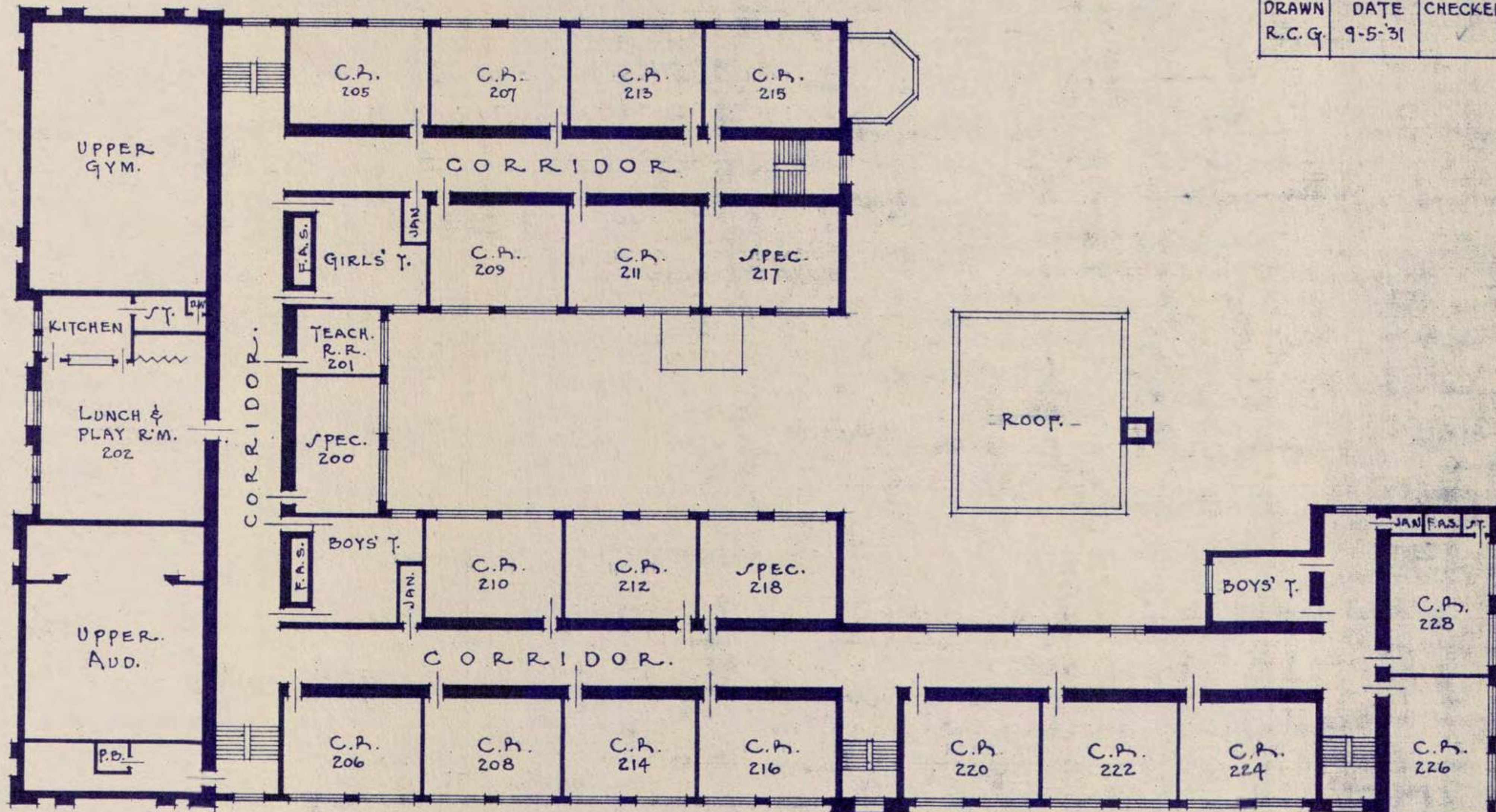

Wiss, Janney, Elstner Associates, Inc.
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Bingham Farms, Michigan 48025
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Mason Elementary School

Basic Property Information: COD 3-Mason-19635 Mitchell

Short Name:	Mason
Address:	19635 Mitchell Street Detroit, Michigan 48234
Year Built:	1930
Additions Built:	1945, 1952
Outbuildings:	Powerhouse
Year Vacated:	2012
Building Footprint:	205 feet x 200 feet
Square Footage:	48,059 sq. ft.
Number of Stories:	2
Building Height:	28 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ CMU ▪ Structural Steel
City Council District:	3	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Metal ▪ Wood ▪ Glass Block
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	June 18, 2020
WJE Inspector(s):	Cheryl Early; Meredith Crouch; Justin Barden
Report Date:	November 20, 2020
Building Risk Index:	**71.68**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,987,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,844,720
Sub-Total	$6,731,720
Contingency (25%):	$1,682,930
Sub-Total	$8,414,650
Overhead and Profit (15-18%):	$1,262,197
Sub-Total	$9,676,847
Escalation (6% for 2 years)	$580,610
Sub-Total	$10,257,458
Architectural and Engineering Design Services (20%):	$2,051,491
TOTAL COST ESTIMATE:	$12,308,950

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelopes from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded, and thus, was not accessed. The interior ceiling finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The current footprint of the two-story building is generally “H” shaped, with the southwest leg of the “H” extending further south than the southeast leg. The original building is rectangular in plan and is located at the central western portion of the current building. An addition was constructed in 1946 and extended the building to the east from the northeast corner of the original building. Five years later, a second addition was added in three parts: south of the original building, north of the original building, and east of the first addition. A powerhouse is located north of the school building; it is connected at the basement level to the school building per the drawings provided.

The school building and powerhouse facades generally consist of a clay brick and limestone masonry with concrete masonry unit (CMU) backup. The brick units are laid in running bond with every seventh course laid in header bond. A stepped masonry pattern exists at the pilasters on the west, south, and east facades. Limestone accent units, horizontal bands, window sills, entrance surrounds, and copings are located throughout all facades. Conventional steel-framed doors are set within the building entrances. The windows are primarily composed of aluminum replacement units set into the original wood frames. The gymnasium windows consist of glass block infill with operable steel-framed windows. The low-slope roof assembly generally consists of an internally drained, gravel surfaced, bituminous built-up roofing (BUR) system with a granulated cap sheet base flashing. Some portions of the roof area contain a flood coat in lieu of gravel surfacing.

The second floor and roof structure of the original building are of tee joist-slab construction. The subsequent additions are also of concrete construction but consist of flat slabs spanning between dropped concrete beams. The concrete beams are supported on concrete beam and column lines at the exterior walls and interior corridor walls. The roof structures of the assembly areas consist of metal deck supported on structural steel beams.

Overall, the building is in serviceable condition with finishes of some classrooms still intact, but the roofing requiring full replacement. Coping stones have been removed, which is allowing water directly into the wall assemblies and causing distress within the exterior walls. The parapets at the southwest addition and at the south and east entrances require repair or rebuilding due to the extent of distress. Cracking is present of the concrete structure, primarily in the flat concrete slabs of the additions, and most notably on the underside of the roof structure, correlating with the current roofing condition. The windows throughout are missing or damaged, warranting replacement, though the exterior doors contain only minor distress and may be restored.

Facade

The facade is generally in serviceable condition. Corrosion of the steel lintels, due to water infiltration, was observed at many of the wall openings. Corroded lintels that result in masonry distress should be repaired with improved through-wall flashing details. The east and west parapets on the southwest building addition exhibited inward displacement. The parapet displacement is likely due to a combination of corrosion of the embedded steel support elements below and associated upward movement of the masonry, as well as deterioration of the masonry backup due to moisture infiltration through failed coping joints at roofing terminations. Further investigation of the parapets is recommended to determine the full extent of distress and define appropriate repairs. Localized mortar joints are debonded or cracked, particularly near the top of the wall below the missing copings, which should be repointed.

The multi-wythe parapets above the south and east entrances are spalled on both sides of the parapet. Waterproofing was previously applied to the interior surfaces of the parapet, advancing the distress by encapsulating water behind the waterproofing layer. Previous repairs in these regions are typically failed. Rehabilitation of the building should include a complete rebuild of the parapets above the south and east entrance, salvaging the associated limestone architectural elements.

Distress was observed within the brick masonry chimney, including relatively large sections of brick that were cracked and outwardly displaced away from the chimney surface. The observed distress is largely located within the upper third of the chimney. These conditions are attributed to water infiltration, subsequent freeze-thaw damage, and failure of the lateral support for the veneer units. Rehabilitation of the building should include repair of cracked regions and rebuilding the displaced areas of masonry.

Most of the limestone coping units have been removed, thereby exposing the exterior masonry wall cavity to moisture penetration. Previously removed and damaged stone copings were observed on the roof, along the perimeter; many of the copings are salvageable. Isolated areas of cracked and spalled limestone units at the entrances and the powerhouse horizontal band were observed. Rehabilitation should include replacement or reinstallation of the missing coping units in coordination with the parapet repairs, and dutchmen repairs or replacement of isolated cracked and spalled limestone stone units.

A majority of the aluminum replacement windows are missing, and several regions of the original wood frames are damaged or decayed. Several of the gymnasium windows containing glass block infill are missing or damaged, and many of the operable steel-framed windows are missing. The metal exterior doors contain minor corrosion and paint failure. Rehabilitation of the building should include replacement of the windows, though the existing doors can likely be restored in-place. The conservatory windows are generally intact and may be restored.

Roofing

The roofing assembly is generally in poor condition. Much of the deterioration is due to missing/removed rooftop mechanical units, missing drain covers, missing copings, and deferred maintenance. The base flashing is pulled away from the wall where coping units are missing, permitting water to enter the roofing assembly. Cracking, seam failures, evidence of water ponding, and isolated areas of organic growth were observed on the roof surface. Water infiltration was visible within several areas of the building interior. Rehabilitation of the building should include removal and replacement of the existing roofing assemblies and drainage elements.

Structure

The structure is in good condition with water staining and efflorescence noted at the underside of the concrete roof structures. The flat concrete slabs of the additions are cracked in multiple locations. The cracks are not of significant concern and all may not require repair pending the roofing is replaced as recommended above to mitigate further water infiltration. Few areas of partial depth concrete repair are anticipated due to thin cracking in the vertical sides of the concrete beams and crack patterns in the flat concrete slabs.

In the auditorium, the acoustic ceiling has fallen exposing the metal deck and steel beam roof structure. Spot corrosion is present on the underside of the metal deck, and areas near a roof drain and along the eastern wall of the stage are more heavily corroded. The deck and exposed steel beams are to be cleaned of the corrosion, assessed and re-coated with a rust-inhibiting paint.

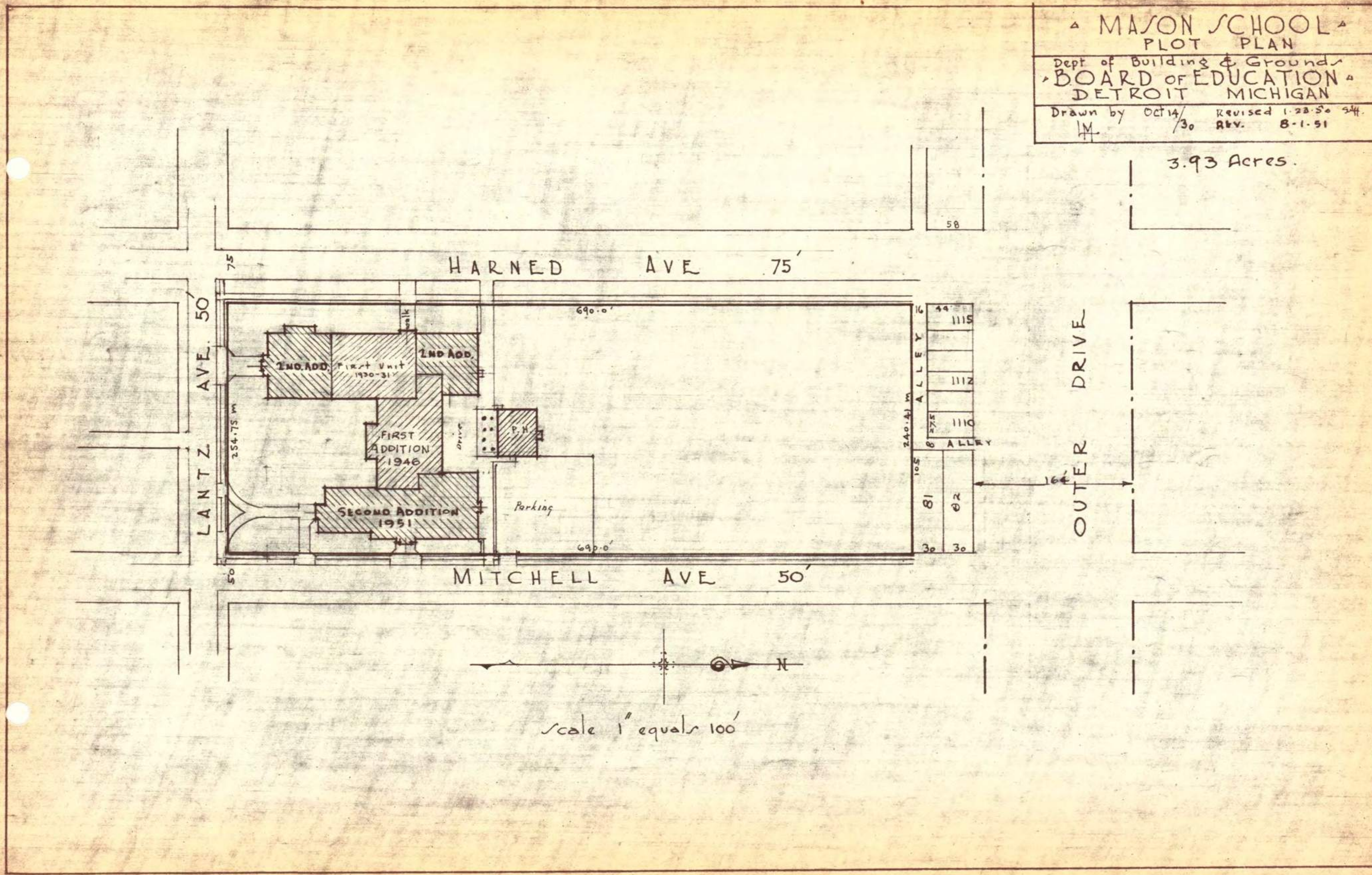
Approximately three feet of ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Many of the interior walls are cracked at exterior wall corners, below beam bearings, and approximately mid-length of the wall. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior classroom and stairwell walls, may be related to the relative stiffness of the walls within the structural building frame system. Repair of the cracked plaster finishes, repointing of the cracked mortar joints and replacement of cracked masonry units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Steel lintels for interior doorways are corroded. If the doorways and partitions are to remain, the steel is recommended to be cleaned, assessed and coated with a rust inhibiting paint.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PLOT PLAN
Dept of Building & Grounds
BOARD OF EDUCATION
DETROIT MICHIGAN
Drawn by LM Oct 14/30
Revised 1-23-50
Rev. 8-1-51
3.93 Acres.
HARNED AVE 75'
MITCHELL AVE 50'
LANTZ AVE 50
OUTER DRIVE
ALLEY
690.0'
254.75 m
240.41 m
2ND ADD.
First Unit 1930-31
FIRST ADDITION 1946
SECOND ADDITION 1951
walk
P.H.
Parking
1115
1112
1110
58
164
N
Scale 1" equals 100'

MASON
ELEM. SCHOOL
BASEMENT PLAN

DEP'T. OF BUILDINGS & GROUNDS
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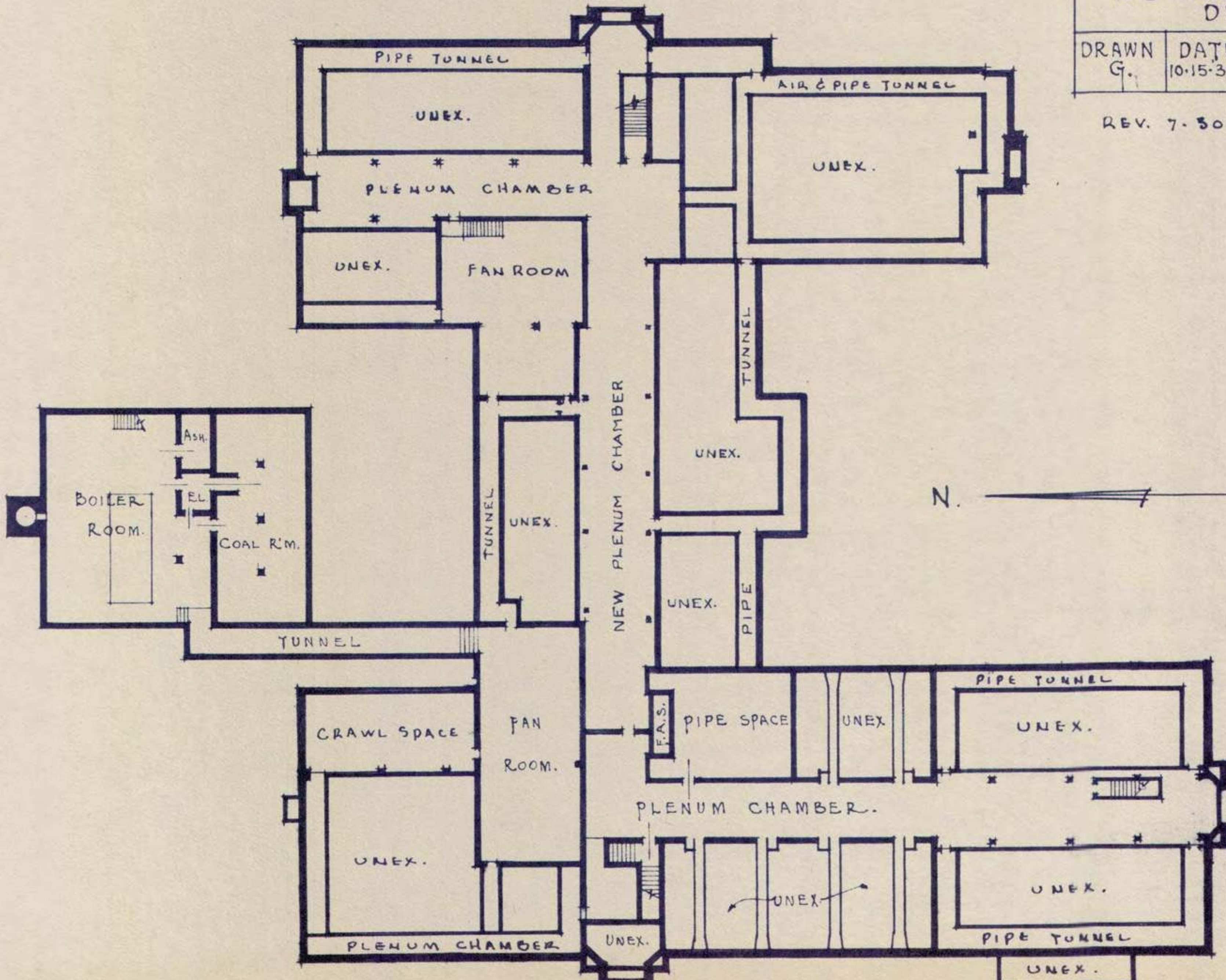

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MASON
ELEM. SCHOOL
FIRST FLOOR PLAN

DEP'T. OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT - MICH.

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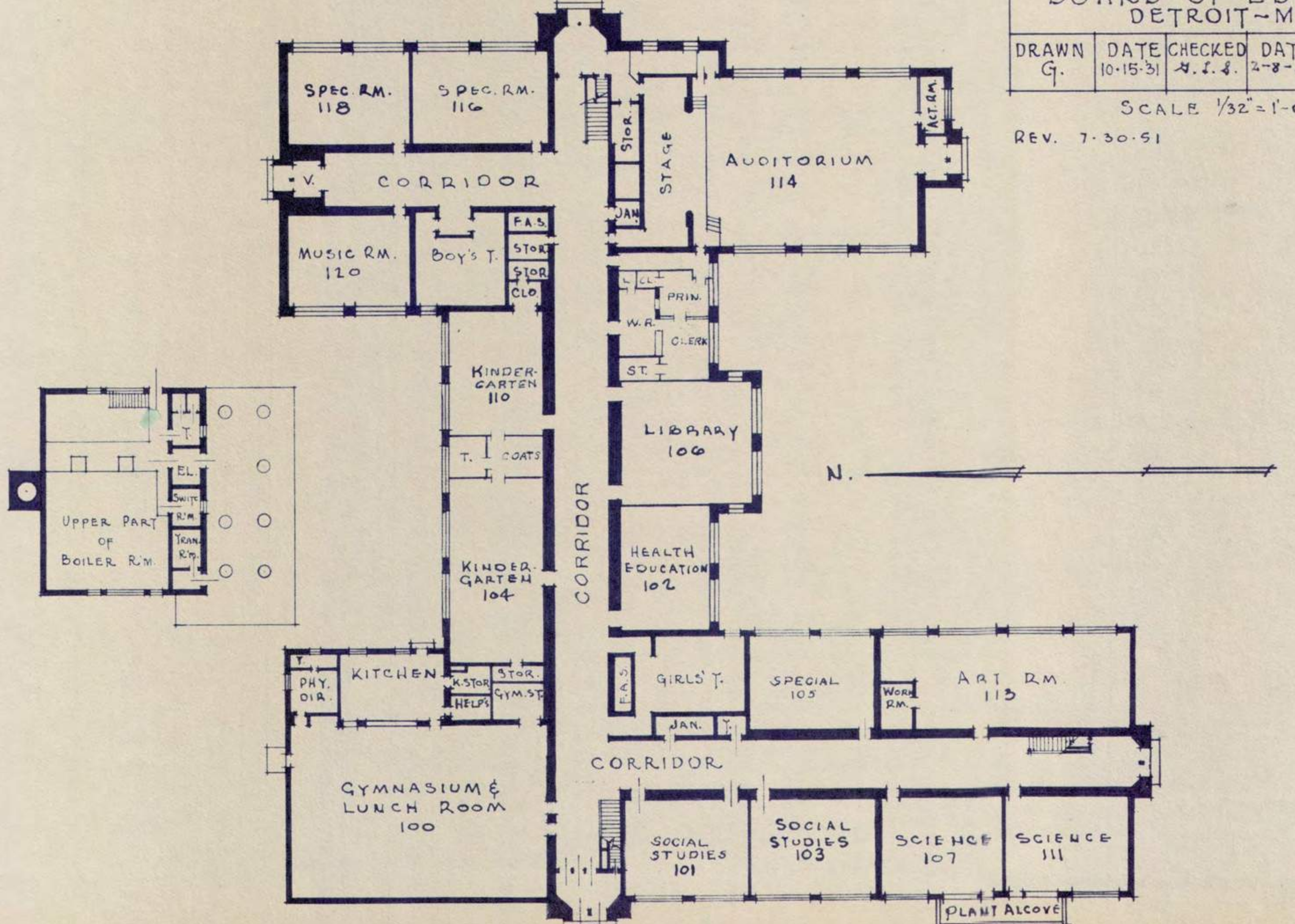
G.	10-15-31	G. L. L.	2-8-32		

SCALE 1/32" = 1'-0"

REV. 7-30-51



MASON
ELEM. SCHOOL
SECOND FLOOR PLAN

DEP'T. OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT~MICH.

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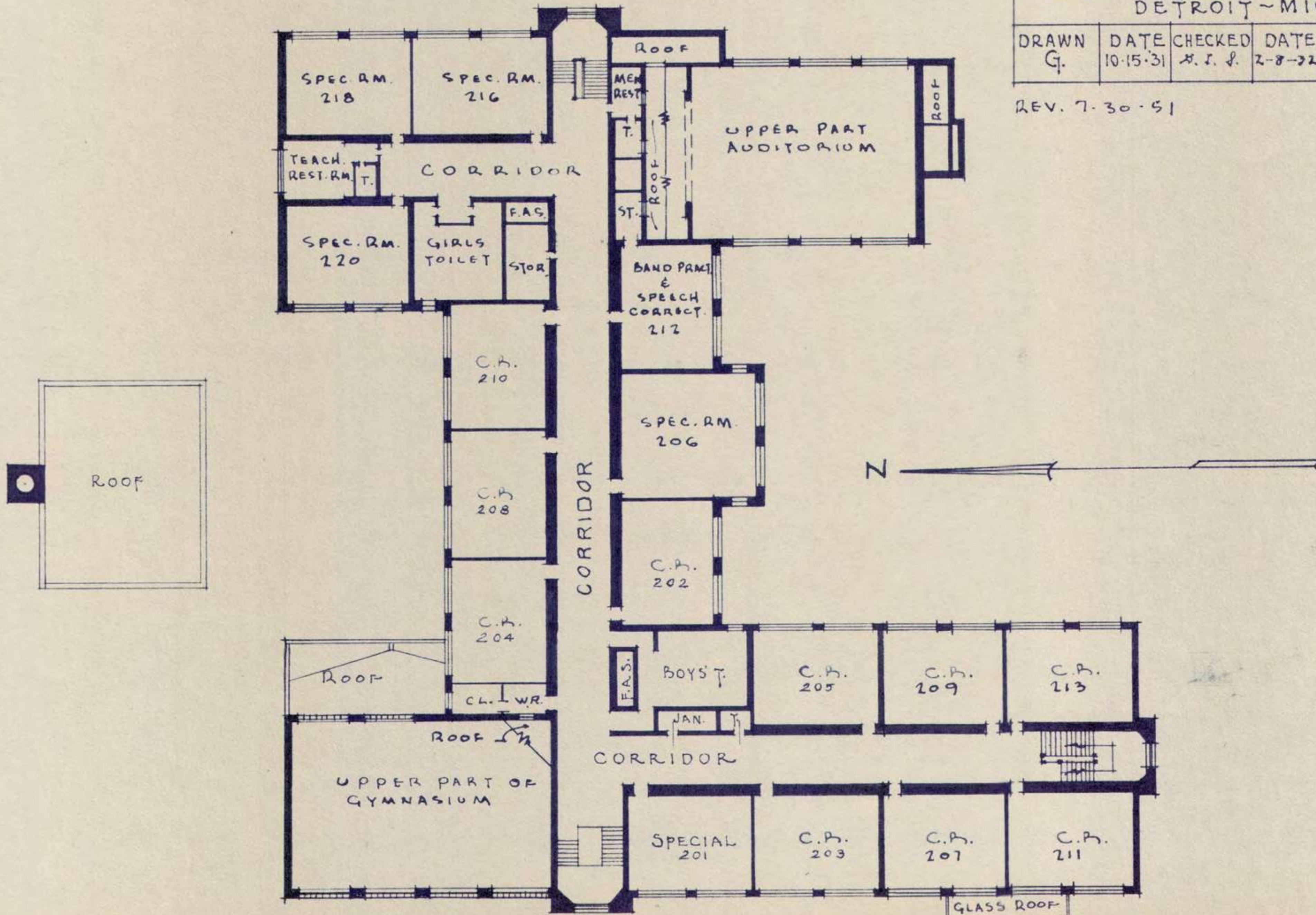
REV. 7·30·51



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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

New Middle School/AFPA East

Basic Property Information: COD 3-New-17142 Rowe

Short Name:	New, Fine Arts East School, Our Lady of Good Counsel
Address:	17142 Rowe Street, Detroit, Michigan 48205
Year Built:	1935
Additions Built:	1938, 1948
Outbuildings:	None
Year Vacated:	2006
Building Footprint:	195 feet x 235 feet
Square Footage:	53,041 sq. ft.
Number of Stories:	2
Building Height:	27 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Precast Concrete ▪ Brick Masonry ▪ CMU ▪ Structural Steel
City Council District:	3	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Steel ▪ Glass Block
		Roofing System(s):	▪ Scuppers ▪ Stone Ballast

Assessment Summary

Assessment Date:	June 09, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 20, 2020
Building Risk Index:	**65.62**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,854,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,243,280
Sub-Total	$6,997,780
Contingency (25%):	$1,749,445
Sub-Total	$8,747,225
Overhead and Profit (15-18%):	$1,312,083
Sub-Total	$10,059,308
Escalation (6% for 2 years)	$603,558
Sub-Total	$10,662,867
Architectural and Engineering Design Services (20%):	$2,132,573
TOTAL COST ESTIMATE:	$12,795,440

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade and the south courtyard, using binoculars as needed. Roof levels and the north courtyard were inaccessible due to a lack of access. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including the basement. The interior finishes are in a state of deterioration, exposing the structural framing systems in several locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

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WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

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- Floor Plans (included with this report)
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  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the

public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)

- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story school was constructed by Our Lady of Good Counsel Parish in 1935. A one-story classroom wing, believed to have been constructed around 1938, was added to the south based on differences between construction materials. This addition created an interior courtyard space between the two structures. A large addition, believed to be constructed in 1948, extends off the east end of the north facade, and houses the auditorium/gymnasium. With the exception of small basement spaces for mechanical equipment, the building is of slab-on-ground construction.

The facade generally consists of clay brick masonry in running bond with header units every six courses and concrete masonry unit (CMU) back-up. Decorative limestone units are present at the building entrances, copings, window sills, horizontal belt courses, and at a few window spandrels and window surrounds. The windows generally consist of glass block infill and putty-glazed, steel-framed windows. The main entrance at the original building is wood-framed, while conventional steel doors or metal-framed doors with transoms are present at the other building entrances. One overhead door is present on the east facade of the north addition. The roof levels were not accessible during our assessment, but based on a review of aerial imagery, the roofing assembly appears to consist of internally drained, gravel surfaced, built-up roof systems.

The original structure is of structural steel and CMU wall construction. The structural steel frame is encased in masonry or concrete throughout. The interior finishes of the original building were primarily intact prohibiting identification of the second-floor structural system. The roof structures of both the original building and the south addition are of open web steel joists with metal roof decking. The roof of the north addition is of structural steel with precast concrete plank roof deck. The roof over the single-story kitchen space at the southwest corner of the north addition is of assembled masonry block prestressed plank construction commonly referred to locally as Dox Plank. The walls of the south and north additions are also of CMU construction with primarily slab-on-ground construction.

Overall, the building is in serviceable condition with a majority of the interior finishes intact, though significant distress was observed within the south addition where failure of the roofing is causing damage to the roof structure and interior. The roof deck of the south addition is recommended to be replaced due to the extent and severity of corrosion on the underside of the deck. Roofs over the original building and north addition require localized repair at the building perimeter and drains to mitigate further distress from water infiltration within the building interior and masonry facade. The original steel-framed windows may be restored if desired, though replacement may be a more economical option in the long term considering the extent of distress observed. Localized masonry repairs are required near the window lintels, parapets, and on the interior near areas of failed roof drains.

Facade

A majority of the observed brick and limestone distress is due to expansive corrosion and displacement of steel window lintels. Brick units are cracked and displaced outward in several locations, particularly at the top of walls near building corners and near the roof level, and also adjacent to corroded lintels. Repairs should include rebuilding displaced masonry with appropriate expansion joints, repointing distressed mortar joints, and repair or replacement of the distressed steel lintels with installation of a properly detailed through-wall flashing. Several limestone header units are cracked and displaced downwards due to the extent of lintel distress located above the headers. The cracked stone units will require replacement in conjunction with the above noted recommended lintel repairs. Isolated limestone units are also cracked or displaced due to corroded steel anchors, and some limestone coping units are missing or displaced on the lower roof levels due to vandals. These units should be replaced in-kind or repaired as needed. Vertical cracks are present within the brick masonry cladding on the north addition, which mirrors cracks visible within the building interior surfaces and correlate with steel beam bearings. These joints should be repointed with replacement of isolated cracked units in conjunction with the structural repairs below. Failed mortar and sealant materials at expansion joints within the south addition are fully compressed and displaced over the height of the joint. These joints, including those containing mortar, should be removed of all materials over the depth of joint and widened such that new sealant and backer materials can be installed at the exterior surfaces.

The original single-pane, putty-glazed, steel-framed windows are generally intact (present), but are significantly distressed including isolated, missing, or displaced components and hardware, cracked glass, failed paint and surface corrosion, and failed putty and perimeter sealant. Significant costs for restoration and subsequent maintenance are anticipated, thus, replacement may be a viable, economic option depending on the future building use. Isolated glass block units are cracked and require replacement. The original wood doors contain localized water staining and decay near the threshold and additional minor damage, such as cracked glass, but may be restored. The remaining metal doors are generally damaged and require replacement. The overhead door within the north addition is missing and requires replacement or infill.

Roofing

The roof levels were not be accessed during WJE's assessment; however, indications of roofing deterioration and localized water infiltration were visible from grade and the building interior. Above the two-story original building and north addition, localized water infiltration was observed near roof drains and the building perimeter. Vegetative growth was visible from grade, though the remaining interior ceiling finishes within the field of the roof were dry. Maintenance-type repairs are anticipated to extend the service life of the existing roof assemblies in these regions. Evidence of significant water penetration and subsequent structural damage is present within the one-story south wing, and a portion of the roofing appears to be missing based on a review of aerial photographs. The sheet metal roof fascia is also missing over the west building entrance of this wing, which exposes the edge of the roofing to water infiltration. This south roof assembly is recommended for removal and replacement.

The roof hatch at the east end of the second floor is currently missing, exposing the interior of the building to the elements in this area. Replace the roof hatch or, at minimum, provide temporary cover until full repairs can be made to mitigate the water infiltration.

Structure

The structure, overall, is in good condition. Finishes are damaged in some locations and fully intact in others. The undamaged condition of the finishes of the original building prevented identification of the second-floor structural system.

The corroded metal deck of the south addition roof may be able to be spot repaired once the roof deck is fully available for assessment; however, replacement of the deck in its entirety may be warranted, and is recommended to be budgeted for, considering the distress observed on the roofing above. The supporting structural steel elements, including the open web steel joists and steel lintels, are recommended to be cleaned of corrosion and recoated with a rust inhibitive paint.

At an exterior wall of the teacher's lounge at the second-floor level, the interior face shell of the CMU is friable to the touch and unsound, seemingly from water damage. The source of the water causing the deterioration may be related to water penetration occurring at distress observed on the exterior facade near the chimney stack. The approximate four-foot length of the wall is recommended to be cleaned and further assessed for potential repair or rebuilt with coordinated facade repairs in this area.

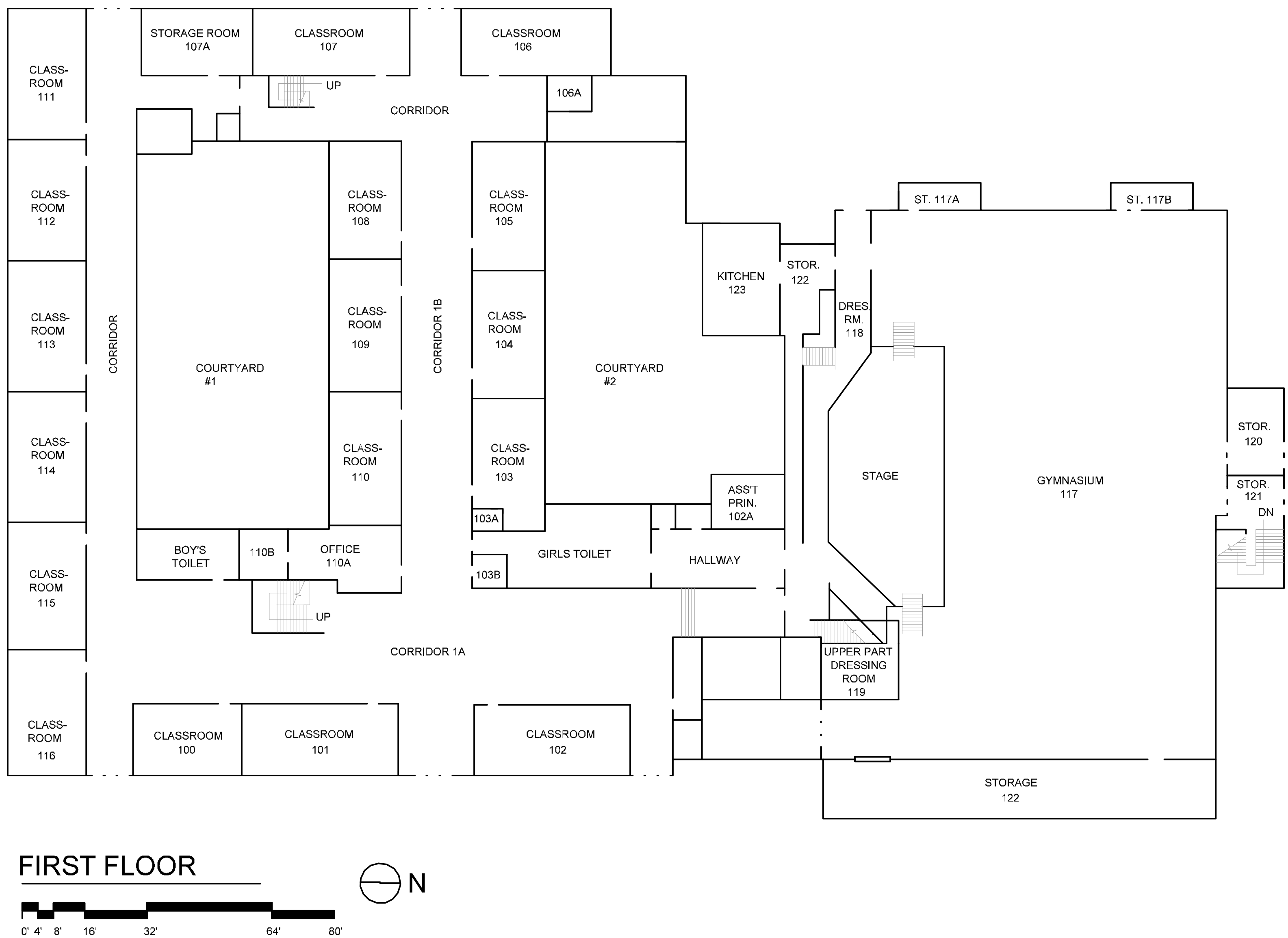
Additionally, the exterior masonry walls in the gymnasium/auditorium space are cracked below the dropped beam bearings in both stepped and vertical patterns. Considering the masonry is similarly cracked in the corresponding locations on the exterior, creation of inspection openings near the beam bearings is recommended to assess the condition of the structural steel members embedded or encased in the masonry. The precast concrete lintels over the windows in the gymnasium are cracked lengthwise on the underside indicating potential corrosion of the embedded steel reinforcement. Partial depth concrete repairs are recommended for these lintels after the water infiltration into the wall assembly is addressed with the envelope repairs.

Miscellaneous

Many of the CMU walls are cracked at exterior wall corners, near beam bearings, and mid-length of the interior walls. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as stairwell and interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

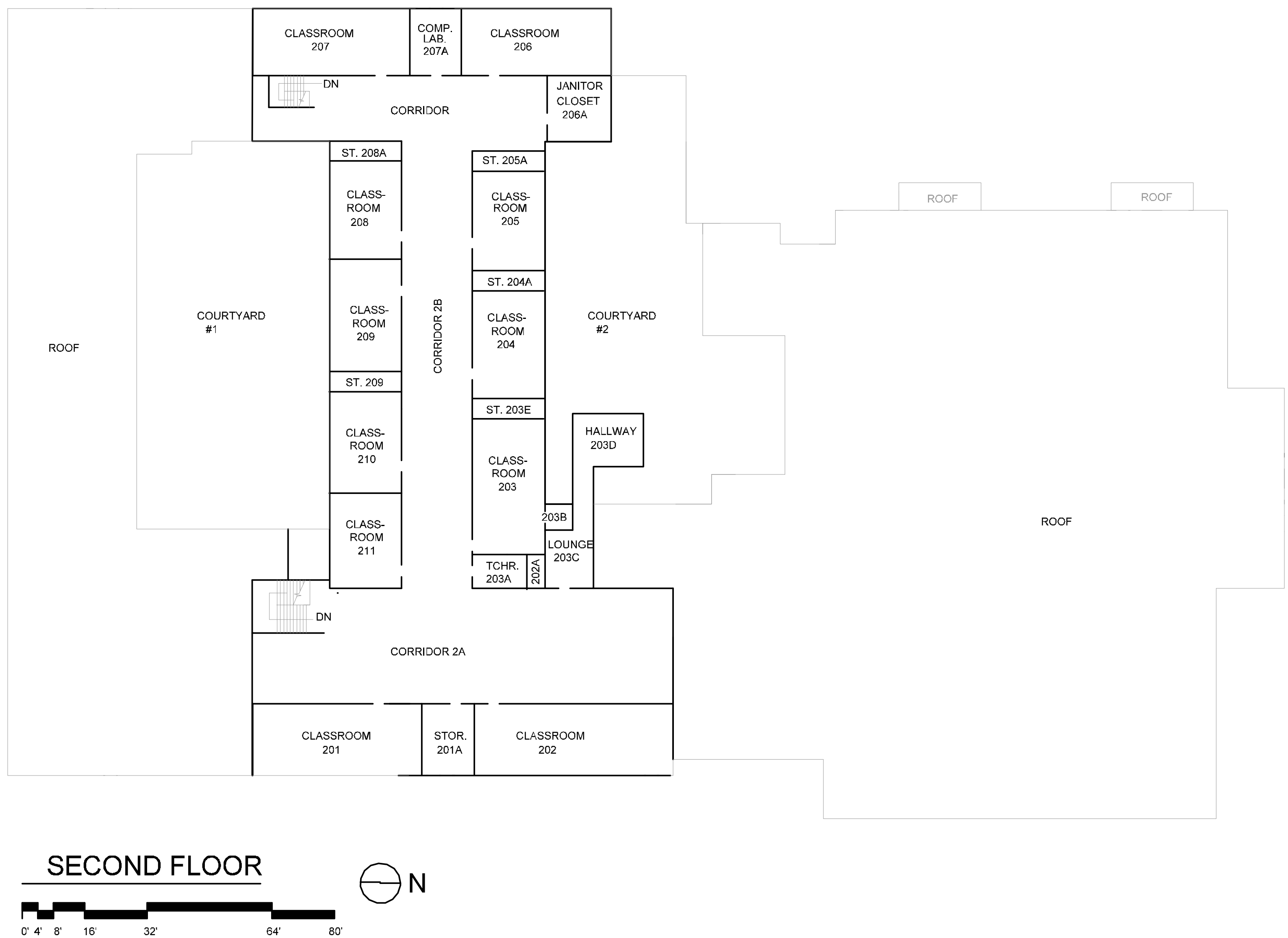
Several inaccuracies were found of the line drawing floor plans provided; a detailed survey to verify the layout of the basement, first and second floor levels is recommended.



FIRST FLOOR

SCHOOL CODE : 13

FINE ARTS EAST ELEM./MIDDLE (a.k.a. New Middle School)



FINE ARTS EAST ELEM./MIDDLE (a.k.a. New Middle School)

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Washington / Detroit Transition School East

Basic Property Information: COD 3-Washington-13000 Dequindre

Short Name:	Washington
Address:	13000 Dequindre Street, Hamtramck, Michigan 48212
Year Built:	1924
Additions Built:	None
Outbuildings:	None
Year Vacated:	2010
Building Footprint:	260 feet x 390 feet
Square Footage:	86,926 sq. ft.
Number of Stories:	1
Building Height:	34 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Precast Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood ▪ Gypsum and Tectum Roof Decks
City Council District:	3	**Exterior Wall System:**	▪ Brick ▪ Stone
SNF District:	CDB	**Window System(s):**	▪ Metal ▪ Wood
		Roofing System(s):	▪ Asphalt Shingle ▪ Bituminous Built-up Roof ▪ Temporary battened roofing on sloped surfaces

Assessment Summary	
Assessment Date:	June 16, 2020
WJE Inspector(s):	Cheryl Early; Meredith Crouch
Report Date:	October 26, 2020
Building Risk Index:	**102.31**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$3,475,600
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$6,954,080
Sub-Total	$11,329,680
Contingency (25%)	$2,832,420
Sub-Total	$14,162,100
Overhead and Profit (15-18%):	$1,416,210
Sub-Total	$15,578,310
Escalation (6% for 2 years)	$934,698
Sub-Total	$16,513,008
Architectural and Engineering Design Services (20%):	$3,302,601
TOTAL COST ESTIMATE:	$19,815,610

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a cursory visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of the City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a cursory visual review of the building facades from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the roof deck condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level was partially flooded at the time of the assessment, and thus, was partially accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)
- Environmental Reports
- Investment Memos

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

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Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

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- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
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The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The large, single-story building fronts Dequindre Street and has four wings extending outward to the east. A connector link between the wings, at mid-length of the wings, creates courtyards within the building footprint. Three of these courtyards have been converted to interior spaces. Gabled roofs guard the perimeter of the building, and low slope roofs extend over its central portions.

The facade generally consists of clay brick masonry with clay tile and brick masonry backup. Cast stone units typically compose the sills, header bands, and window surrounds, while limestone accent units typically surround the building corners, copings, and decorative stonework near the top of the walls. Metal fascia panels wrap the top of the exterior walls on all facades and conceal the original masonry cladding which is ornate on some facades. These panels are generally supported by cold formed steel framing with the panels themselves composed of sheet metal or painted plywood.

The roof layout consists of gable roofs with asphalt shingles along the building perimeter and a low slope, internally drained roof at the interior of the building footprint, which likely consists of a bituminous built-up roof (BUR). Sheet metal copings are present along the metal panels and at the courtyard walls. An elevated structural slab is located at grade over the coal room within the courtyard.

The structure consists of a structural steel-framed roof supporting multiple roof deck materials depending upon the location within the building. Deck materials include precast concrete planks, gypsum planks, tectum, and plywood. The steel roof structure is supported on multi-wythe brick and clay tile exterior masonry walls and steel columns located within the corridor walls. The first-floor structure is primarily concrete slab-on-grade with the exception of a concrete tee joist-slab system formed with stay-in-place corrugated metal forms over the mechanical spaces of the basement level. The tee joist-slab system spans between the concrete foundation walls and concrete beams and columns.

The building is generally in fair condition with the majority of observed distress resulting from water infiltration due to the damaged and deteriorated roof assemblies. The gabled asphalt shingle and low-slope roof areas both require replacement; repairs to the structural roof deck are anticipated. The metal fascia panels are distressed and should be removed to restore the original masonry behind. Significant cast stone restoration and replacement are anticipated, primarily attributable to corrosion of embedded steel reinforcement within some cast stone units. The brick masonry cladding is also deteriorated and requires repair, particularly at the gable roof ends where the steel roof structure is embedded into the masonry wall and corroded at the bearing ends. The windows and exterior doors should be replaced. The structural steel roof framing is anticipated to require reinforcement at the masonry bearing locations based upon the extent of cracking in the brick masonry. All of the low-slope roof decking requires replacement; however, no distress was observed in the precast concrete roof deck planks on the gabled portions of the roof.

Facade

The facade is generally in fair-to-poor condition. The metal fascia panels are significantly deteriorated, including areas of missing, displaced, and dented panels, as well as panels exhibiting corrosion or water staining. The panels likely conceal additional masonry distress, based on exposed conditions where the panels were missing or damaged. The observed masonry distress in these regions includes cracked, displaced, and missing masonry at the parapet, concrete masonry (CMU) infill and deteriorated mortar. The panels may have been installed as a cosmetic repair and, even if repaired or replaced in-kind, should not be relied upon as a long-term solution to the moisture-related issues due to the masonry deterioration that was likely occurring prior to installation of the metal cladding. Before developing a repair design, the panels should be removed for further investigation of the concealed portions of the facades.

The masonry walls typically exhibit stairstep cracking at both the low slope and gabled roof structures. These cracks appear to begin and end where the corroded steel roof structural members are embedded in the masonry wall. Cracked masonry exists at other locations of embedded, corroded steel, including the loading dock area. In some cases, the cracks were previously repointed and are showing continued signs of distress and crack progression. The masonry is displaced at some of these cracks and should be rebuilt. During the rebuilding of the masonry, the corroded steel of the roof structure should be cleaned and inspected to determine if steel repairs are required. The steel should then be coated with a zinc-rich paint prior to replacement of the masonry. Cracks in the masonry exist at a few building corners, facade projections, and piers; these cracks correlate with corrosion of adjacent steel lintels. Flashing repairs should be performed at steel lintels associated with masonry distress, and the surrounding cracks should be repointed.

The cast stone sill and header units are spalled in multiple locations, exposing embedded corroded reinforcement and lateral wall ties. Many sill units are chipped, cracked, or stained by corrosion. Brackets for the metal panel cold-formed steel frames were mounted to the surface of the stone units in some cases. Cast stone sill units that have spalled should be replaced, while chipped and cracked units may be repaired in-place if desired. Corrosion staining may be cleaned from cast stone units. A few cast stone sill units are displaced and should be reset.

The limestone units are generally in serviceable condition where exposed. The head joints between limestone coping units at the west end of the southwest gable roof are significantly eroded and should be repointed. The majority of the limestone accents near the top of the wall are concealed behind the metal panels; but where exposed, the limestone accent units are typically cracked, spalled, or missing. Moisture staining was frequently observed on the stone surface. Further investigation into the condition of the limestone units at the top of the wall is recommended, but it is possible that many of the masonry and limestone accents covered by the panels may be in poor condition and will require repair or replacement.

Rehabilitation of the building should include repair of these masonry elements to mitigate continued deterioration of the exterior wall assembly, development of potential falling object hazards, and water infiltration to the building interior.

The window openings are typically covered with plywood, except at the courtyards. The windows are generally missing or significantly distressed and will require replacement. A few window openings have been infilled with CMU and require cladding repairs or removal of the infill and installation of new window assemblies. Aluminum replacement windows are present in some areas on the west facade, which may be repaired in-place, if desired. The conventional steel doors are corroded and damaged and require replacement.

Roofing

The roof level was not accessible due to safety concerns related to observed deterioration of the low-slope roof decking; however, the perimeter gabled asphalt shingled roof areas were assessed from grade and aerial photos were reviewed. These asphalt roof assemblies are in poor condition. Temporary repairs are in place consisting of membranes or tarps held down with wood batten strips. Very few areas of the asphalt shingles were exposed and visible from grade; however, where exposed, localized regions of missing shingles were present and surface imperfections were noted, which may be due to moisture infiltration and subsequent deterioration of the roof sheathing or underlayment. Large areas of missing shingles are also visible in aerial photographs where the roof areas could not be viewed from grade.

Sheet metal flashings and coping materials are missing in some regions, which will lead to further moisture related deterioration to the exposed brick masonry. Though the low-slope roof areas were not visible from grade, a review of aerial photographs and water damage to interior ceiling finishes and gypsum plank roof deck indicate localized areas of the roofing are deteriorated. Both the gabled asphalt shingle roof areas and low-slope roofing should be removed and replaced, including their respective drainage systems.

A bituminous roof is present near grade over the coal room with flashing failures along the vertical terminations at the brick masonry facade. These deteriorated flashing elements should be repaired to mitigate water infiltration into the basement. As access to the interior spaces below this region could not be obtained at the time of our assessment due to partial flooding of the basement, further investigation should be performed to determine if concrete repairs to the elevated slab are also required.

Structure

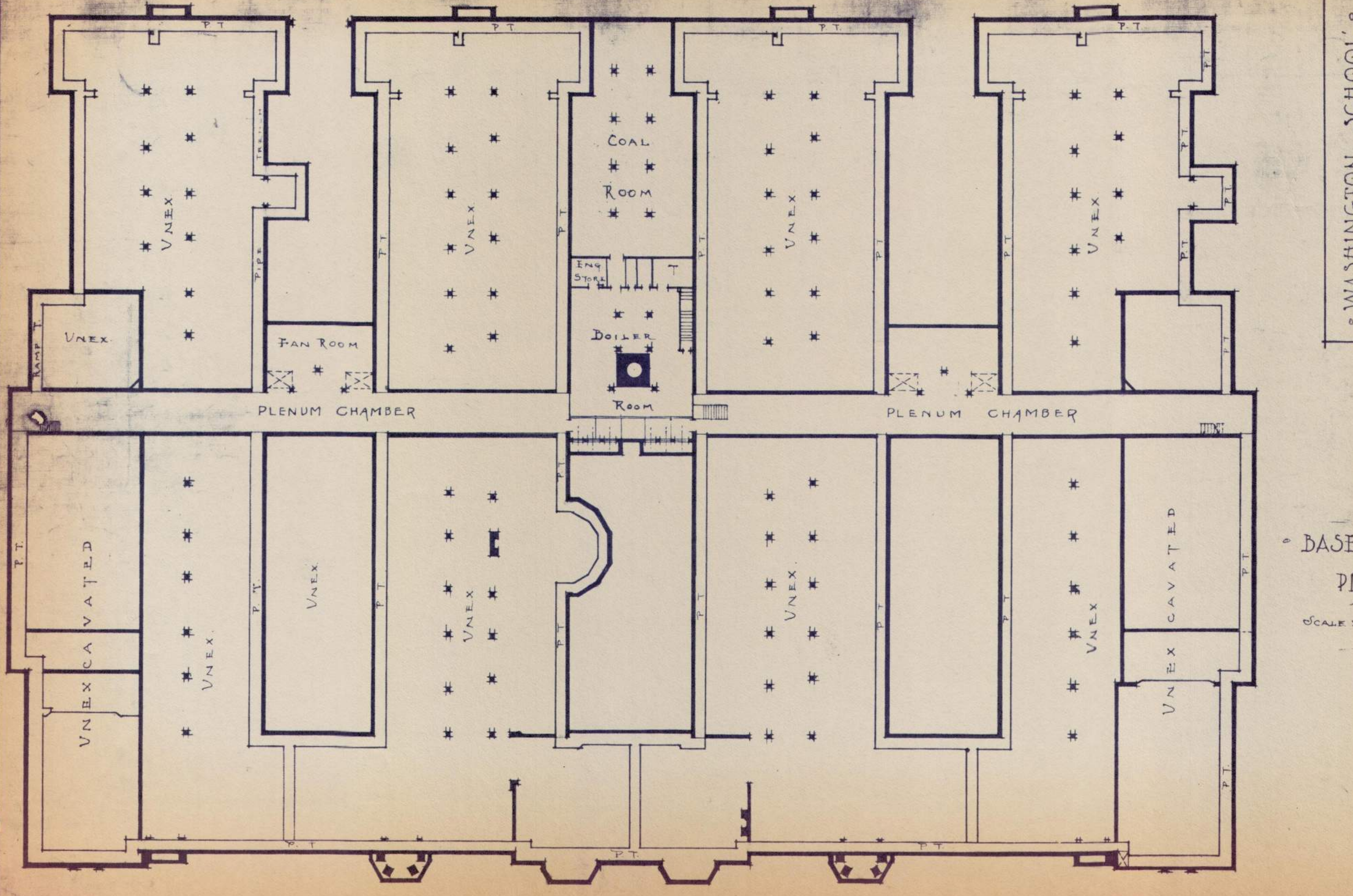
The structural systems are in serviceable condition. The roof structural systems are experiencing the greatest distress as a result of the various failures to the roofing systems. The roof decking of the low-slope roofs consists of materials particularly prone to water-related deterioration such as gypsum plank, tectum, and plywood. When these products become wet, the load-carrying capacity of the decking is significantly reduced. Some of the deck materials deteriorate further if the wetness is recurrent or prolonged. These deck elements are cracked, water stained, or have been previously repaired with localized replacement of original materials in multiple locations. The deteriorated regions of roof decking are recommended to be replaced with a metal deck system that is sufficient to perform as a diaphragm for the main building lateral force resisting system. The precast planks of the sloped gable roofs at the perimeter appear to be in excellent condition, although conditions should be further assessed at the low-elevation end and valleys of the gabled roof due to the known deteriorated condition of the roofing.

Additionally, the structural steel roof framing is visibly corroded in multiple locations, including at masonry bearing locations. The structural steel is to be exposed, cleaned, and further assessed where corroded, especially where the steel is embedded into the brick masonry walls and corresponding masonry cracking has occurred. Reinforcement of the steel members may be required due to the anticipated amount of corrosion of the steel, as telegraphed through the cracking and displaced masonry. Rebuilding of the cracked and displaced masonry at these locations would be coordinated with the steel repair effort.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged resulting from water infiltration and vandalism. Repair of these partition walls is recommended, as appropriate for potential new use of the spaces.

The lower levels of the basement, including the boiler room and coal room, were flooded with stagnant water. Where visible, no distress was observed of the first-floor concrete framing above these areas. These lower levels should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.



BASEMENT PLAN

SCALE: 1'-0" = 32'-0"

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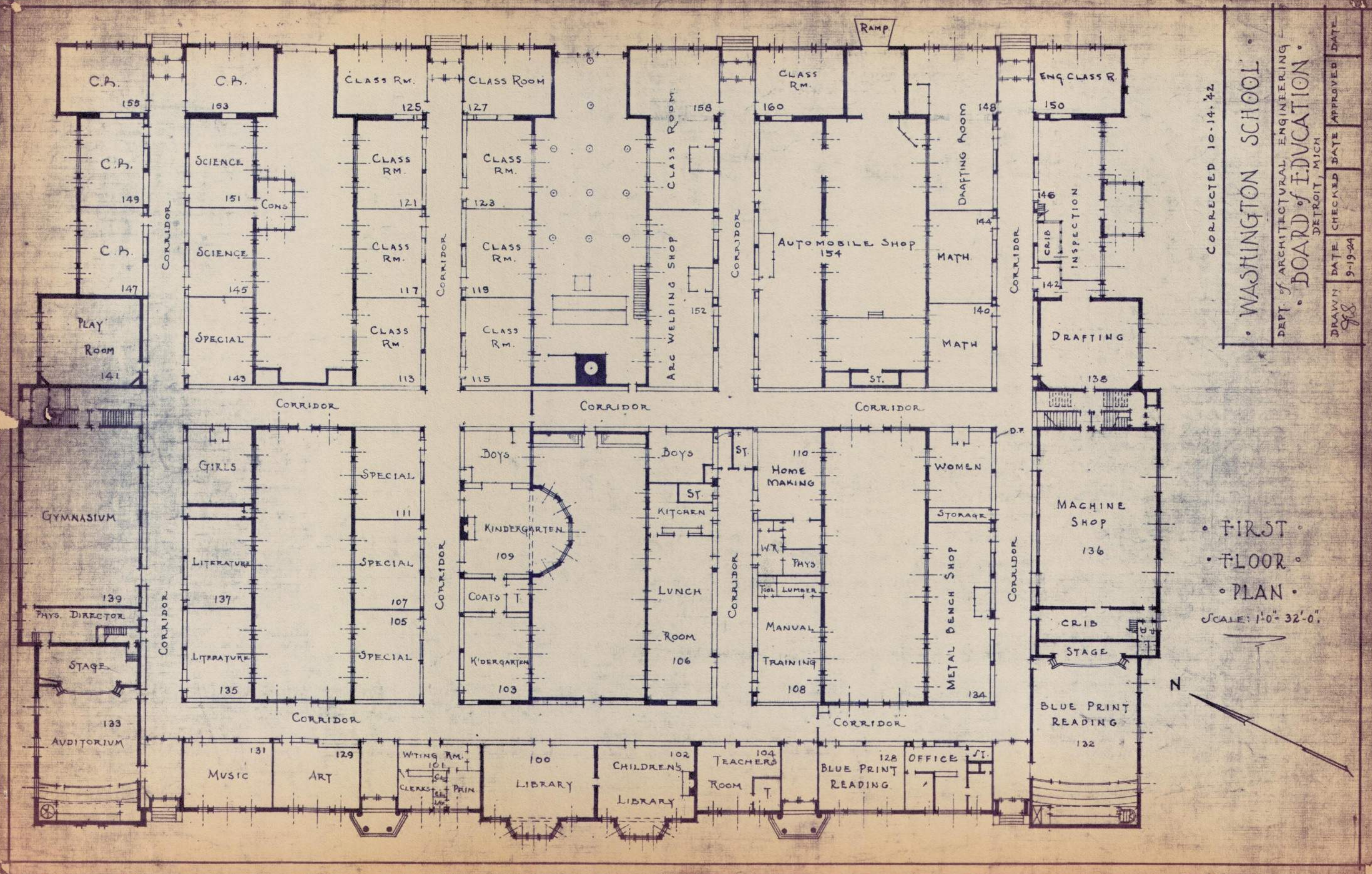

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DETROIT, MICH.
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FIRST FLOOR PLAN
SCALE: 1'-0"= 32'-0".
N
RAMP
C.R. 155
C.R. 153
CLASS RM. 125
CLASS ROOM 127
CLASS ROOM 158
CLASS RM. 160
ENG. CLASS R. 150
C.R. 149
C.R. 147
SCIENCE 151
CONS
SCIENCE 145
SPECIAL 143
CLASS RM. 121
CLASS RM. 117
CLASS RM. 113
CLASS RM. 123
CLASS RM. 119
CLASS RM. 115
ARC WELDING SHOP 152
AUTOMOBILE SHOP 154
ST.
DRAFTING ROOM 148
MATH 144
MATH 140
146
CRIB
INSPECTION
142
DRAFTING 138
PLAY ROOM 141
CORRIDOR
GIRLS
SPECIAL
111
LITERATURE 137
SPECIAL 107
105
LITERATURE 135
SPECIAL
BOYS
KINDERGARTEN 109
COATS
T
KINDERGARTEN 103
BOYS
ST.
KITCHEN
LUNCH ROOM 106
D.F.
ST.
110 HOME MAKING
W.R.
PHYS.
TOOL LUMBER
MANUAL TRAINING 108
WOMEN
STORAGE
METAL BENCH SHOP 134
D.F.
MACHINE SHOP 136
CRIB
STAGE
BLUE PRINT READING 132
GYMNASIUM 139
PHYS. DIRECTOR
STAGE
133 AUDITORIUM
MUSIC 131
ART 129
WTING RM. 101
CLERKS
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PRIN
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CHILDREN'S LIBRARY 102
TEACHERS ROOM 104
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128 BLUE PRINT READING
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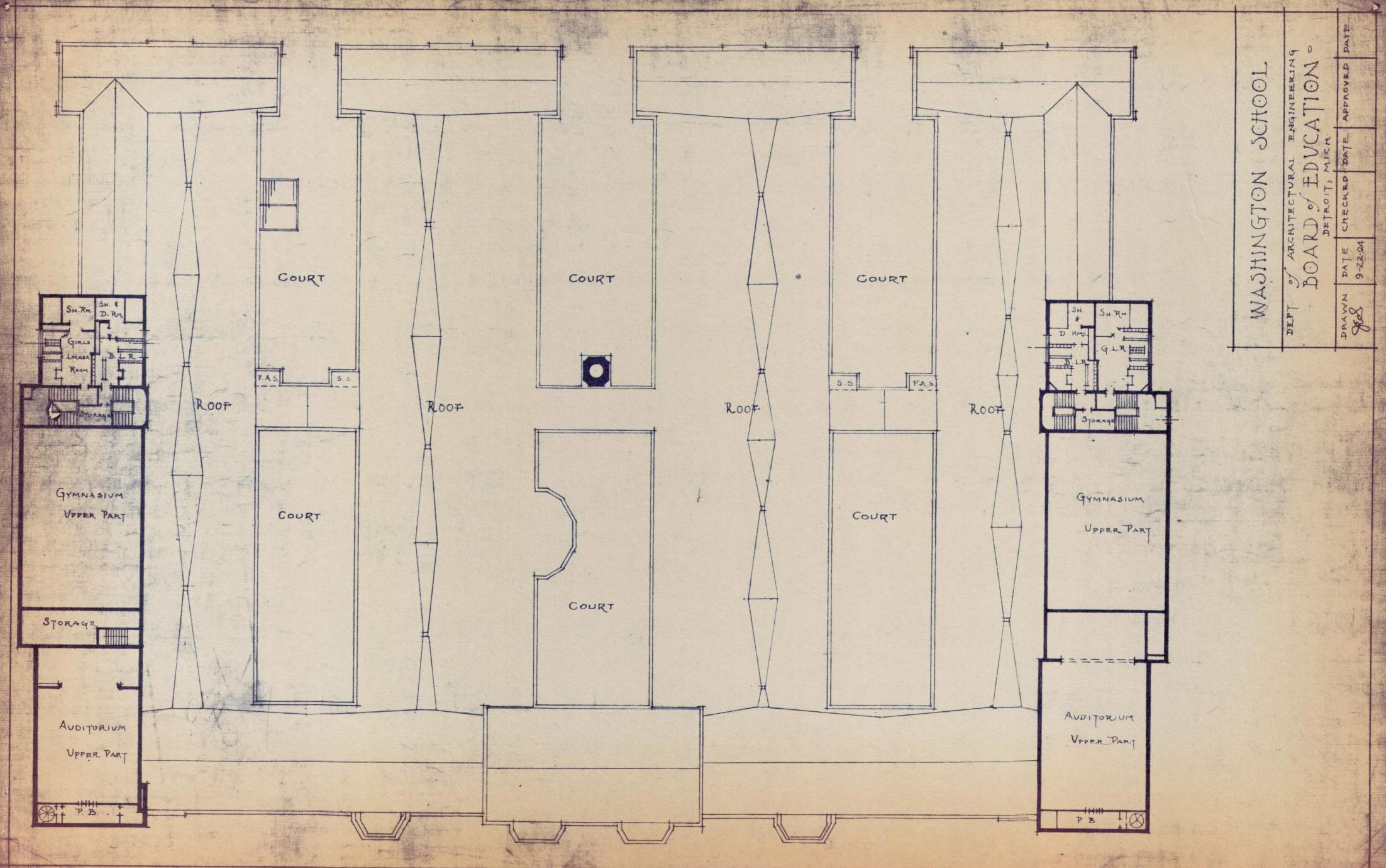
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SH. & D. RM.
GIRLS' LOCKER ROOM
B. L. R.
STORAGE
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SH. RM.
G. L. R.
B. L. R.
STORAGE
GYMNASIUM UPPER PART
GYMNASIUM UPPER PART
STORAGE
AUDITORIUM UPPER PART
AUDITORIUM UPPER PART
P. B.
P B

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Marion, Law

Basic Property Information: DPS 3-Law-19490 Carrie

Short Name:	Law
Address:	19490 Carrie Street Detroit, Michigan 48234
Year Built:	1924
Additions Built:	1944, 1955
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	210 feet x 245 feet
Square Footage:	36,590 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick
City Council District:	3	**Exterior Wall System:**	▪ Brick Masonry ▪ Cast stone ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roofing (assumed) ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 14, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 19, 2020
Building Risk Index:	**26.60**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$516,700
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,927,200
Sub-Total	$4,343,900
Contingency (25%)	$1,085,975
Sub-Total	$5,429,875
Overhead and Profit (15-18%):	$814,481
Sub-Total	$6,244,356
Escalation (6% for 2 years)	$374,661
Sub-Total	$6,619,017
Architectural and Engineering Design Services (20%):	$1,323,803
TOTAL COST ESTIMATE:	$7,942,821

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building facades to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did not access the interior of the building, as interior access was not provided at the time of our assessment, though select windows were peered through for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original two-story building was constructed in 1924 with two additional phases constructed to the south in 1944 and 1955. An attached powerhouse and chimney stack are located within the southeast wing. An active school building, Marion Law Academy, shares the city block.

The exterior walls of the original building appear to consist of mass brick masonry walls, while the building additions are constructed of brick veneer with concrete masonry unit (CMU) backup. The brick masonry facades are typically oriented in a running bond with a header course every six to eight courses, vertically. Limestone and cast stone are located at the coping, horizontal bands, sills, scuppers, and main building entrance surrounds. Aluminum replacement windows have been set into the original wood window frames. The low-slope roofing appears to consist of an internally drained, gravel-surfaced, built-up roof based on aerial photographs.

Overall, the building appears in serviceable condition, though interior access, including access to the roof level, was not provided at the time of our site visit. Masonry repairs are recommended throughout the facade, though the majority of significant distress is related to corroded window lintels within the 1944 and 1955 additions and the masonry chimney. The existing aluminum replacement windows are intact and require minimal repairs. Stone coping units are missing over the south 1954 addition; however, significant distress within the masonry walls were not readily visible from grade. Further investigation is required to determine the condition of the roofing. Based on limited view of the interior through the first-floor windows and a review of aerial photographs, the roof appears to be performing and only minor maintenance-type repairs are anticipated in localized areas at this time. Further detail of the observed distress is provided below.

Facade

Cracking, spalling, and displacement of brick masonry units was observed at window heads and some corners of the building additions, generally due to unaccommodated thermal movement of the various building materials or corrosion of steel lintels caused by prolonged water infiltration. Some of the lintels are deflected and/or heavily corroded and may require replacement. Repairs should include rebuilding the cracked, spalled, and displaced brick masonry areas to expose the distressed lintels and repair the masonry distress, and repair or replacement of the lintels with improved flashing details.

Weathering, severe degradation, and cohesive failure of the sealant was observed at most of the masonry expansion joints. Displacement was observed across joints between the original building portion and first south addition, and the joint is locked/closed, and further brick expansion cannot be accommodated. Installation of new sealant and backer rod is recommended at all joints, and the locked joints should be cut wider to accommodate further movement. Erosion and bond separation of the mortar joints was observed in many locations throughout the facade, which should be repointed with appropriate mortar materials.

Previous masonry repairs are present within the original building portion, including localized areas of rebuilt masonry, repaired steel lintels, repointed mortar, and stone patch repairs. These repairs are generally in serviceable condition, though some of the repair mortar materials have cracked or debonded and some patch repairs are cracked or delaminated due to corrosion of the embedded steel anchors. Failed patch material should be repaired to mitigate falling object hazards and deteriorated mortar should be repointed with appropriate materials. Progressive diagonal cracking was observed within mortar repairs on the east and west facades of the original building portion. Further investigation is recommended to determine if settlement is an issue. At minimum, the cracks should be repointed and supplemental lateral reinforcement should be installed, and the repairs monitored for continued distress.

Most of the stone coping units on the south 1955 addition are missing and isolated units that remain are displaced. Masonry distress below the coping was not yet readily visible from grade but may occur over time if left unaddressed. At the original building portion, crazing cracks attributed to freeze-thaw cycles were observed at some of the lower cast stone horizontal band units, which should be replaced.

Cyclic freeze-thaw deterioration in the form of spalled and cracked brick masonry was observed throughout the chimney stack that is attached to the powerhouse. Restoration of the chimney should include rebuilding the upper six feet where the majority of the spalling and freeze-thaw damage was observed. Below this region, localized repointing of distressed mortar joints and replacement of localized spalled and cracked units is recommended. The chimney cap should be repaired with improved flashing to mitigate further water penetration and masonry distress. Following repair, the chimney should be monitored to determine if distress continues.

Overall, the thermally broken aluminum replacement windows are in good condition. The windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate the window framing, creating holes. Isolated window sashes were removed to install the temporary protective enclosures and are stored within the building interior, as viewed through the first-floor windows. These units generally appear to be in good condition and may be re-installed, though a few have bent frames or cracked glass and likely require repair or replacement. The windows may be restored in-place, including replacement of cracked and broken lites, replacement of isolated damaged sashes, and installation of new sealant within the holes in the frame created by the fasteners where/if the protective covering is removed. The exterior steel-framed doors are in serviceable condition with minor distress such as weathered and debonded sealant around the perimeter, minor corrosion near the threshold, and peeled/flaked paint. However, temporary protective enclosure bars penetrate the doors, creating holes. For budgetary purposes, the exterior doors should be considered for replacement, though repairs may be possible in some regions to retain their functionality.

Roofing

The roof level could not be accessed during WJE’s assessment. However, localized vegetation growth, areas of displaced flashing, and missing coping stones were observed from grade. Isolated areas of water staining were visible within the first floor as viewed through windows from the exterior, suggesting potential deficiencies with the roof drains may be present, though the majority of the building finishes appeared dry. Further investigation is required to verify the roof condition and specify appropriate repairs. At minimum, localized repairs will be required to address the missing coping, displaced flashings, and areas of water infiltration observed within the building interior.

MARION LAW SCHOOL
PLOT PLAN
SCALE 1" = 100'

ARCHITECTURAL PLANNING DEPT.
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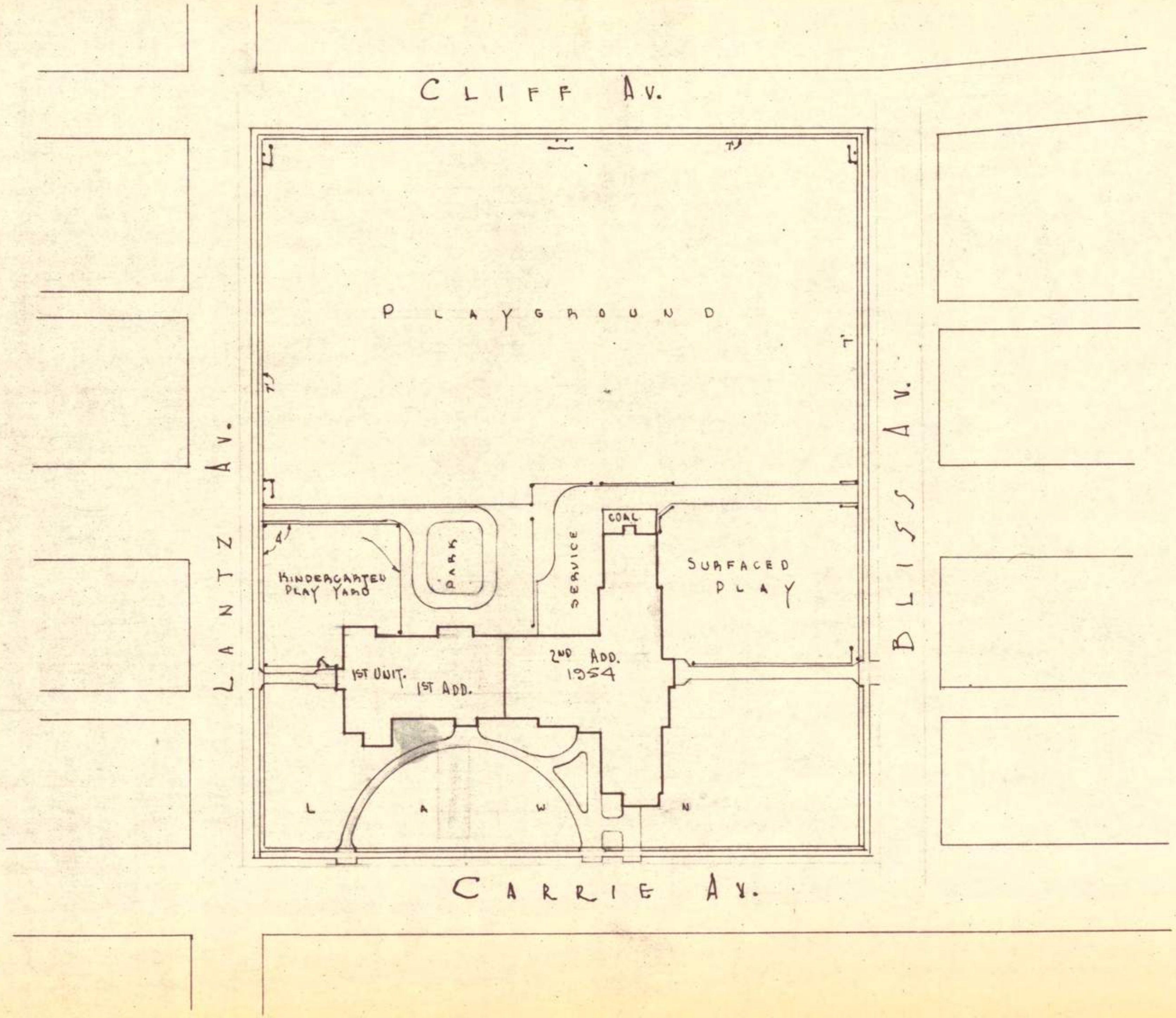

MARION LAW SCHOOL					
DEPARTMENT OF BUILDING & GROUNDS BOARD OF EDUCATION DETROIT MICHIGAN					
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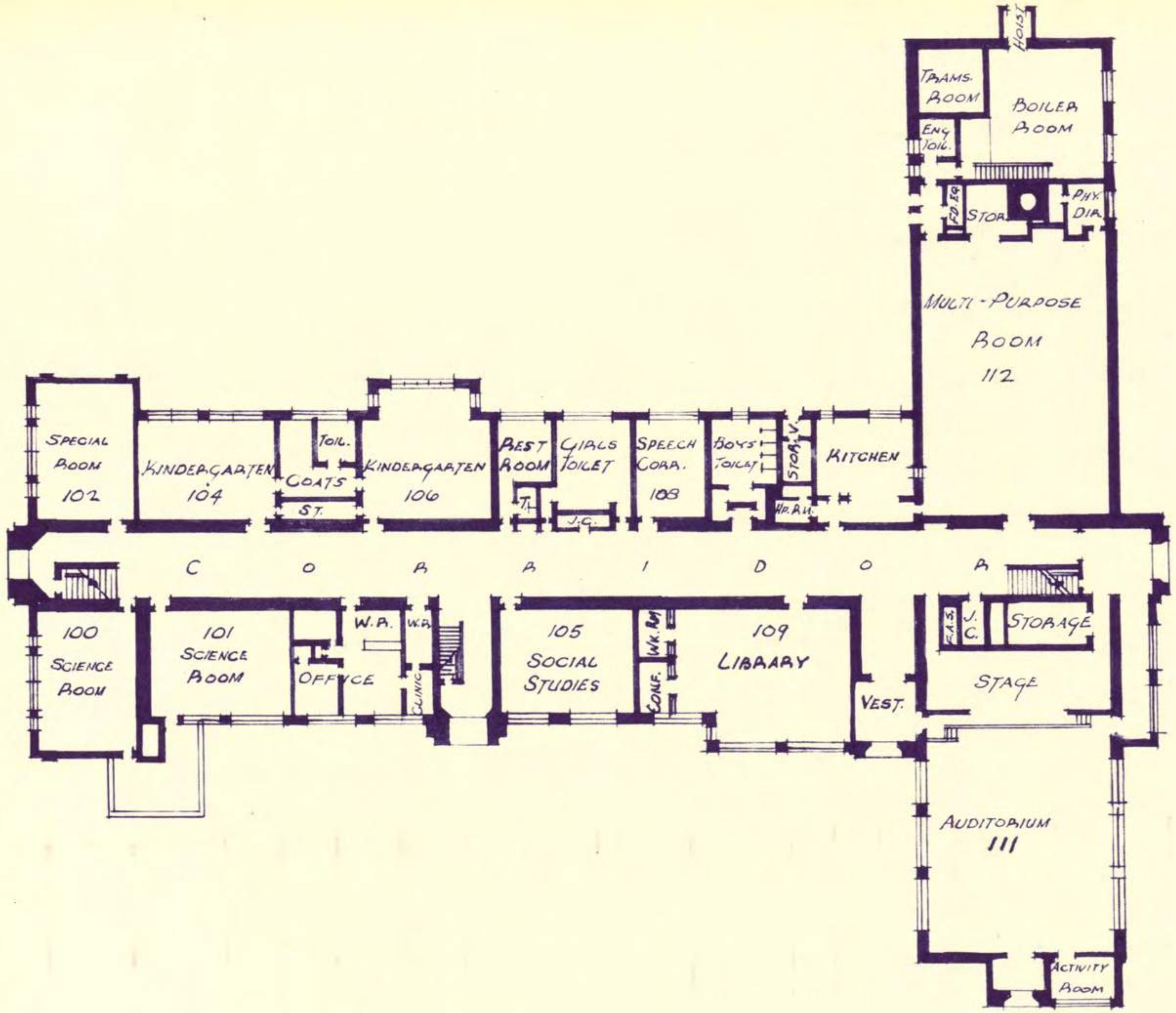

FIRST FLOOR PLAN

SCALE 1/32" = 1'-0"

MARION LAW SCHOOL

DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT MICHIGAN

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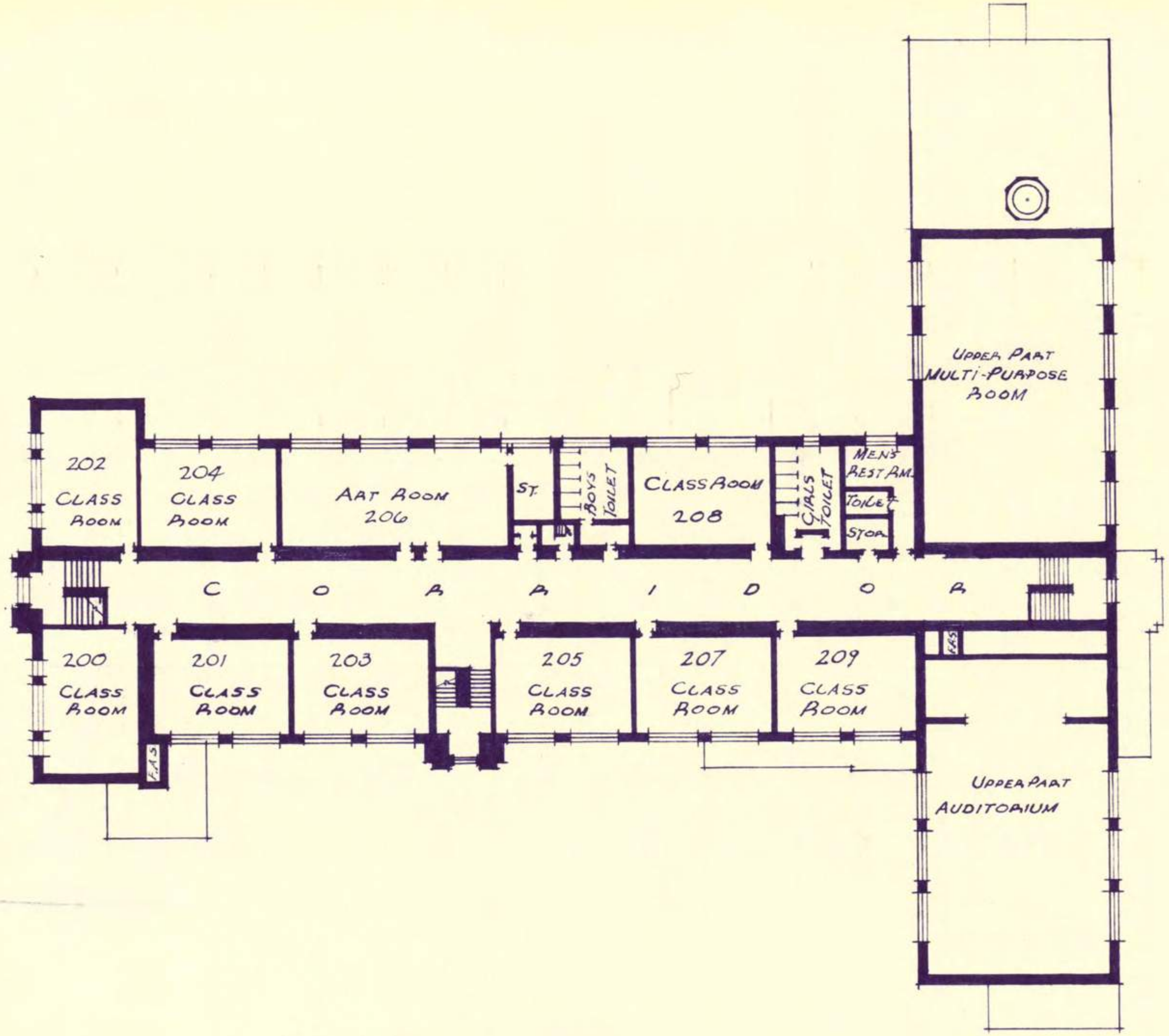
C.M.N	1-8-54	Lansing	1-19-54		



SECOND FLOOR PLAN

SCALE 1/32"=1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Trix Elementary School

Basic Property Information: DPS 3-Trix-13700 Bringard

Short Name:	Trix
Address:	13700 Bringard Drive Detroit, Michigan 48205
Year Built:	1944
Additions Built:	1951
Outbuildings:	Powerhouse
Year Vacated:	2012
Building Footprint:	210 feet x 200 feet
Square Footage:	38,914 sq. ft.
Number of Stories:	2
Building Height:	28 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete
City Council District:	3	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood-framed
		Roofing System(s):	▪ Built-Up Roofing (assumed) ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	July 14, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 19, 2020
Building Risk Index:	**25.10**

Cost Estimate

Base Rehabilitation Cost Estimate:	$715,100
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,113,120
Sub-Total	$4,728,220
Contingency (25%)	$1,182,055
Sub-Total	$5,910,275
Overhead and Profit (15-18%):	$886,541
Sub-Total	$6,796,816
Escalation (6% for 2 years)	$407,808
Sub-Total	$7,204,625
Architectural and Engineering Design Services (20%):	$1,440,925
TOTAL COST ESTIMATE:	$8,645,550

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building facades to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition, though interior access to the northwest outbuilding was not provided. Roof levels were inaccessible due to a lack of ladder access. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed in 1944 with an additional phase constructed in 1951. The brick masonry units of the facade are typically oriented in a running bond with a header course every six courses, vertically. Decorative projecting courses and patterned brick colors are present at the original building entrances and piers. Limestone units are located at the coping, horizontal bands, sills, scuppers, and main building entrance surrounds. Original wood-framed windows are generally present within punched wall openings, though some metal-framed windows are present. Original wood-framed doors are present on the north facade; the remaining entrances generally consist of conventional steel doors. The internally drained low-slope roofing was not accessed, but likely consists of gravel-surfaced, bituminous built-up roof based on a review of aerial photographs. The structural system generally consists of a concrete frame with concrete masonry infill. An outbuilding is present on the northwest end of the site with clay brick veneer and asphalt shingles on the hipped roof.

Overall, the building is generally in good, serviceable condition. Localized repairs are recommended within the brick masonry facade, with distress concentrated near the top of the walls and near corroded steel lintels. Maintenance repairs are also recommended within the roof assembly, especially near drains and the roof perimeter. The original wood window and door assemblies may be restored, though the metal-framed windows may require replacement.

Facade

Cracking, spalling, and bulging of masonry units near the window lintels was observed due to corrosion of the steel lintel caused by prolonged water infiltration. Some of the steel lintels are deflected, heavily corroded, and/or exhibit section loss. Spalled brick masonry was observed at the parapets due to water infiltration and subsequent cyclic freeze-thaw deterioration; the roofing or coping is likely deteriorated at these locations, allowing water to infiltrate the wall cavity. Cracked and displaced masonry is located at some of the building corners, primarily due to unaccommodated thermal movement of the masonry and inadequate or deteriorated lateral ties. Previous masonry repairs include localized repointing and areas of rebuilt masonry near the top of building corners with vertical joints filled with sealant at the ends of the rebuilt areas. The repair areas are generally in serviceable condition; however progressive distress was noted at some building corners and the sealant materials are generally deteriorated. Repairs should include rebuilding the cracked, spalled, and bulging brick masonry areas with appropriate movement detailing and lateral anchors, and repair or replacement of the corroded steel lintels with durable flashing details.

Cracked, spalled, and displaced limestone units were observed in isolated locations, generally due to corrosion of adjacent steel lintels. Mortar joints at the copings, projecting horizontal bands, and sills are typically deteriorated. Repair or replacement of deteriorated limestone units, resetting of displaced units, and repointing of the coping, sill, and horizontal band units is recommended.

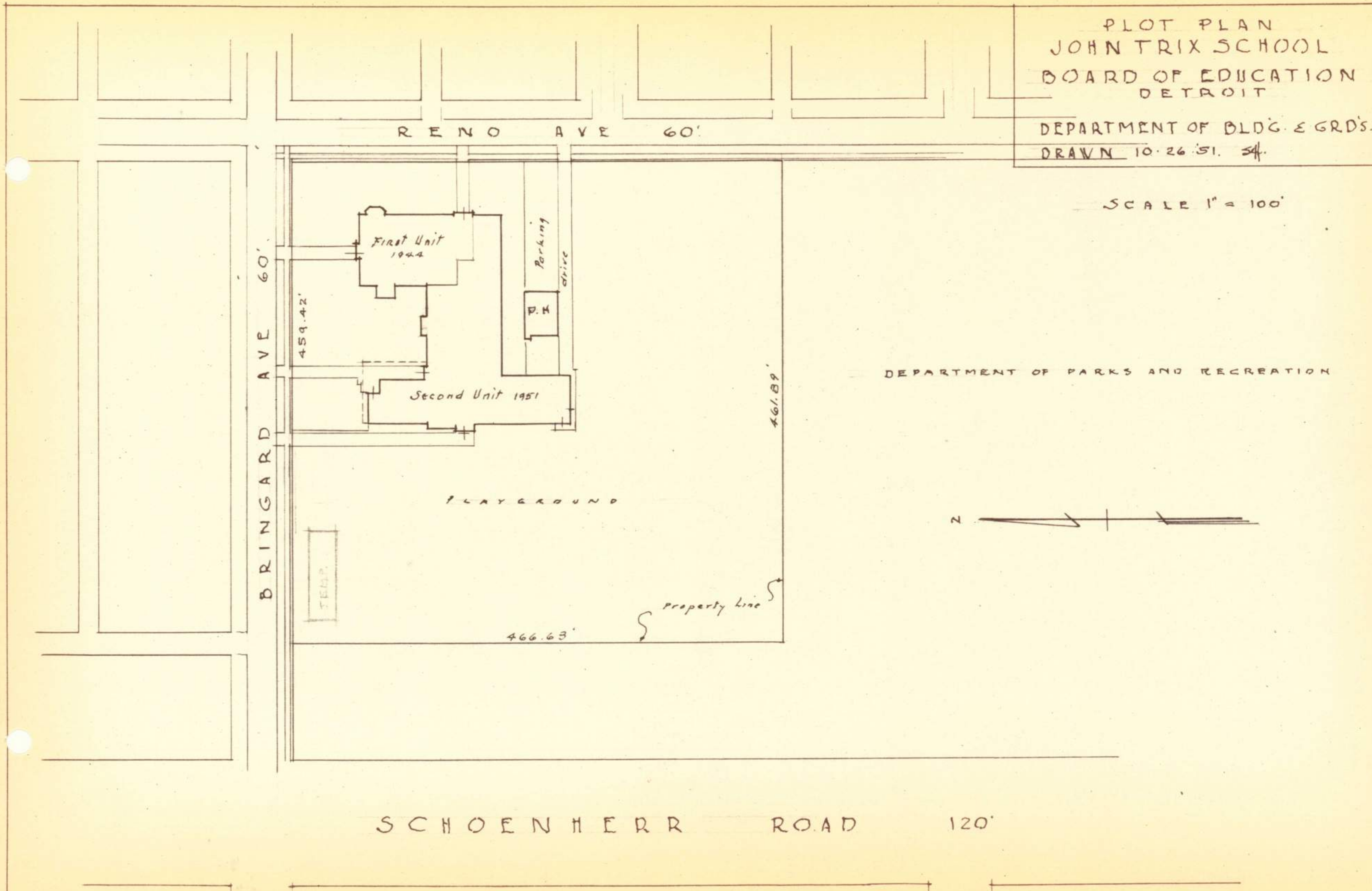
Localized cyclic freeze-thaw deterioration, in the form of spalled and cracked brick masonry, was observed throughout the chimney attached to the powerhouse, similar to that observed within the building parapets. Restoration of the brick masonry chimney, involving replacing localized spalled and cracked brick units and repointing mortar joints, should be performed to address the observed masonry distress.

The east exterior concrete entrance canopy is deteriorated as a result of the failed roofing assembly above the canopy. The concrete is cracked and spalled and the embedded reinforcing steel is corroded. Conceptual repairs to the concrete canopy should include removal of unsound concrete material, cleaning and coating of exposed steel reinforcement, and installation of an appropriate concrete repair materials in conjunction with repairs to the roofing; however, the extent and severity of distress should be re-evaluated following removal of the roofing assembly and sounding of the exposed concrete surfaces.

The windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate the window framing, creating holes. Cracked and broken glass lites of the window assemblies were observed in localized areas, and the sealant at the perimeter joints typically exhibited weathering and bond failure. The wood windows may be restored, including replacement of cracked and broken lites, installation of new sealant around the window perimeters and Dutchman repairs within the holes in the frame created by the temporary enclosure fasteners. Metal-framed windows present within the gymnasium and auditorium are also in serviceable condition and may be restored. The conservatory assembly is generally intact with localized distress including cracked glass, failed sealant, and peeling paint, which may be restored. The exterior metal doors are typically corroded, dented or displaced, and the protective enclosure bars penetrate the doors, warranting replacement of all metal doors. The original wood exterior doors contain isolated damage including minor decay near the base, missing trim components, and cracked glass, but may be restored if desired.

Roofing

The roof level could not be accessed during WJE's assessment. However, masonry distress including spalled masonry at the parapets appeared to be related to issues with the roof. Evidence of water infiltration was observed on the building interior along the corridors likely attributed to failed internal drains. Based on a lack of water intrusion below the field of the low-slope roofing, the roof appears to be performing well and requires only maintenance related repairs to extend the service life of the existing roof assembly in conjunction to the more significant repair work to the drainage system and building perimeter.


PLOT PLAN
JOHN TRIX SCHOOL
BOARD OF EDUCATION
DETROIT
DEPARTMENT OF BLDG. & GRD'S.
DRAWN 10.26.51.
SCALE 1" = 100'
RENO AVE 60'
BRINGARD AVE 60'
First Unit
1944
Parking
drive
P.H
459.42'
Second Unit 1951
PLAYGROUND
Property Line
466.63'
461.89'
DEPARTMENT OF PARKS AND RECREATION
N
SCHOENHERR ROAD 120'

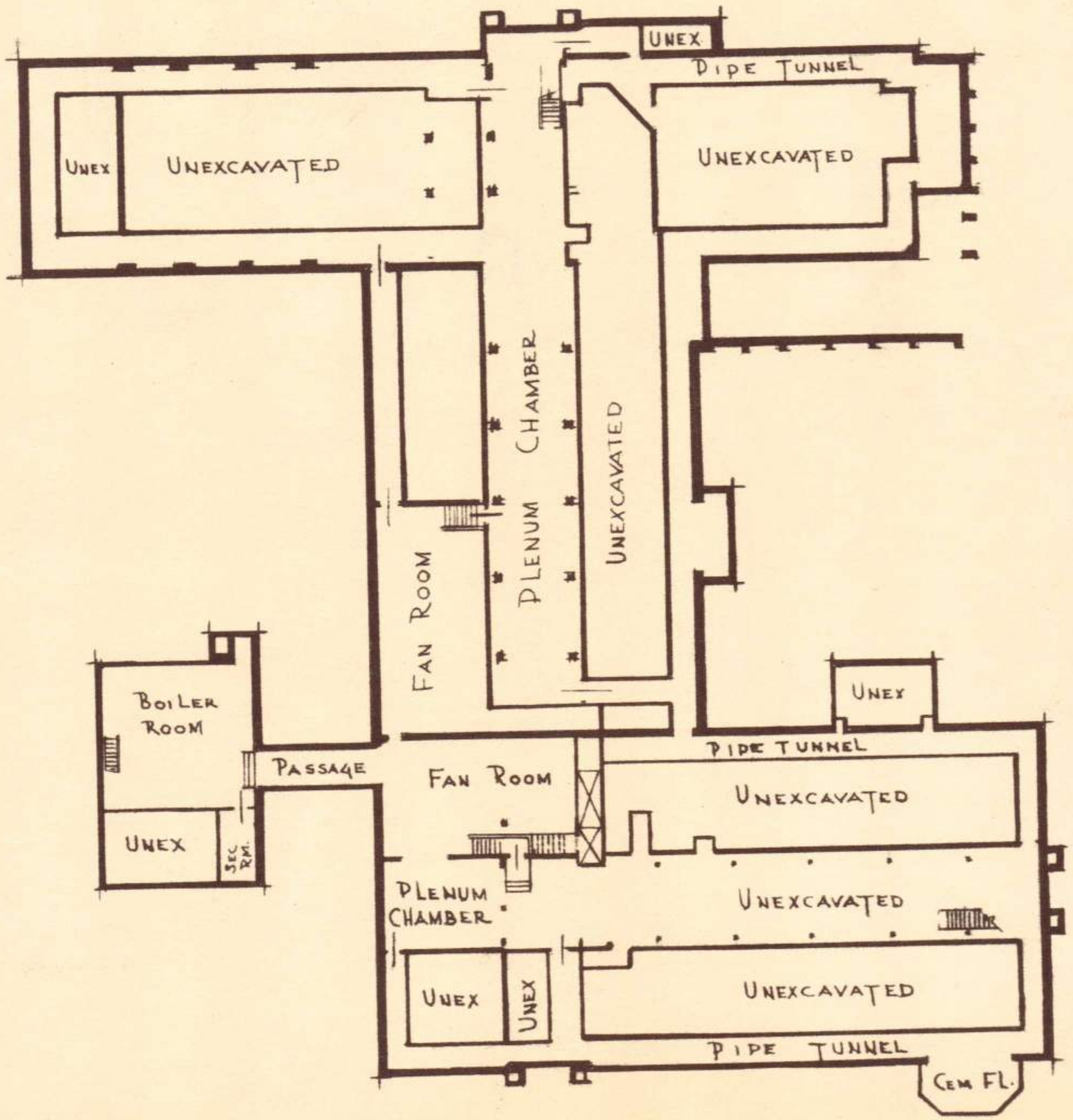
TRIX

BASEMENT PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT-MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
L. C.	7/18/50				

SCALE $\frac{1}{32}'' = 1'\text{-}0''$

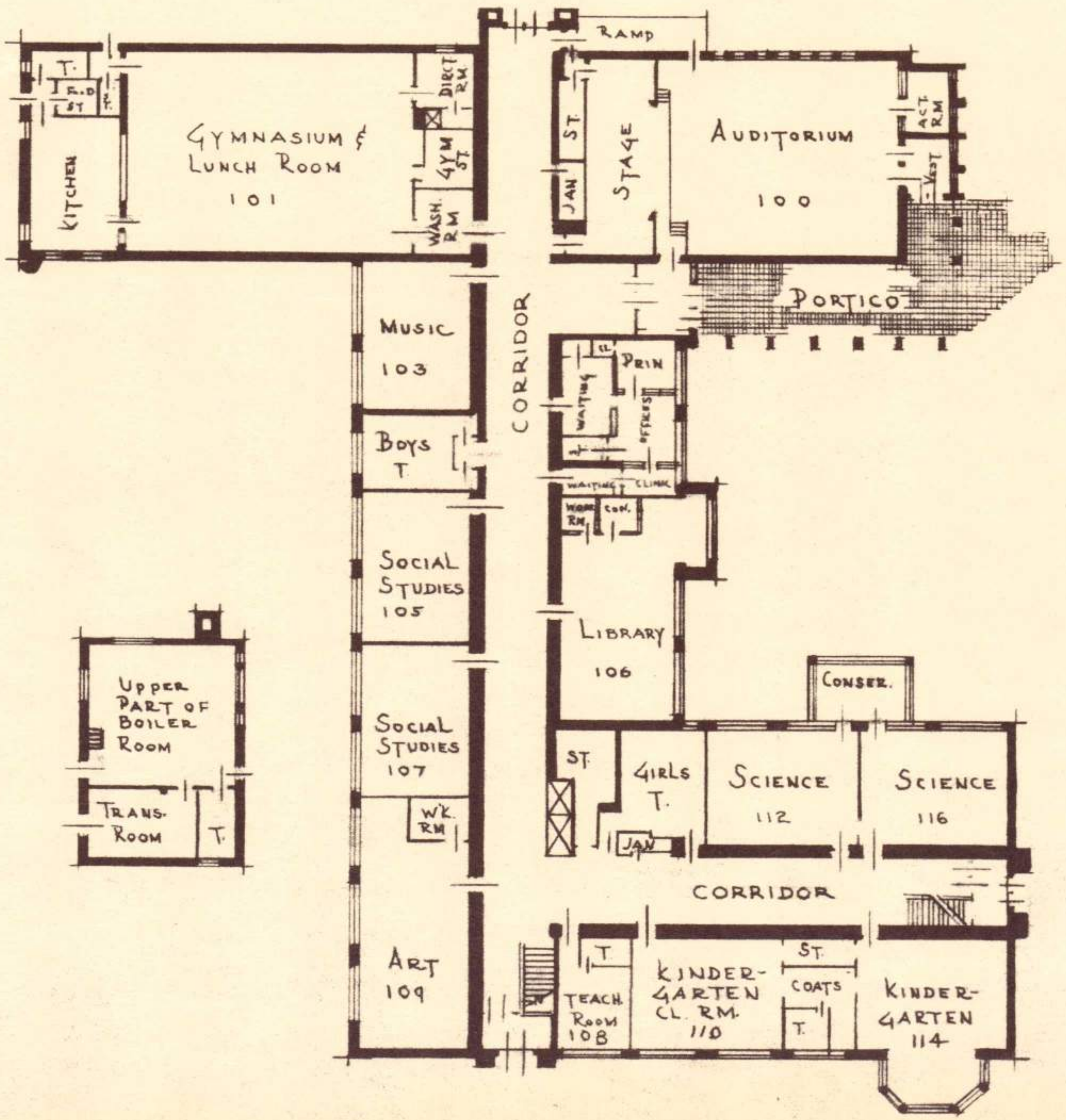


TRIX

FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT-MICHIGAN

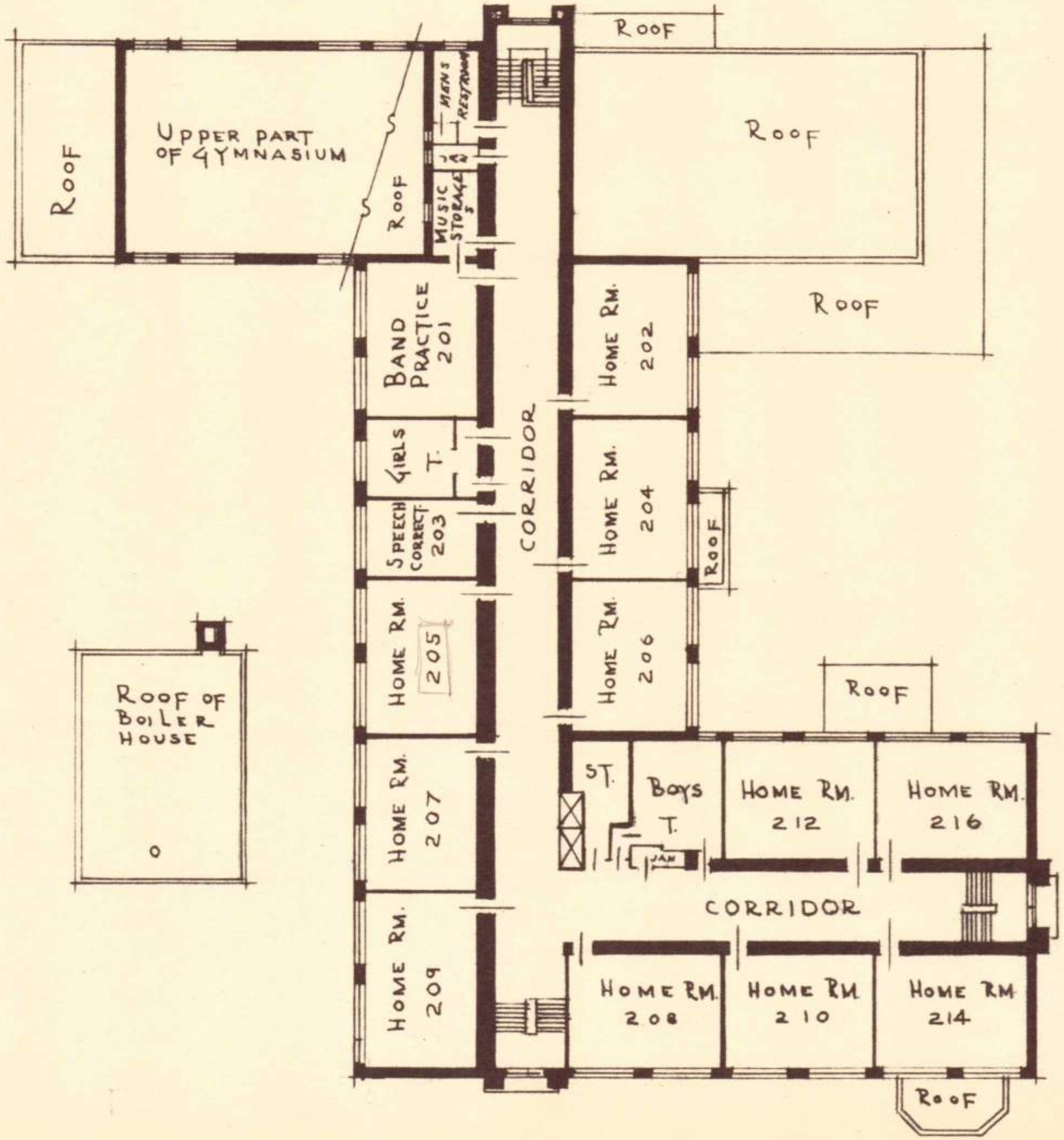
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
L. C.	7/18/50				



N

TRIX
SECOND FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T. BOARD OF EDUCATION DETROIT-MICHIGAN					
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
L.C.	7/18/50				



LA- 1-7369

pete smith

TE 1-4208

Wiss, Janney, Elstner Associates, Inc.
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Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Van Zile Elementary

Basic Property Information: DPS 3-Van Zile-2915 E Outer Dr

Short Name:	Van Zile
Address:	2915 East Outer Drive Detroit, Michigan 48234
Year Built:	1921
Additions Built:	1950
Outbuildings:	Powerhouse
Year Vacated:	2011
Building Footprint:	260 feet x 145 feet
Square Footage:	43,468 sq. ft.
Number of Stories:	2
Building Height:	36 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	3	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Aluminum Replacement ▪ Glass Block ▪ Steel-Framed
		Roofing System(s):	▪ Built-Up Roof (assumed) ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	July 14, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 22, 2020
Building Risk Index:	**63.91**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,914,140
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,477,440
Sub-Total	$6,291,580
Contingency (25%)	$1,572,895
Sub-Total	$7,864,475
Overhead and Profit (15-18%):	$1,179,671
Sub-Total	$9,044,146
Escalation (6% for 2 years)	$542,648
Sub-Total	$9,586,795
Architectural and Engineering Design Services (20%):	$1,917,359
TOTAL COST ESTIMATE:	$11,504,154

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building facades to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. The roof level was not accessible. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

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Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed in 1921 with an additional phase constructed in 1950. The exterior walls of the original building are constructed from mass brick masonry, while the facade of the addition consists of brick veneer with concrete masonry (CMU) back-up. The brick masonry is typically oriented in a running bond with header units every seven courses. Punched wall openings generally contain glass block infill with operable aluminum replacement windows within lower lites, which are surrounded by steel frames. Some openings have been infilled with brick masonry. Limestone units are located at the window sills, horizontal bands, and coping; ornate limestone accent units are also located throughout the original building main facade, facing East Outer Drive. The building entrances contain conventional steel-framed doors. The roof was not accessed, but the low-slope roof assembly has internal drain systems and appears to consist of a gravel-surfaced, bituminous built-up roof based on a review of aerial photographs. A small vaulted mechanical space is present below grade on the north elevation.

Overall, the building is in serviceable condition. Masonry and stone repairs are recommended throughout the facade. The window assemblies can be restored, though the exterior doors and conservatories are recommended for replacement. The roofing assembly and drainage systems may require replacement, though further investigation is required.

Facade

Vertical cracking was observed in the middle of several brick masonry spandrels of the original building. The observed cracking could be attributed to unaccommodated thermal movement of the various building materials, corrosion of the steel lintels, and the discontinuity of the lintels/shelf angles over the window with joints located near midspan of the spandrels. Further investigation is required to verify the cause of distress and determine appropriate repairs. For budgetary purposes, conceptual repairs include removal of brick veneer within spandrels to expose the steel lintels, cleaning and coating the existing steel, installation of flexible membrane flashing and stainless steel drip flashing, and rebuilding the masonry with appropriate lateral reinforcement.

Cracking, spalling, bulging, and displacement of the brick masonry at the lintel bearings was observed at window heads due to corrosion of the steel lintels. Vertical cracking was observed at several of the building corners, which is primarily attributed to unaccommodated thermal movement of the various building materials. Some of the lintels are deflected, heavily corroded, and/or exhibit section loss, with significant distress observed over the east entrance. At several brick masonry window jambs on the north facade of the building addition, the stacked bond units are displaced and exhibit mortar bond failure, likely due to corrosion of or lack of lateral reinforcement in conjunction with corrosion of the window lintels above. Limestone coping units are missing on the north facade of the building addition. Eroded mortar and areas of spalled masonry was observed at the parapets, attributed to the missing copings and potential roofing distress at the building perimeter with subsequent water penetration into the wall assembly and cyclic freeze-thaw deterioration. Rehabilitation of the building should include rebuilding areas of spalled and displaced brick masonry, replacement of localized cracked brick units, replacement of the missing coping units, and repair or replacement of the corroded lintels as appropriate.

Eroded mortar and localized cracked brick masonry units was observed near the top of the chimney attached to the powerhouse. Restoration of the brick masonry chimney, including grinding and repointing mortar joints, the replacement of localized cracked brick units, and the installation of cap flashing, is recommended.

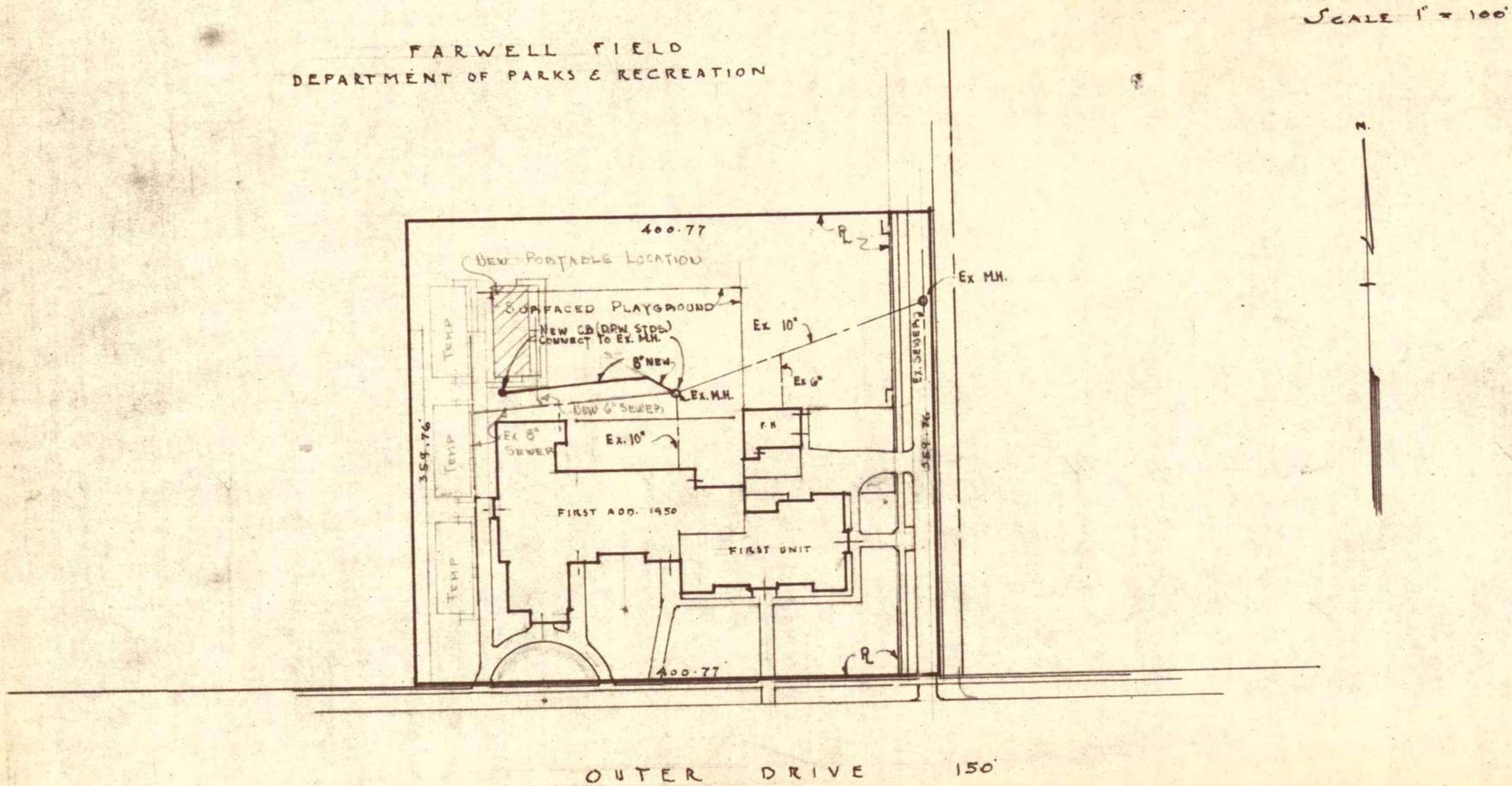
The exposed exterior concrete overhangs at the top of the one-story facades of the building addition are cracked and spalled due corrosion of the embedded reinforcing steel, likely caused by moisture penetration through cracks or joints or due to insufficient cover between the reinforcement and the surface of the concrete. Concrete repairs are recommended at the overhangs, and should include removal of unsound concrete material, cleaning and coating of exposed steel reinforcement, and installation of a concrete repair material.

The windows are currently covered with temporary protective enclosures, and the enclosure fasteners typically penetrate the window framing, as well as the joints between the glass blocks, creating holes. The glass block infill and the replacement aluminum windows within the punched wall openings are typically enclosed by perimeter steel frames. The paint on the frames is generally peeled, exposing the primer and localized regions of corrosion; however, they are largely in serviceable condition and can be restored with cleaning and recoating. Few glass block units are cracked or broken. The windows may be restored, including replacement of cracked and broken lites and glass block units, installation of new sealant around the window perimeters and within the holes in the frame created by the fasteners, and cleaning and repainting the steel frames. Two conservatories are present on the south facade; the original wood framing is decayed, and the glass lites are typically cracked or missing. Restoration of the conservatories would require significant repair or replacement. Minor paint failure and corrosion was observed on the surface of the exterior metal doors, and the sealant at the door perimeters exhibited weathering and adhesive failure, which can be repaired.

Roofing

The main roof level could not be accessed during WJE’s assessment. Evidence of water infiltration was observed from the interior near drains. Additionally, masonry distress including corroded lintels and spalled masonry at the parapets appeared to be related to issues with the roof. Localized areas of the wood roof structure within the original building were water stained and decayed near the roof drains and open roof hatch. Rehabilitation of the building should consider removal and replacement of the existing roof assemblies and drainage systems; however, further investigation of the roofing is recommended to determine if localized repairs can be performed in lieu of complete replacement.

SURVEY PLAN
VAN ZILE SCHOOL
BOARD OF EDUCATION
DETROIT
DEPT of BUILDING & GROUNDS
DRAWN 4·3·1950· J.H.



VAN ZILE
ELEM. SCHOOL

DEPT. OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

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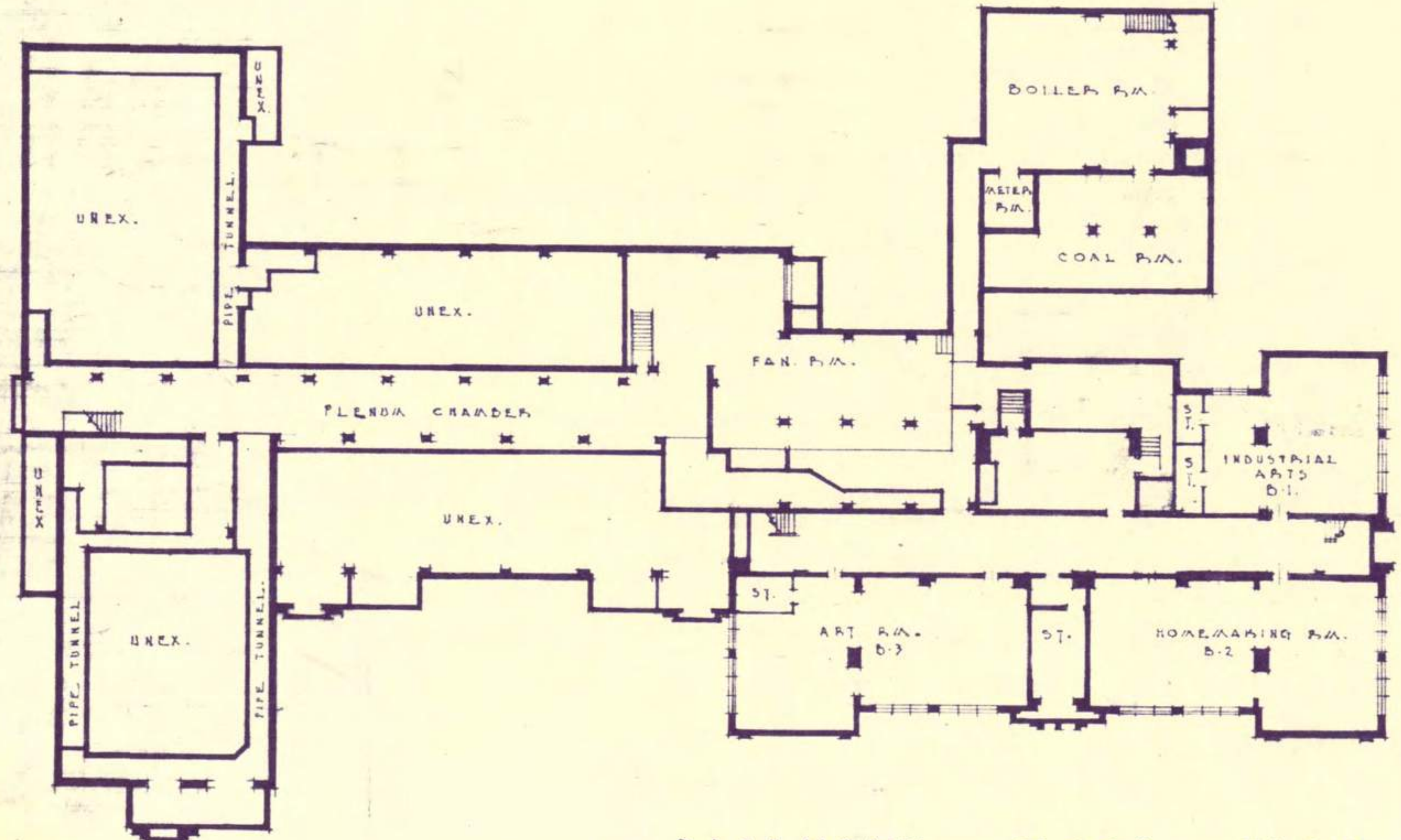

BASEMENT FLOOR PLAN
SCALE 1/32" = 1'-0"

VAN ZILE ELEM. SCHOOL

DEPT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
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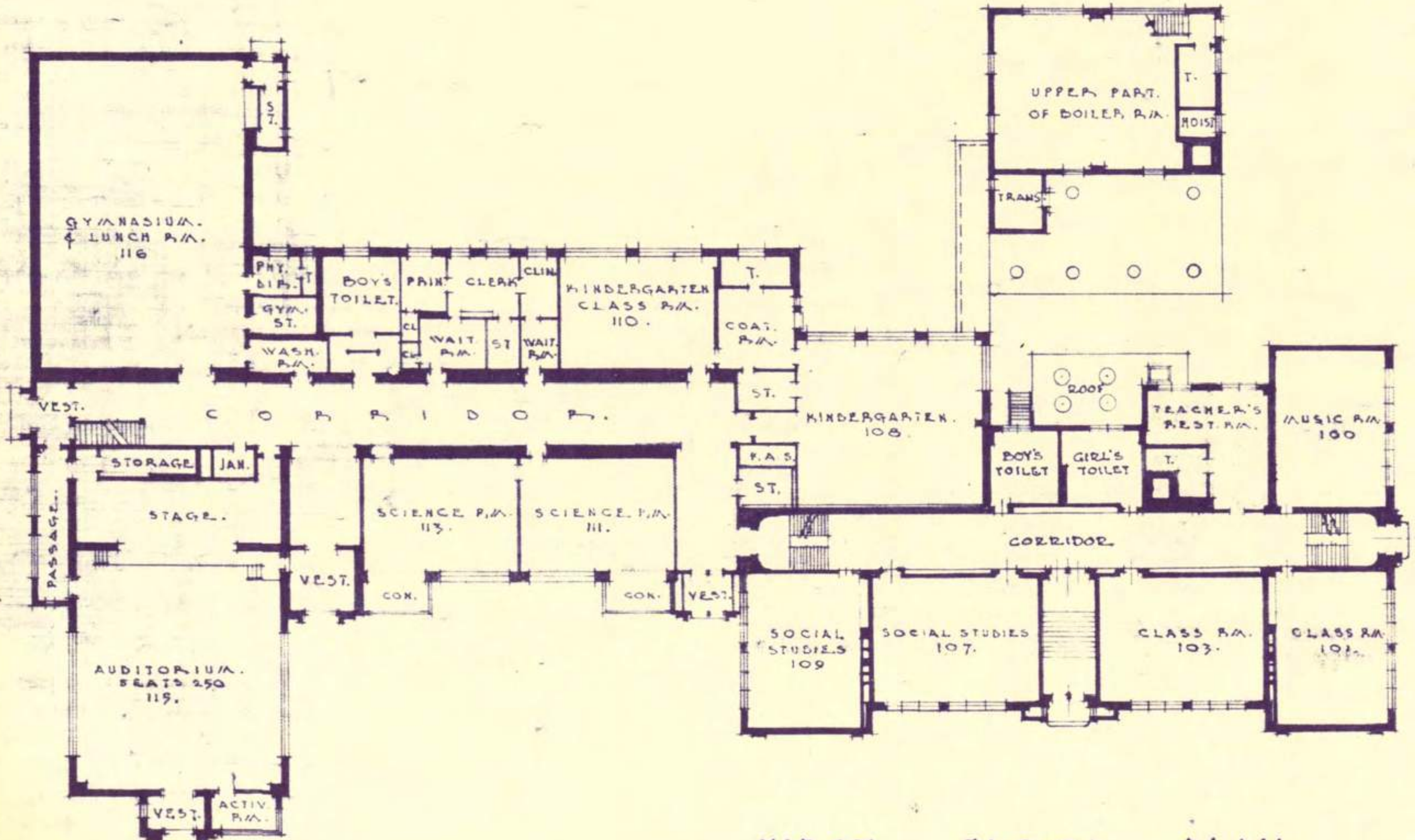


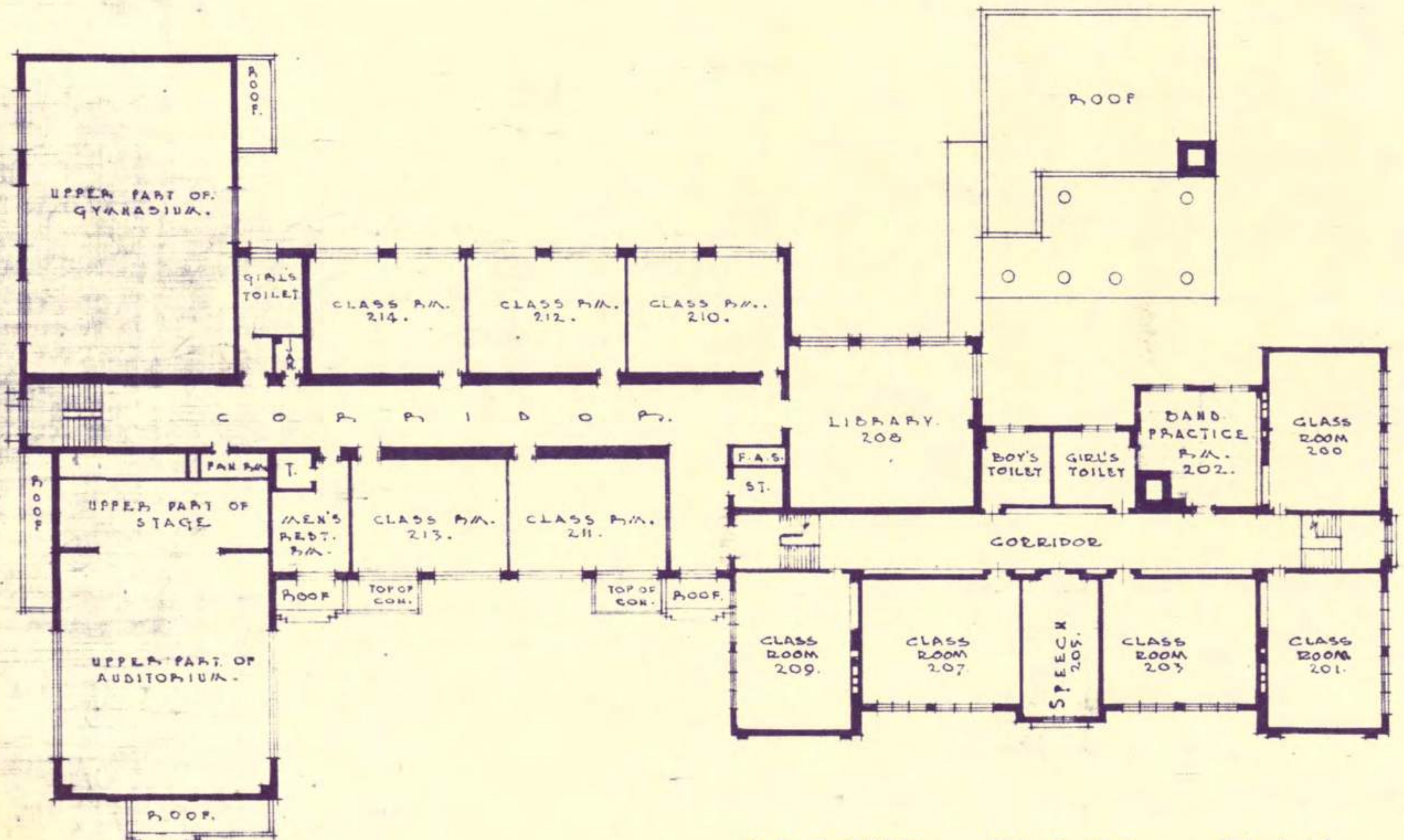
FIRST FLOOR PLAN

SCALE 1/32" = 1'-0"

VAN ZILE ELEM. SCHOOL

DEPT. OF BUILDINGS & GROUNDS
BOARD of EDUCATION

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.H.F.	5·12·26	[illegible]	5-14-[illegible]		



SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Von Steuben

Basic Property Information: DPS 3-Von Steuben-12300 Linnhurst

Short Name:	Von Steuben
Address:	12300 Linnhurst Street Detroit, Michigan 48205
Year Built:	1930
Additions Built:	1935, 1945, 1949
Outbuildings:	Powerhouse
Year Vacated:	Unknown
Building Footprint:	205 feet x 250 feet
Square Footage:	53,351 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete
City Council District:	3	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone
SNF District:	G7M	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof (assumed) ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	July 16, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**26.03**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,441,800
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,268,080
Sub-Total	$6,609,880
Contingency (25%)	$1,652,470
Sub-Total	$8,262,350
Overhead and Profit (15-18%):	$1,239,352
Sub-Total	$9,501,702
Escalation (6% for 2 years)	$570,102
Sub-Total	$10,071,804
Architectural and Engineering Design Services (20%):	$2,014,360
TOTAL COST ESTIMATE:	$12,086,165

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelopes. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The building is H-shaped in plan and is two stories in height. The original building was constructed in 1930 with additions constructed in 1935, 1945, and 1949. A stand-alone powerhouse structure with a chimney is located to the south of the school building and is connected to the building via a below grade tunnel. The building facade generally consists of clay brick masonry, typically oriented in a running bond with header courses every six courses vertically. Header courses with rounded ends make up the masonry pilasters. Limestone units are located at the window sills and heads, throughout all facades in horizontal bands, and at the top of the brick masonry pilasters. Aluminum framed windows and steel framed doors are located within punched openings in the exterior walls.

The low-slope roofing was not accessed during this assessment, because the access door was locked; however, the roof appears to consist of an internally drained, gravel-surfaced, bituminous built-up roofing system based on review of the roof through an attic window and aerial photographs.

The building is generally in serviceable condition. Localized masonry repairs are recommended at the exterior walls. The aluminum windows may be restored in place. Removal and replacement of the existing roofing assemblies should be considered for budgetary purposes, though maintenance repairs may be possible in the central and northeast building sections to extend the service life of the existing roof assemblies.

Facade

Cracking and localized displacement of brick masonry and limestone units at window lintels were observed in isolated locations due to corrosion of the steel lintels. Previously rebuilt areas of brick masonry were observed throughout the courtyard parapets as evidenced by new brick units adjacent to original cracked brick units. The new mortar exhibited deterioration and erosion, likely due to an incompatible repair mortar material or poor pointing techniques, as well as ongoing water infiltration caused by missing coping units and/or failure of the roofing base flashings. A vertical crack in the brick masonry was observed at one of the building corners, likely due to unaccommodated thermal expansion. Replacement of localized cracked and spalled brick units, implementation of flashing repairs at window heads exhibiting masonry distress (removal and rebuild of masonry, cleaning and painting of embedded steel lintel, and installation of through-wall flashing), grinding and pointing of deteriorated mortar joints, and rebuilding of the cracked and displaced masonry are recommended.

Stone coping units on the lower west roofs and southeast roof have been removed, exposing the masonry wall to moisture penetration. Limestone window header units are spalled, and anchor holes are present from previously mounted window barricades throughout the facade. Rehabilitation of the building should include replacement of all missing coping units to mitigate further distress, as well as repair of the distressed stone elements elsewhere on the building.

Displaced, cracked, and collapsed brick and stone masonry was observed near the top of the powerhouse chimney. Vertical cracks were also observed near the octagonal corners throughout the height of the chimney. The upper portion of the chimney should be rebuilt down to sound masonry with improved cap flashing. Vertical cracks should be repaired by replacement of cracked units, implementation of crack stitching repairs and/or supplemental lateral anchors as needed, and repointing of deteriorated mortar.

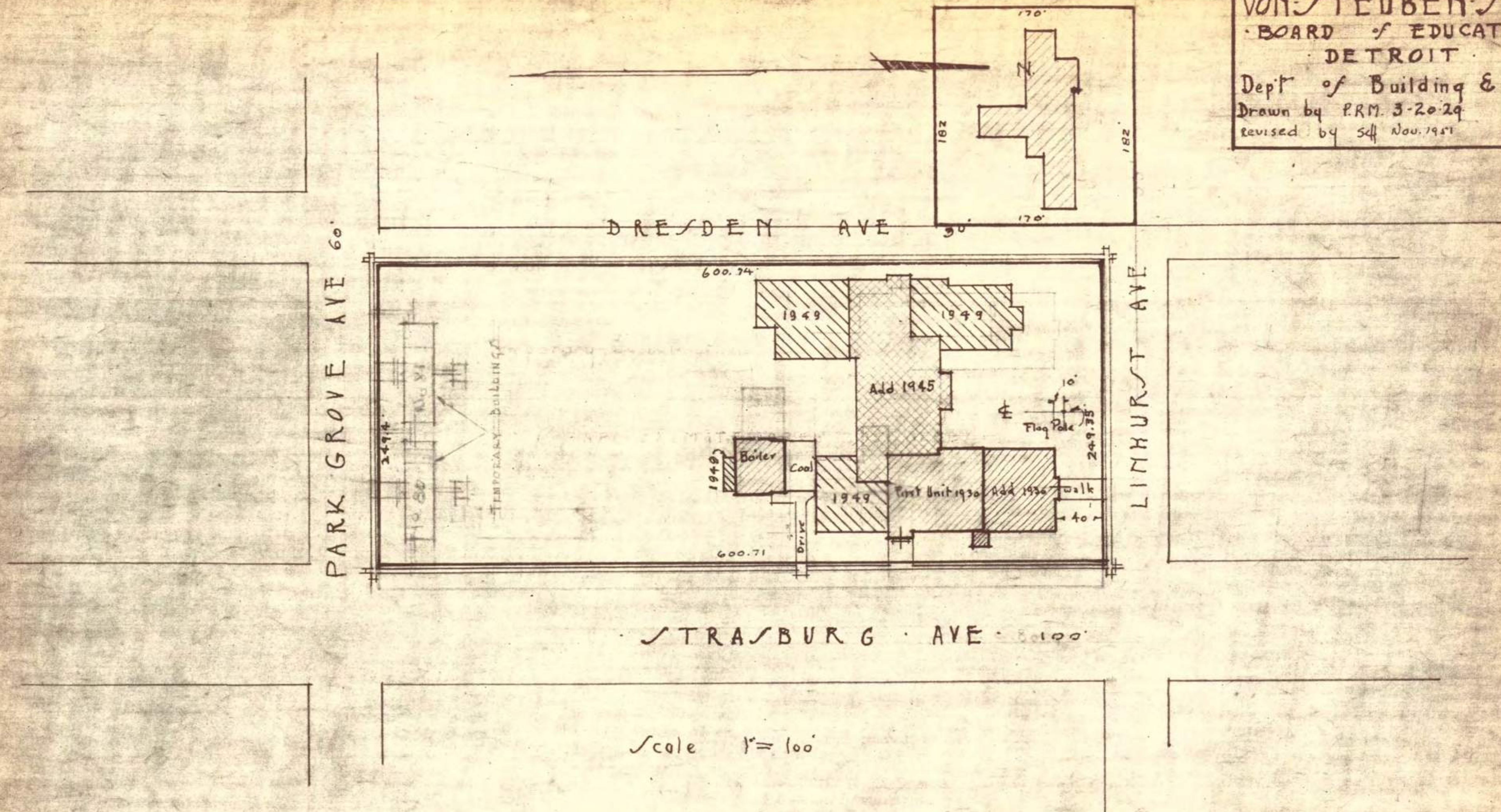
The windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate many of the window framing members. Cracked and broken glass lites were observed at some of the window assemblies and the sealant at the perimeter joints typically exhibited weathering and bond failure. However, the remainder of the temporary protective enclosures and window assemblies are in good, serviceable condition. The existing windows may be repaired, including replacement of cracked and broken lites, and installation of new sealant at window perimeters and within the holes in the frame created by the fasteners. The exterior metal doors are typically corroded, the exterior paint is failing, and the protective enclosure bars penetrate the doors. For budgetary purposes, replacement of the exterior doors should be considered, though restoration may be possible.

A curb is located at the base of the south facade on the southeast wing and at the north facade of the powerhouse, which extends along the edges of the vaulted concrete slab between the two buildings. The curb is large, approximately two feet tall and one foot deep, and is composed of brick masonry with a cementitious parge coat. This curb exhibits severe cracking and spalling of the parge coating and freeze/thaw damage to the underlying brick masonry. At areas where the parge coating is intact, efflorescence was observed near the cracks. It is possible that the curb was installed to protect the exterior walls from vehicular impact damage, or it may have been part of a repair attempt to address brick distress at the base of the wall or water management issue at the vaulted space. Anticipated repairs should include removal of the existing curb, repair of the brick masonry wall, and installation of an improved waterproofing repair as needed.

Roofing

The roof level could not be accessed during the assessment. However, indications of localized water infiltration were visible from the building interior that appeared to be related to the roof drains, and more widespread water infiltration was observed in the west building wings. Water ponding was also observed on the roof above the center of the building, as viewed through a window in the attic space. Coping units were missing at the west and southeast building wings, and the base flashing is likely pulled away from the walls based on the review of aerial photographs and the more widespread water infiltration noted in these areas of the building interior. Removal and replacement of the existing roofing assemblies should be considered for budgetary purposes, though maintenance repairs may be possible in the central and northeast building sections to extend the service life of the existing assemblies.

PLOT PLAN
VON STEUBEN SCHOOL
BOARD of EDUCATION
DETROIT
Dept of Building & Grounds
Drawn by P.R.M. 3-20-29
Revised by S.H. Nov. 1951

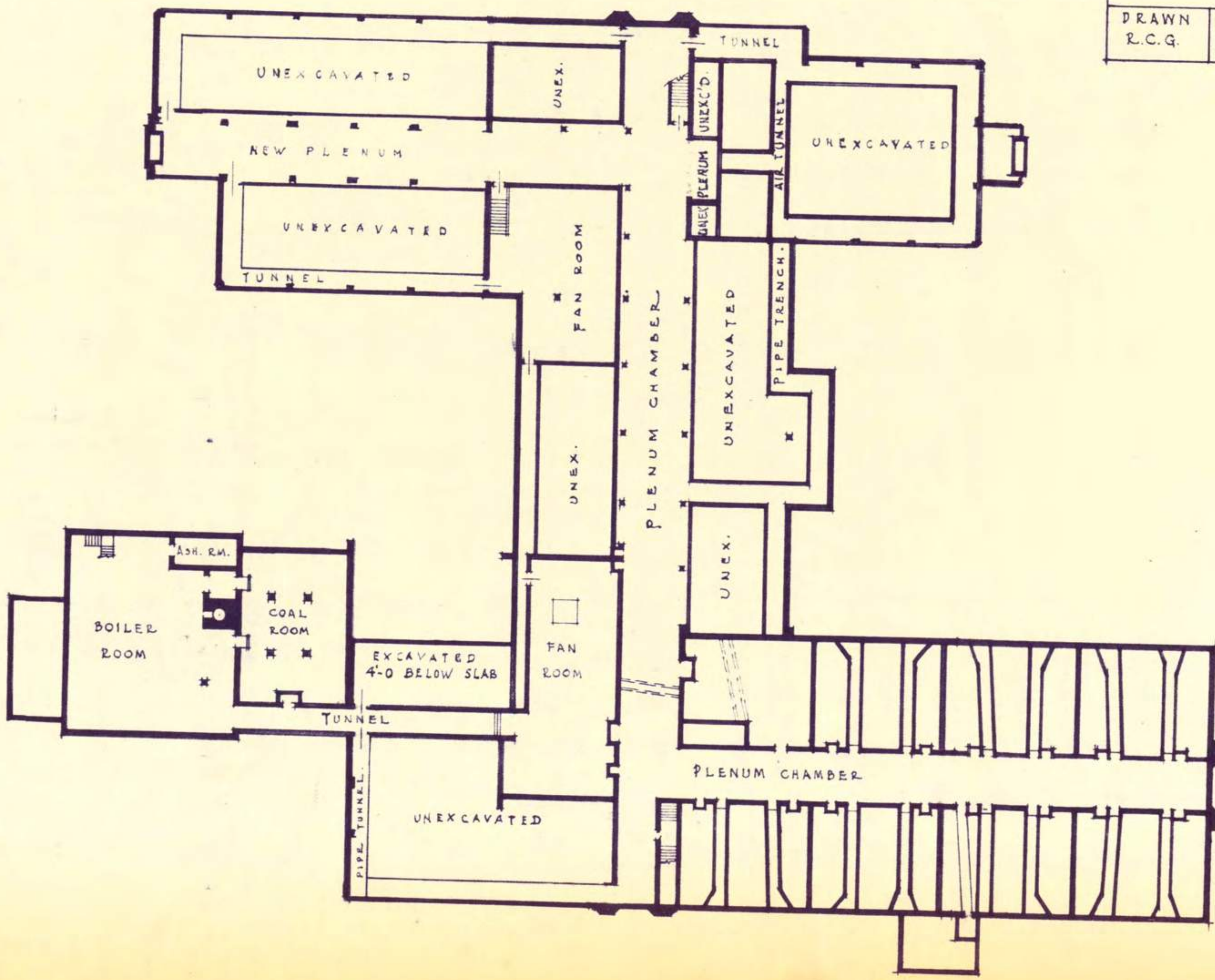


VON STEUBEN
BASEMENT PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	REVISED	DATE
R.C.G.	10-7-'29	[illegible]		G. F.S.O.	4-4-44 8-31-'44

SCALE 1/32" = 1'-0"

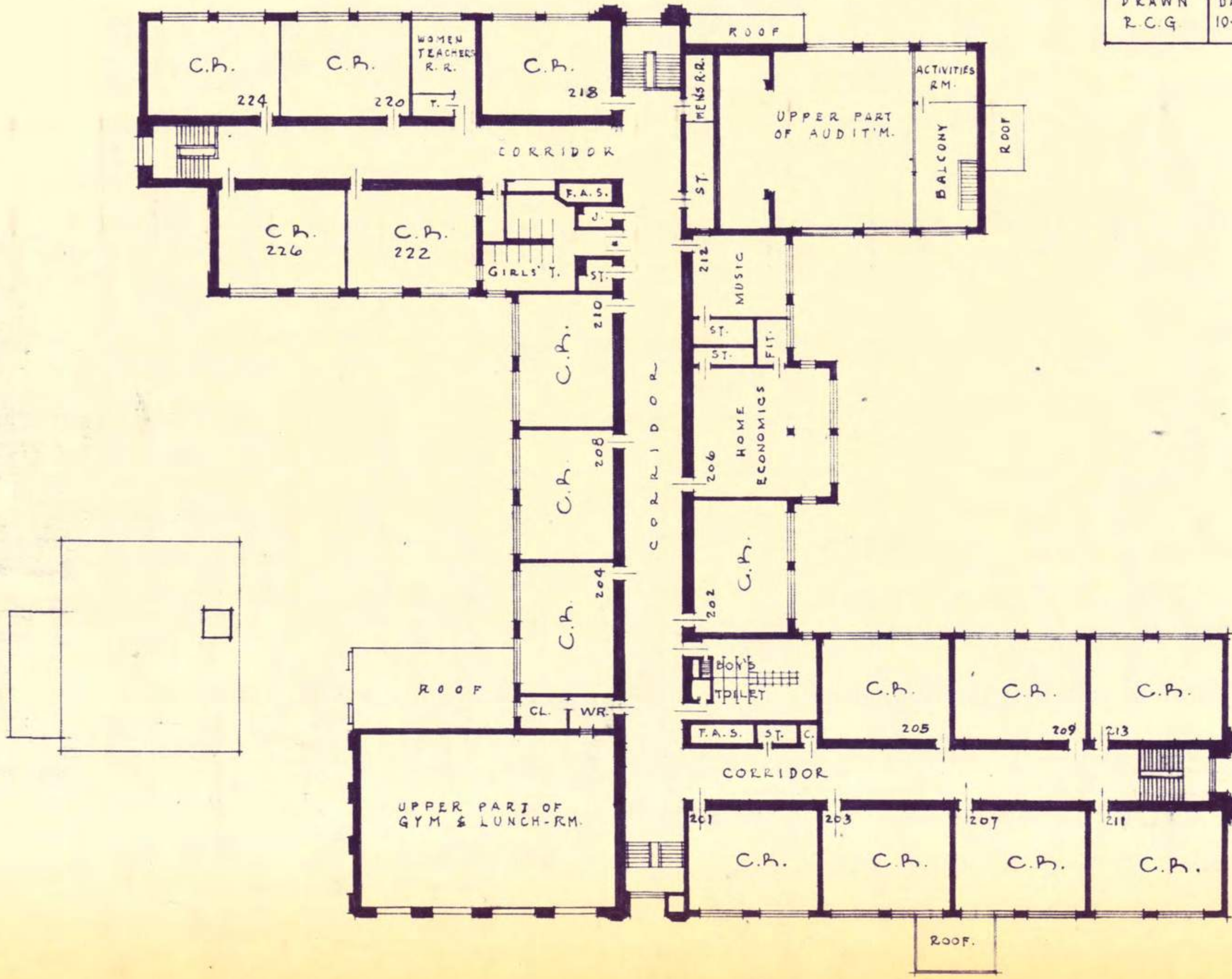


VON STEUBEN
SECOND FLOOR PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	REVISED	DATE
R.C.G	10-7-'29			G. F.S.O.	4-4-44 8-31-49

SCALE 1/32" = 1'-0".

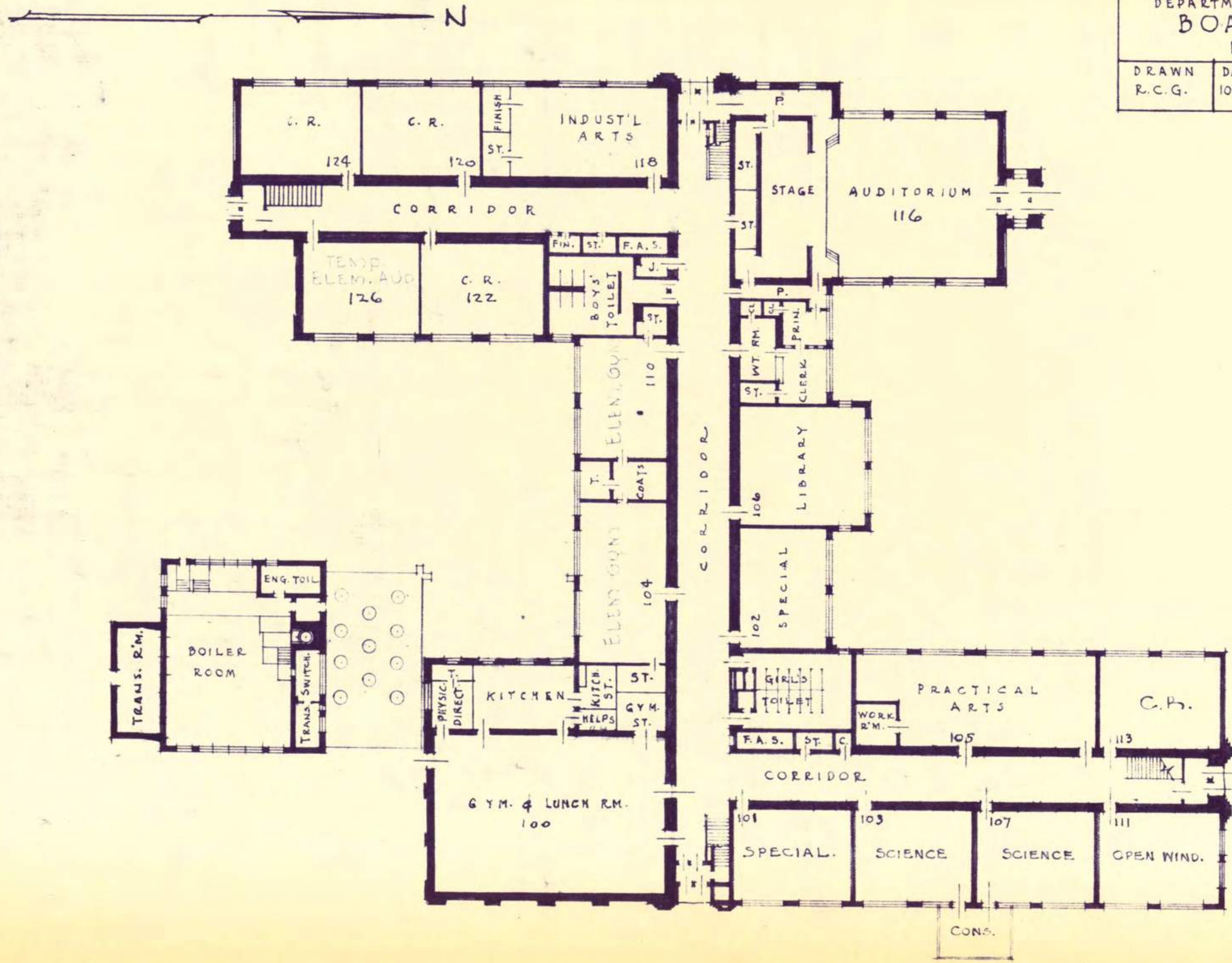


VON STEUBEN
FIRST FLOOR PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	REVISED	DATE
R.C.G.	10-7-29			G. F.S.J.	4.4.44 8-31-49

SCALE 1/32" = 1'-0"



District 4

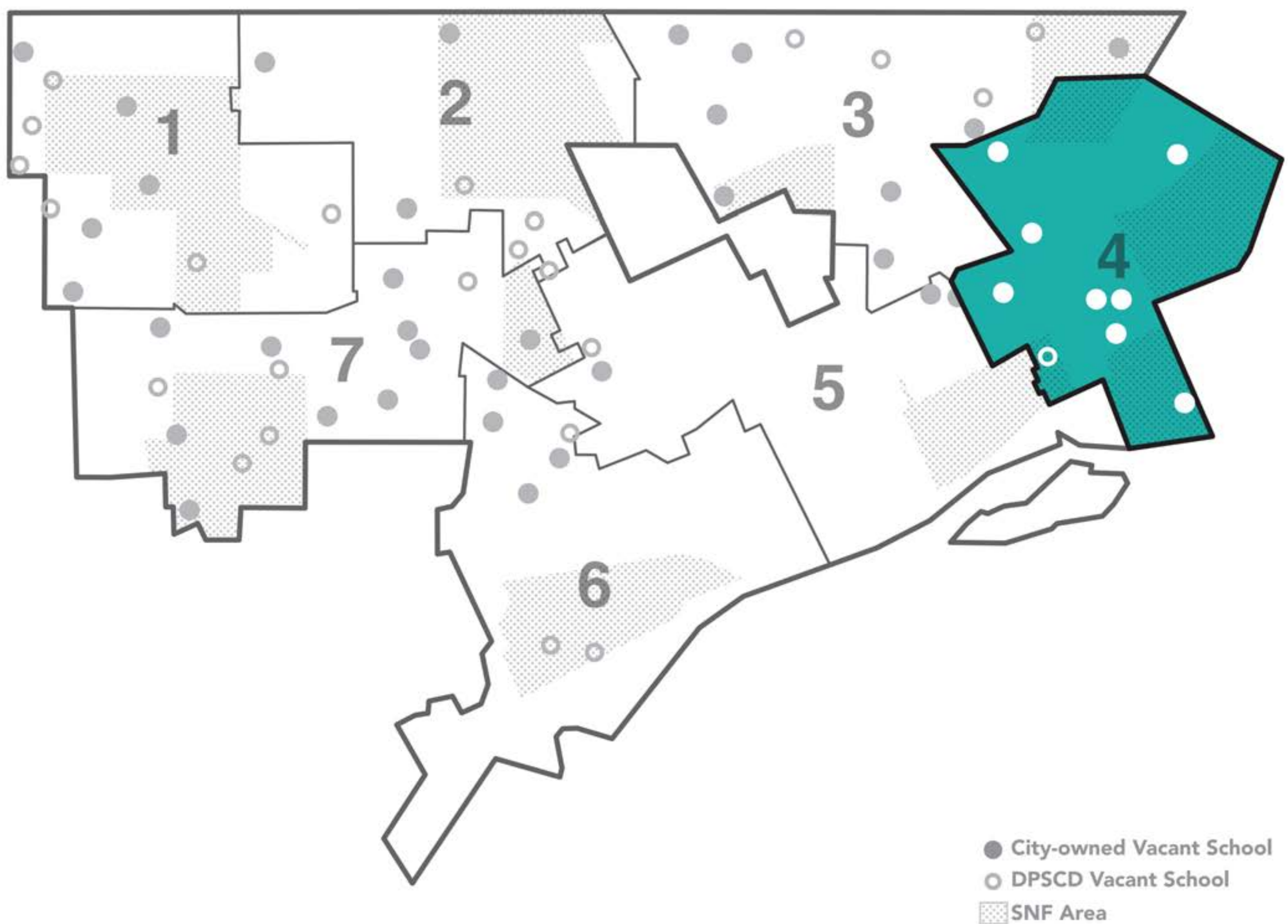
City of Detroit Schools:

Arthur
Carstens
Guyton
Hutchinson
Macomb
Wilkins

DPSCD Schools:

Foch

Detroit
City Council District 4



Wiss, Janney, Elstner Associates, Inc.
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Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Arthur Middle School

Basic Property Information: COD 4-Arthur-10125 King Richard

Short Name:	Arthur
Address:	10125 King Richard Street, Detroit, Michigan 48224
Year Built:	1930
Additions Built:	1941, 1948
Outbuildings:	Powerhouse
Year Vacated:	2005
Building Footprint:	180 feet x 125 feet
Square Footage:	33,652 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Precast Concrete ▪ Brick Masonry ▪ CMU Masonry ▪ Structural Steel
City Council District:	4	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Cast Stone
SNF District:	NA	**Window System(s):**	▪ Metal ▪ Wood
		Roofing System(s):	▪ Built-Up Roof ▪ Gutters ▪ Internal Roof Drains ▪ Stone Ballast

Assessment Summary	
Assessment Date:	June 02, 2020
WJE Inspector(s):	Cheryl Early; Justin Barden
Report Date:	November 11, 2020
Building Risk Index:	**61.01**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,022,800
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,692,160
Sub-Total	$4,614,960
Contingency (25%)	$1,153,740
Sub-Total	$5,768,700
Overhead and Profit (15-18%):	$865,305
Sub-Total	$6,634,005
Escalation (6% for 2 years)	$398,040
Sub-Total	$7,032,045
Architectural and Engineering Design Services (20%):	$1,406,409
TOTAL COST ESTIMATE:	$8,438,454

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof levels were accessed from an attic access hatch. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is partially flooded, and thus, was minimally accessed. Access to the interior of the powerhouse outbuilding was not obtained due to secured doors at grade and the flooded basement level. The interior finishes are deteriorating, exposing the structural framing systems in isolated locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation

projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The main building is U-shaped in plan and is two stories in height constructed over a basement level. The original school building was constructed in 1930. Additions at the east and north sides of the original building were constructed in 1941 and 1948, respectively. A stand-alone powerhouse structure is located to the west of the main school building and is connected to the main building via a basement level tunnel. A single-story rectangular, masonry enclosure is located between the main building and the powerhouse and is presumed to be a stair access to the basement tunnel between the two structures. Safe access to the interior of the rectangular enclosure or the powerhouse was not possible during this assessment.

The main building and powerhouse facades generally consist of a clay brick and stone masonry with concrete masonry unit (CMU) backup. The brick units are laid in running bond with every fourth course laid in Flemish bond (alternating stretchers and headers). Limestone and cast stone accent units, horizontal bands, window sills, and parapet copings are located throughout all facades. The main facade, which faces King Richard Street and is considered the east elevation, includes a painted cast stone horizontal band with stone accent units below, limestone surrounds at the main entrance, and limestone floral accent units at the parapet. Steel-framed doors are set within the building entrances. The windows are primarily composed of aluminum replacement windows set into the original and exposed wood frames. Original wood window framing is present at the window openings facing the courtyard with no replacement aluminum units. The low-slope roof assembly consists of a gravel surfaced, built-up roofing (BUR) system with granulated cap sheet base flashing and internal drains and perimeter gutters.

The primary structural system in the main building is composed of cast-in-place concrete beams and columns, or steel framing embedded in concrete, located within the corridor walls, and composite brick and CMU exterior walls. The roof and floor structures of the 1930 original main building consists of concrete tee joist-slab construction. The interior finishes in the 1941 east addition are primarily intact. The only area where the floor structure was visible was above the library space, where the structure appeared to consist of painted concrete deck bearing atop painted concrete, rectangular beams. At the north end of the 1941 east addition, precast concrete roof planks were observed alongside the gymnasium wall. The 1948 north addition floor and roof structure appeared to be a composed of a flat slab system with embedded wood sleepers intended for attachment of the finished ceiling. The attic plenum space in the 1948 north addition was fully plastered and a corrugated metal ceiling panel system remains in place in the gymnasium. Due to the existing finishes in the north addition, the composition of the roof framing system is unknown. The roof structure of the one-story conservatory at the southwest corner of the building is composed of metal decking spanning between steel beams and load-bearing exterior CMU walls.

In general, the building is in serviceable condition with many of the interior finishes intact. Some of the windows require replacement, and roofs require partial replacement and localized maintenance repairs. Water infiltration within the wall assemblies due to failed roof drains, missing roof flashings, and missing and deteriorated coping units has resulted in significant masonry distress and corrosion of embedded steel support elements within the facade. Many of the cast stone and limestone decorative units exhibit distress and require replacement, especially at the entrances and window surrounds. The structure is in good condition with minimal distress noted. Further detail of the observed distress is provided below.

Facade

The facade is generally in fair condition. Corrosion of the steel lintels, due to water infiltration, was observed on the interior courtyard walls and at all of the walls on the powerhouse. The original main building parapets exhibit localized inward displacement. The parapet displacement is likely due to a combination of corrosion of the embedded steel support elements below and associated upward movement of the masonry, and deterioration of the masonry backup due to moisture infiltration through failed coping joints at roofing terminations. Vertical cracking was observed at the ends and approximately quarter points of the masonry exterior wall at the west facade of the original main building. The vertical cracking is likely due to unaccommodated thermal expansion of the masonry and to a lack of expansion joints. Rehabilitation of the building should include repair of the distressed masonry elements including deteriorated mortar joints observed in localized areas.

Some of the cast stone coping units have been removed and/or are damaged, thereby exposing the exterior masonry wall cavity to moisture penetration. Previously removed and damaged stone copings were observed in miscellaneous areas on the roof. Some of the limestone units are missing at the building entrances. Isolated spalls of stone units were observed intermittently throughout. Rehabilitation should include replacement of the missing coping units in coordination with the parapet repairs, the replacement of the missing limestone units at the building entrances, and dutchmen repair or replacement of the spalled stone units.

Most of the windows are aluminum replacement units set into the original wood frames and are intact. The windows facing the courtyard are missing or damaged with missing sashes, displaced and decayed frames, and missing glass. The wood frames and transoms at the exterior doors exhibit peeling paint and wood decay. The metal doors within these wood surrounds are typically corroded. Rehabilitation of the building should include replacement of the doors, replacement of the windows facing the courtyards, and restoration of the remaining windows currently in place.

Roofing

The roofing assembly of the main building is generally in fair-to-poor condition. Much of the deterioration is due to missing/removed rooftop mechanical units, missing drain covers, and deferred maintenance. Cracking, seam failures, ponded water, and organic growth were observed on the roof surface. The metal flashing at vertical roof terminations is generally intact; however, the sealant is typically debonded, permitting water to enter the roofing assembly. Ponded water on the entire powerhouse roof was observed from afar. Rehabilitation of the building should include removal and replacement of the existing roofing assemblies, localized parapet repairs, and replacement of the drain and drain pipe systems and deteriorated hanging gutters.

Structure

Overall, the structure is in good condition with minimal distress observed. Many of the plaster wall and ceiling finishes are extant and exhibit minimal damage, which is often indicative of the condition of the structural elements behind.

The main structural frame, which is either conventionally reinforced concrete or structural steel encased in concrete, is in good condition. The tee joist-slab system supported by the interior beams and perimeter masonry walls exhibits minor distress related to the water infiltration from the deteriorated condition of the roof system, primarily in the corridors. Scaling of the concrete is visible from the underside of the roof structure in the 1930 original main building, indicating potential freeze-thaw deterioration of the concrete in isolated locations. The exposed precast roof planks located at the north end of the 1941 addition near the gymnasium are cracked within the slab portion of the planks, similar to impact damage of the planks. These planks should be replaced with a compatible roof deck system, with repairs coordinated with roofing repairs, assuming the remaining roof planks are in serviceable condition with no deterioration of the flanges of the planks. Further assessment of the roof slab of the one-story projection at the northwest corner of the building is recommended to determine the roof deck system (concrete slab with embedded wood sleepers or nailers) and verify its condition due to observed water migrating through this roof deck. The wood nailers, if to be reused, will need to be replaced in multiple locations.

The acoustic metal ceiling in the gymnasium is visibly corroded and is related to corrosion of isolated locations of the steel box beams supporting the ceiling and roof decks above. The roof structure above the metal ceiling is recommended to be assessed to confirm the source of the moisture related to the corrosion activity. The corrosion of the box beams is recommended to be cleaned and the structural steel elements further assessed and recoated. The metal ceiling system might also be cleaned in conjunction with the assessment of the steel box beams if to remain with the new use of the building.

A steel and gypsum plank ceiling system is located above the second floor corridor throughout both 1940s era additions; batt insulation was observed above the suspended plaster ceiling of the second floor corridor in the original 1930 building. A wood plank catwalk system is located above the 1930s plaster ceiling. Both the wood plank and gypsum ceiling system are visibly wet and deteriorated in select locations. Replacement of the second-floor ceiling in full is recommended, with the new ceiling designed as a catwalk structure for maintenance access.

At the interior wall of the auditorium, a large steel plate and bolt system was observed clamped to the primary concrete (or steel encased concrete) columns. The brick masonry at these locations is of different color, indicating this was a past repair or modification. Potentially, the original column and beam system was insufficient to withstand lateral loads, and braces or kickers were added and attached to the columns with this clamped connection. Further assessment is recommended to fully understand the reason for these plates and bolts.

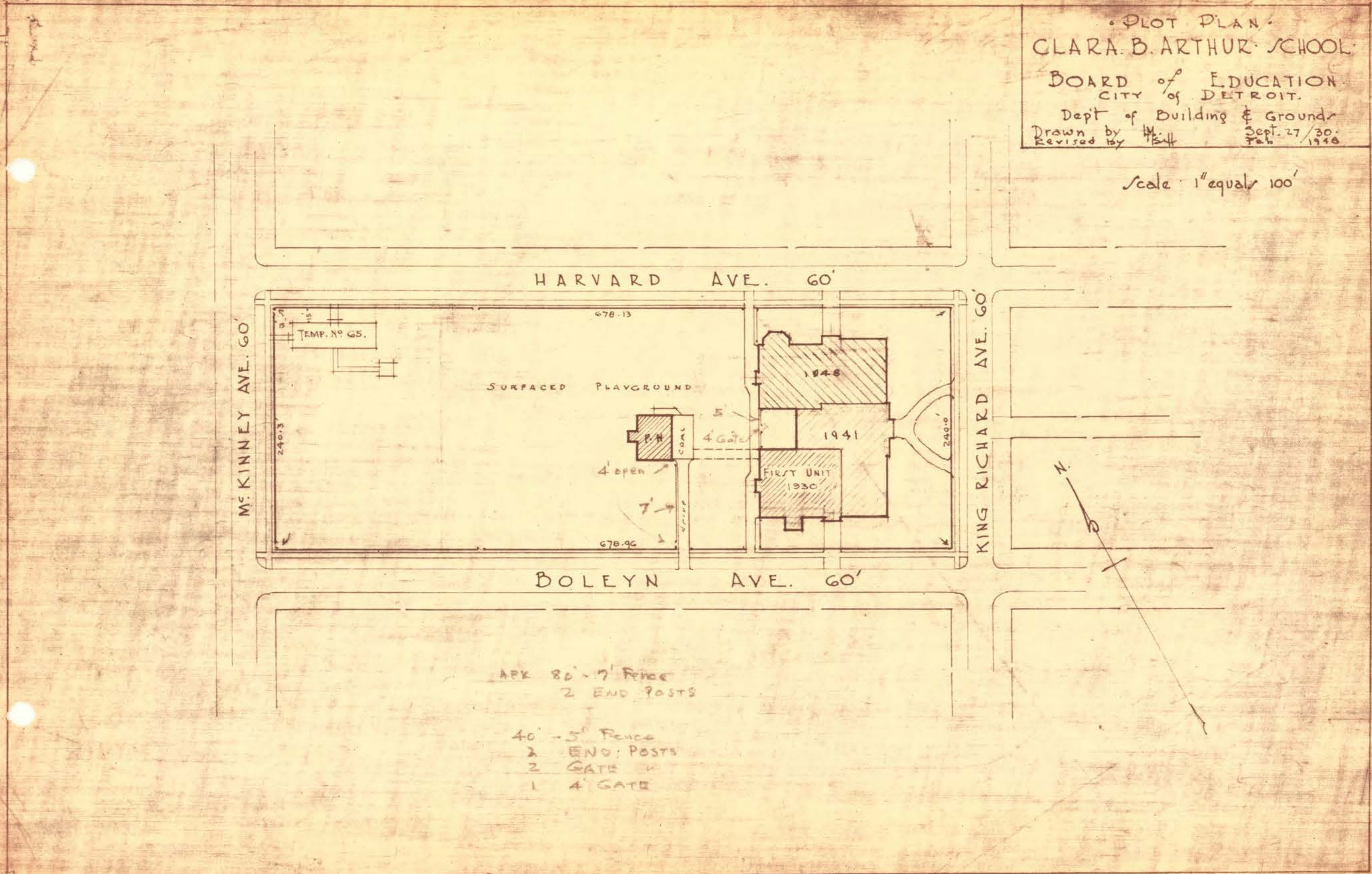
The lower levels of the basement were fully submerged with standing water, allowing access only to the plenum chambers of the main building. No distress was observed in the foundation walls or first floor structures where accessible. The lower levels of the basement should be dewatered allowing for assessment prior to the implementation of the recommendations stated herein.

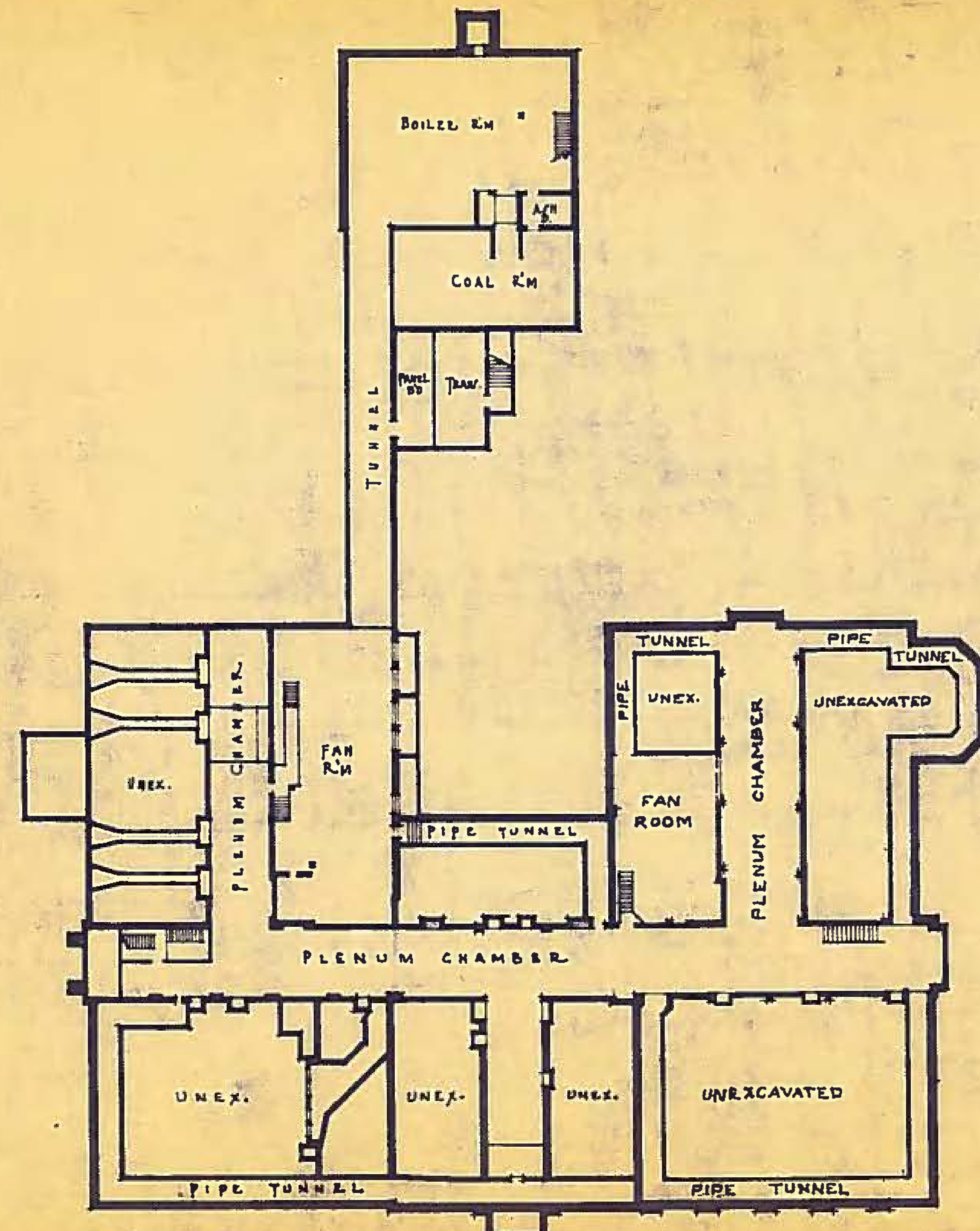
Miscellaneous

The auditorium space has been damaged by previous fires and soot is present on the surface throughout the corridor and some of the nearby classrooms. The fire damage appears to be limited to architectural finishes only.

Cracking in the plaster wall finishes and minimal cracking of exposed CMU and brick interior masonry walls is present; some of the cracks have been repaired and are re-cracked. The distress may be related to volumetric changes in the masonry walls due to the unconditioned spaces, vandalism or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.


· PLOT PLAN ·
CLARA · B · ARTHUR · SCHOOL ·
BOARD of EDUCATION
CITY of DETROIT.
Dep't of Building & Grounds
Drawn by
Sept. 27/30.
Revised by
Feb 1948
Scale 1" equals 100'
HARVARD AVE. 60'
BOLEYN AVE. 60'
McKINNEY AVE. 60'
KING RICHARD AVE. 60'
678.13
678.96
240.3
240.0
TEMP. No 65.
SURFACED PLAYGROUND
1948
1941
FIRST UNIT 1930
P.H
COAL
4' Gate
4' open
5'
7'
N.
APX 80' - 7' Fence
2 END POSTS
40' - 5' Fence
2 END POSTS
2 GATE
1 4' GATE



CLARA B. ARTHUR
ELEM. SCHOOL
BASEMENT PLAN

DEPT OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT — MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	2-9-31	H. L. S.	2-12-31		

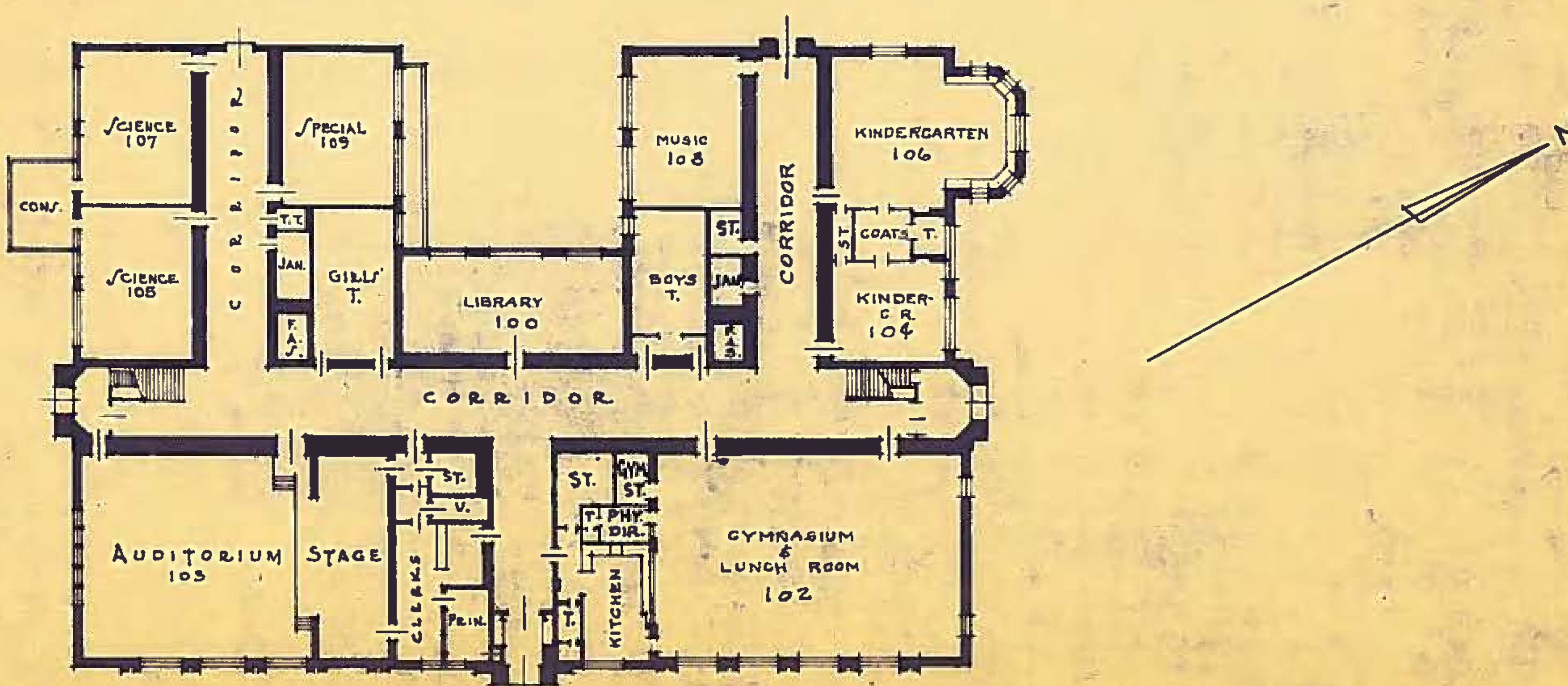
CORRECTED - AUG. 1947

CLARA B. ARTHUR
ELEM. SCHOOL
FIRST FLOOR PLAN

DEPT OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT — MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	2-5-31	A. L. S	2/9/31		

CORRECTED AUG. 1947

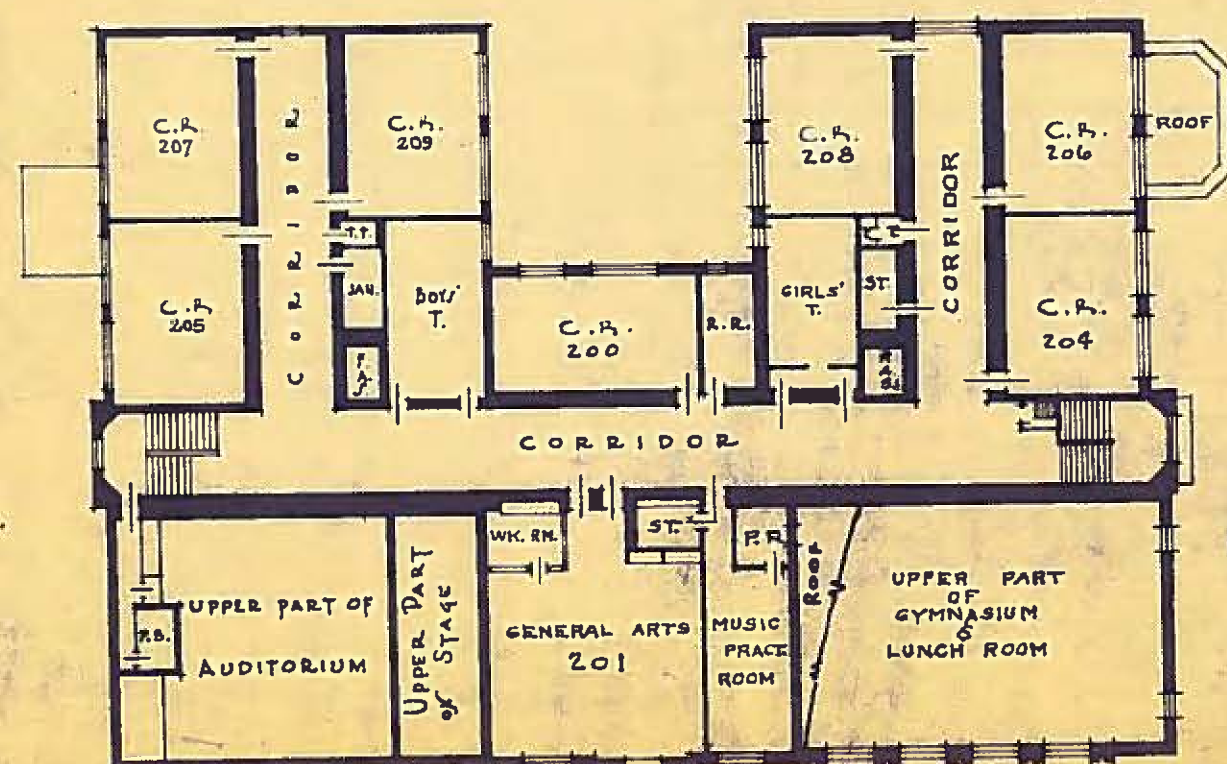


CLARA B. ARTHUR
ELEM. SCHOOL
SECOND FLOOR PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT — MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	2-5-'31	[illegible]	2/9/31		

CORRECTED -- AUG. 1947



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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Carstens Elementary School

Basic Property Information: COD 4-Carstens-2550 Coplin

Short Name:	Carstens
Address:	2550 Coplin Street Detroit, Michigan 48215
Year Built:	1916
Additions Built:	1919, 1921
Outbuildings:	None
Year Vacated:	2011
Building Footprint:	160 feet x 290 feet
Square Footage:	83,084 sq. ft.
Number of Stories:	3
Building Height:	43 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	4	**Exterior Wall System:**	▪ Brick ▪ Terra Cotta ▪ Cast Stone ▪ Limestone ▪ Stucco
SNF District:	JC	**Window System(s):**	▪ Wood ▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof ▪ Asphalt Shingles ▪ Gutters ▪ Internal Roof Drains ▪ Stone Ballast

Assessment Summary	
Assessment Date:	May 28, 2020
WJE Inspector(s):	Sarah Rush; Andrew Lobbestael
Report Date:	November 12, 2020
Building Risk Index:	**103.25**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,692,750
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$6,646,720
Sub-Total	$9,239,470
Contingency (25%):	$2,309,867
Sub-Total	$11,549,337
Overhead and Profit (15-18%):	$1,154,933
Sub-Total	$12,704,271
Escalation (6% for 2 years)	$762,256
Sub-Total	$2,693,305
Architectural and Engineering Design Services (20%):	$16,159,833

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof levels were accessed above the main low-slope roof level and above the mechanical spaces within the east courtyard. An unmanned aerial vehicle (drone) was also used to take detailed aerial photographs. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original, two-story building was constructed in 1916 with two-story additions completed in 1919 and 1921. The 1919 addition included two wings which extend from the east side of the original building and frame the mechanical spaces (i.e. coal, fan, and boiler rooms) at the basement level. The 1921 addition extends from the south end of the original building. Windows are present at the basement, first, and second levels; classrooms within the basement level are finished and include stairwells to access egress windows.

The original facades consist of multi-wythe clay brick masonry laid in a running bond without header courses in the exterior wythe. Ornamental terra cotta bands extend over the second story windows and are present at continuous sills at the first-floor level and horizontal belt courses. A limestone belt course is located near grade. Spandrels between the first and second floor windows have an ornate, diamond-patterned brick design with stucco infill. Stucco-faced panels are also located within horizontal bands above the basement and second floor windows. Ornate stone carvings, which appear to be carved from dolomite stone, are present on either side of the main west entrance; stone pillars and ornate brickwork are present above the entrance doors. Windows are wood framed with aluminum caps on the exterior; the window sashes are currently missing but likely consisted of aluminum replacements set within the original window openings. The building entrances generally consist of conventional steel doors.

The facades of the 1919 and 1921 building additions are similar to that of the original construction with a few material variations. The two east 1919 additions have red-colored cast stone materials in lieu of terra cotta at the lower horizontal bands and sills, as well as coated limestone units at the horizontal belt course in lieu of stucco-faced brick masonry. The south 1921 addition contains variations from both previous construction eras depending on the facade.

The hip roof has asphalt shingles along the building perimeter and a low-slope, internally drained roof at the interior of the building footprint. The low-slope roof consists of a smooth-surfaced bituminous built-up roof (BUR) with an aluminum coating. The hipped roofs overhang the exterior walls creating ornate wood soffits with decorative rafter tails. The hipped roofs are drained with external gutters and downspouts. The roofs of the southeast 1919 addition and above the mechanical spaces within the east courtyard are low-sloped with perimeter masonry parapets and clay tile copings. These roof areas consist of internally drained, bituminous built-up roof (BUR) assemblies with slag surfacing and granulated cap sheet base flashing. The BUR assemblies may be coal tar or asphaltic based. An elevated structural slab is located at grade over the fuel room within the east courtyard, which has an exposed concrete surface and several manhole covers. Bituminous material is visible from the underside of the manholes, but the type and extent of a waterproofing system, if present, is unknown at this time.

The roof structure in the original building is composed of wood decking supported by wood joists and rafters supported by wood framed trusses. The roof framing in the additions typically consist of wood decking supported by wood joists and rafters supported by steel trusses. The roof framing over the gymnasium and auditorium consists of cast-in-place concrete over gypsum planks supported by steel channels that span between built-up steel trusses. The trusses are typically supported by load bearing brick masonry walls at the exterior and interior. The floor framing for the building typically consists of concrete tee joist-slab construction with stay-in-place clay tile masonry forms. The floor framing is generally supported by load bearing masonry walls although concrete columns were present in isolated locations.

In general, the building is in serviceable condition with localized areas of distress. Various components of the roofing assemblies are severely damaged or deteriorated, resulting in masonry distress, wood decay, and concrete deterioration within the wall assemblies and structural systems below, as well as damage to the interior finishes. The structure is generally in serviceable condition with a few areas with more advanced deterioration that warrant repair including decayed roof framing, the deteriorated concrete roof slab over the fuel room, and a partial collapse of the parapet, roof and exterior wall at the northwest end of the southeast addition (near the auditorium). The majority of observed facade deterioration is attributed to water infiltration, as well as subsequent corrosion of the embedded steel support elements and reinforcing. Window assemblies exhibit significant distress due to damage from vandalism and deterioration, requiring replacement. Further detail of the observed distress is provided below.

Facade

The masonry is generally in fair, serviceable condition. Where downspouts are missing or gutters are actively leaking, deterioration within the facade includes decay of the wood soffit and framing within the roof overhangs, significant mortar deterioration of the brick and stone masonry, cracking and spalling of the stucco, peeled and missing paint on the limestone horizontal bands, and localized efflorescence and water staining. On one area on the west facade, a missing downspout has resulted in a large soil washout, approximately three feet deep. The exposed waterproofing and common brick units are deteriorated in this area and should be repaired in conjunction with replacement and repair of the downspouts and gutters. The brick masonry beyond the failed downspouts is generally in good, serviceable condition.

A surface-applied parge coat over common brick is present at the base of the facades. In some regions, particularly at the failed downspouts, the parge coat material is unsound or missing. The exposed masonry contains localized areas of mortar deterioration and spalled brick units. Water infiltration was evident within the basement rooms at these regions, as exhibited by moisture on the wall surfaces and failed and peeling paint. Rehabilitation of the building should include removal of the unsound patch and membrane materials, repointing of unsound mortar, replacement of spalled brick units and installation of an appropriate surface-applied repair material and/or waterproofing detailing to mitigate water penetration into the wall assembly and further masonry distress.

Localized cast stone units are spalled, cracked, or displaced, with corroded reinforcement visible at some spalled surfaces. The observed distress is attributed to water infiltration in the wall assembly and vandalism. Displaced units may be reset, while other distressed units should be repaired or replaced. The terra cotta units exhibit similar localized distress. Several units are missing above the main west entrance, which may be replaced in-kind or by using alternative materials to restore the original aesthetic. Some regions of terra cotta within the upper band are displaced and should be further investigated to verify the cause of distress and develop appropriate repairs. Localized, cracked, or spalled terra cotta units may be repaired in-place.

On the north facade, displacement is visible across the joint between the original building and the east addition, possibly due to differential settlement or lack of an expansion joint. We recommend this condition be repaired with an appropriate expansion joint detail to accommodate future movement. Should the distress reoccur, further investigation into potential settlement of the building foundation will be warranted.

Corrosion of the steel lintels was observed, with some areas containing masonry distress and lintel displacement due to the development of pack rust. Locations containing significant masonry distress should be rebuilt to include installation of flashing with a durable repair detail at the corroded lintels. Lintels with only minor corrosion and limited masonry distress may require only maintenance repairs to extend the life of the associated elements, such as cleaning and painting the exposed steel elements and repointing deteriorated mortar joints.

At least two previous masonry repair projects have been completed at the building based on the observed brick unit replacement types and variations in the repair detailing. These past projects have included localized steel lintel repairs; replacement of localized brick masonry, cast stone sills, and masonry spandrels; patch repairs to the terra cotta and stucco; installation of metal panels to cover or replace apparent deterioration within the masonry spandrels; and localized repointing of distressed mortar. The repairs largely remain in good, serviceable condition, though some areas show indications of continued deterioration and likely require repair with improved, durable repair detailing and maintenance.

Within the northern east wing addition, some regions of mortar contain lines or cracks at the surface of the mortar. The mortar is eroded, as expected for this building age, and does not exhibit other indications of distress. We believe the surface imperfections are ice crystal imprints from the building's construction where water used in the mortar mix had frozen before the mortar set. These regions are not related to freeze-thaw damage and do not require repair.

The majority of the windows are missing or damaged, including missing sashes, missing and decayed frames, missing and displaced aluminum covers, and broken glass. The exterior steel doors are typically corroded near the base, dented, or missing. Rehabilitation of the building should include replacement of the window and exterior door assemblies. Temporary systems should be installed to secure the interior of the building from trespassers.

The upper four feet of the brick masonry chimney is significantly deteriorated and displaced. A large vertical crack extends down the east and west faces of the chimney. At the base of the chimney, significant water-related deterioration is present including deteriorated mortar and spalled and collapsed brick units. This distress is attributed to a failed gutter above and subsequent freeze-thaw damage. Cracked, displaced, and missing brick units should be rebuilt and the distressed mortar joints should be repointed.

Roofing

Deterioration within roofing assemblies is leading to significant damage to the wall assemblies, structural systems, and interior finishes, though the extent of roofing distress varies by region.

At the asphalt shingled hipped roofs, localized areas of the asphalt shingles are missing, exposing the underlayment and roof deck. The wood decking is also exposed in several of these regions, which has either decayed or collapsed due weather exposure. Flashing elements at the transition between the low-sloped roof and the steep sloped roofs are missing or displaced, often correlated with areas of missing shingles. The dormer is missing above the main west entrance. Areas of missing shingles require replacement in conjunction with repairs to the roof structure and replacement of the missing dormer. Temporary measures are recommended in the near term to stabilize the observed deterioration and mitigate additional distress to the wood-framed structural system. Flashing elements and downspouts are missing, which has been attributed to vandalism. These elements should be replaced or repaired as needed to mitigate further distress to the wall assembly and wood soffit elements.

At the main low-slope roof level that extends between the hipped roofs, the drain conductors and rooftop mechanical units are missing. However, based on a lack of water intrusion or evidence of wood decay below the field of the low-slope roofing, the roof itself appears to be performing well in this region. Maintenance repairs within the field of the roof should be performed to extend the service life of the existing roof assembly in conjunction with the more significant repair work to the drainage system and rooftop units.

The low-slope roof over the southeast addition is damaged from the collapsed roof structure and should be replaced in conjunction to the structural repairs, discussed in further detail below.

The roofing of the multiple low-slope roof levels located over mechanical spaces in the east courtyard is significantly deteriorated, warranting removal and replacement. Several clay tile copings are cracked or missing. Several of the sheet metal flashings at the roof material have been removed, and the base flashings are pulled away from the masonry substrates, resulting in water infiltration into the wall assembly and building interior. Significant concrete deterioration is present near failed drains and conductors, and organic growth and vegetation are present on the roof surface. The elevated concrete structure over the fuel room is deteriorated due to an insufficient and/or deteriorated waterproofing system. Concrete repairs of the roof structure, discussed below, should be coordinated with the waterproofing and roofing repairs.

Structure

Overall, the structure is in good condition with localized areas of significant distress throughout. The plaster finishes are distressed in these same areas, exposing portions of the structural framing systems.

The wood roof framing has localized areas of decay and collapsed wood decking due to roof leaks primarily at the transition from the steep-sloped hip roofs to the low-sloped roofs. The largest area occurs at the west side of the 1920 addition where the water leaks are also causing extensive damage to the ceiling finishes below. Decayed wood roof framing is also present at the east end of the south wing of the original building and the south slope of the north 1919 addition. We recommend replacing the decayed wood framing and repairing the wood decking and roofing.

The concrete structure above the fuel room, boiler room, and fan rooms are deteriorated. The most severe deterioration occurs above the fuel room where the bottom reinforcing steel in the slab is corroded and exposed due to spalls. Some of the reinforcing bars exhibit significant section loss. At least one beam above the fuel room also has corroded steel exposed and cracking occurring near a concrete column. The concrete slabs in the boiler room and fan rooms are in better condition, but also exhibit isolated cracks, peeling paint, moisture stains, corrosion stains and deteriorated concrete at a floor drain. The concrete distress is most likely caused by long term exposure to moisture. We recommend that the concrete be repaired. Further investigation would be required to determine the most appropriate repair approaches for the slabs which could vary from underside shotcrete repairs to full-depth replacement depending on the thickness and overall condition of the slab. We recommend form-and-pour repairs for the beam repairs. The concrete repairs should be coordinated with the replacement of the waterproofing system above.

There is bulging and cracked brick masonry at the west exterior wall above the main entrance. The brick is bulging inward. The cause and severity of the bulging is not well understood at this time. We recommend further investigation to determine if this is a structurally significant condition. In the meantime, we recommend this condition be monitored.

The partial roof collapse adjacent to the auditorium should be repaired. The roof appears to be in a stable condition at this time since the steel channels supporting the roof deck are resting on sound masonry. Repair of this area will require replacement of about 200 square feet of the roof structure in coordination with the re-roofing and masonry wall repairs.

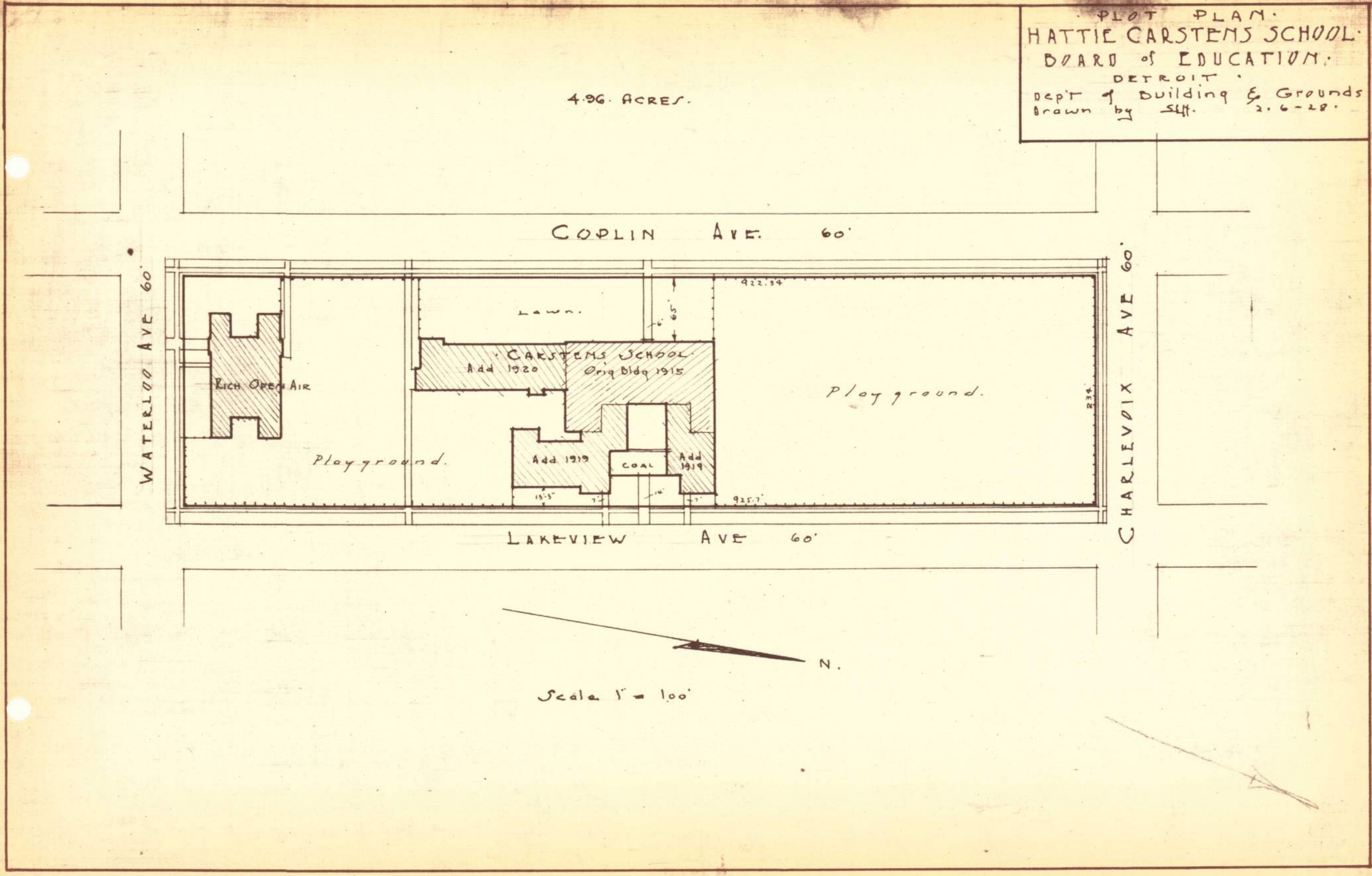
A few of the steel lintels at openings in the load bearing interior masonry walls exhibit corrosion with associated areas of adjacent masonry distress. The steel lintel at the passageway between fuel rooms has undergone significant section loss and the brick masonry above and adjacent to steel is loose, displaced, and appears friable (soft/powdery). Where the steel corrosion is minor, we recommend cleaning the exposed steel surfaces, assessing the extent and severity of the corrosion, and repairing as appropriate. At this time, we anticipate recoating the steel will be adequate for most cases. However, we recommend replacing the lintels in the passageway between fuel rooms; this effort will require temporary shoring.

The steel trusses in the additions exhibit localized areas of corrosion. We recommend cleaning and coating the corroded areas of the steel framing.

Miscellaneous

Many of the interior CMU walls are cracked. We recommend further investigation to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

The stone steps at the main west entrance are displaced. We recommend that the stones be reset to prevent tripping hazards. This should be coordinated with any accessibility improvement that may be part of a rehabilitation project.

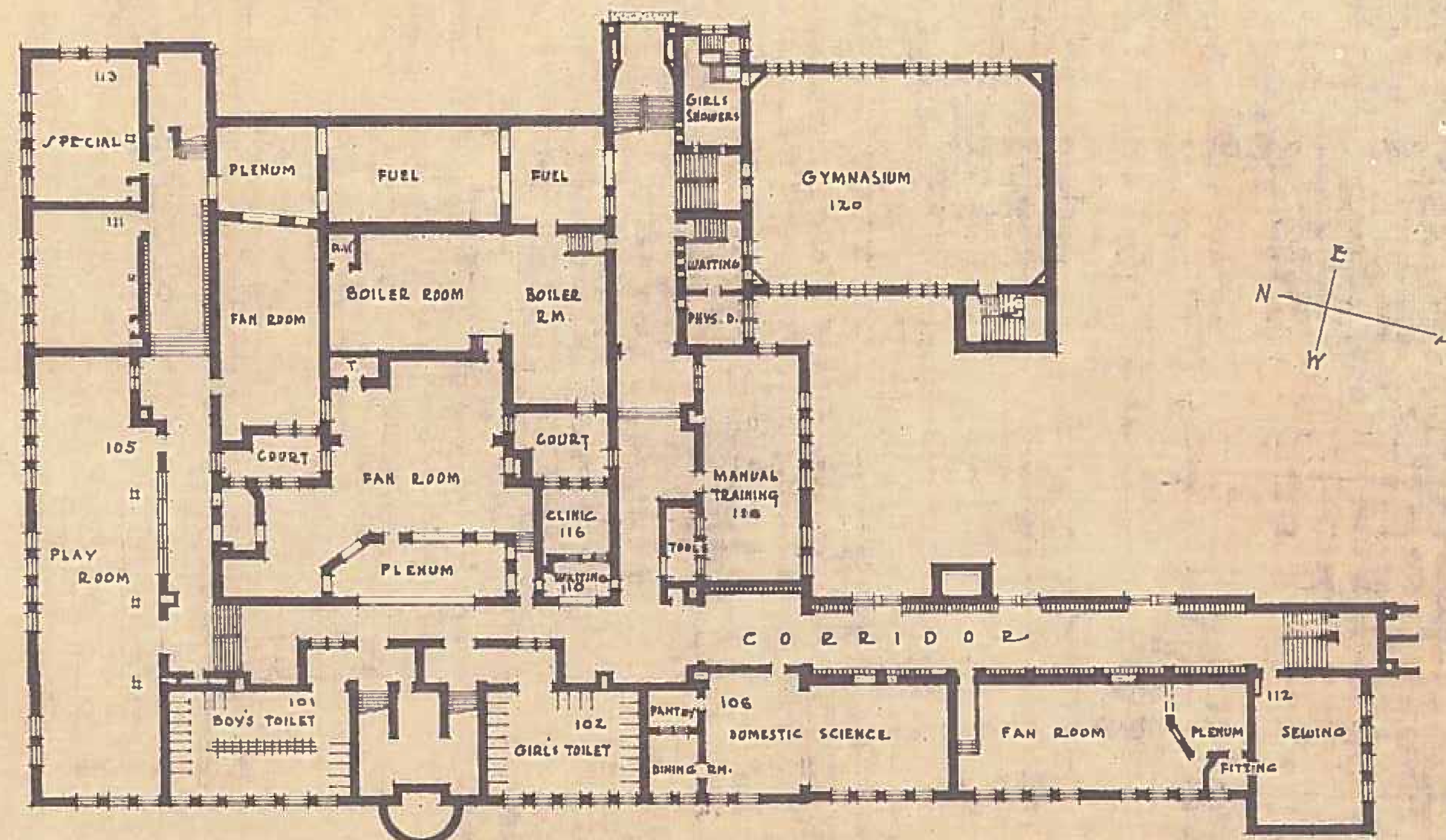


PLOT PLAN.
HATTIE CARSTENS SCHOOL.
BOARD of EDUCATION.
DETROIT.
Dep't of Building & Grounds
Drawn by SH. 2-6-28.
4.96 ACRES.
COPLIN AVE 60'
WATERLOO AVE 60'
CHARLEVOIX AVE 60'
LAKEVIEW AVE 60'
Lawn.
CARSTENS SCHOOL
Add 1920
Orig Bldg 1915
RICH OPEN AIR
Playground.
Playground.
Add 1919
COAL
Add 1919
922.34
925.7
234
65'
N.
Scale 1" = 100'

HATTIE CARSTENS SCHOOL
BASEMENT PLAN
SCALE 1/32" = 1'-0"

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
W.H.M.	1-14-21	C.			



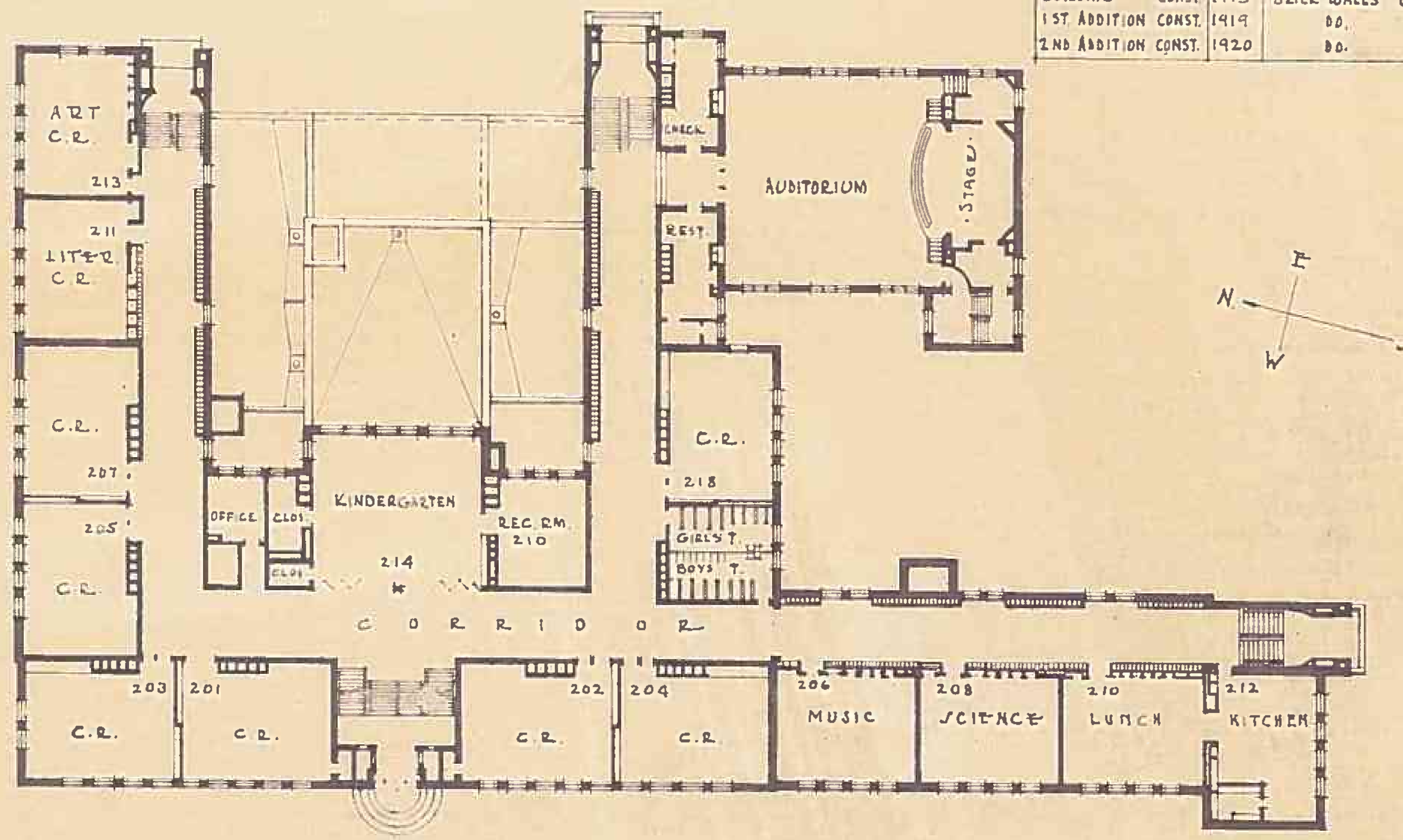
BASEMENT PLAN
SCALE 1/32" = 1'-0"

HATTIE CARSTENS SCHOOL
FIRST FLOOR PLAN
SCALE 1/32" = 1'-0"

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
W. H. M.	1-14-21	C			

BUILDING	CONST.	1915	BRICK WALLS	CONCRETE FLOORS
1ST ADDITION	CONST.	1919	DO.	DO.
2ND ADDITION	CONST.	1920	DO.	DO.

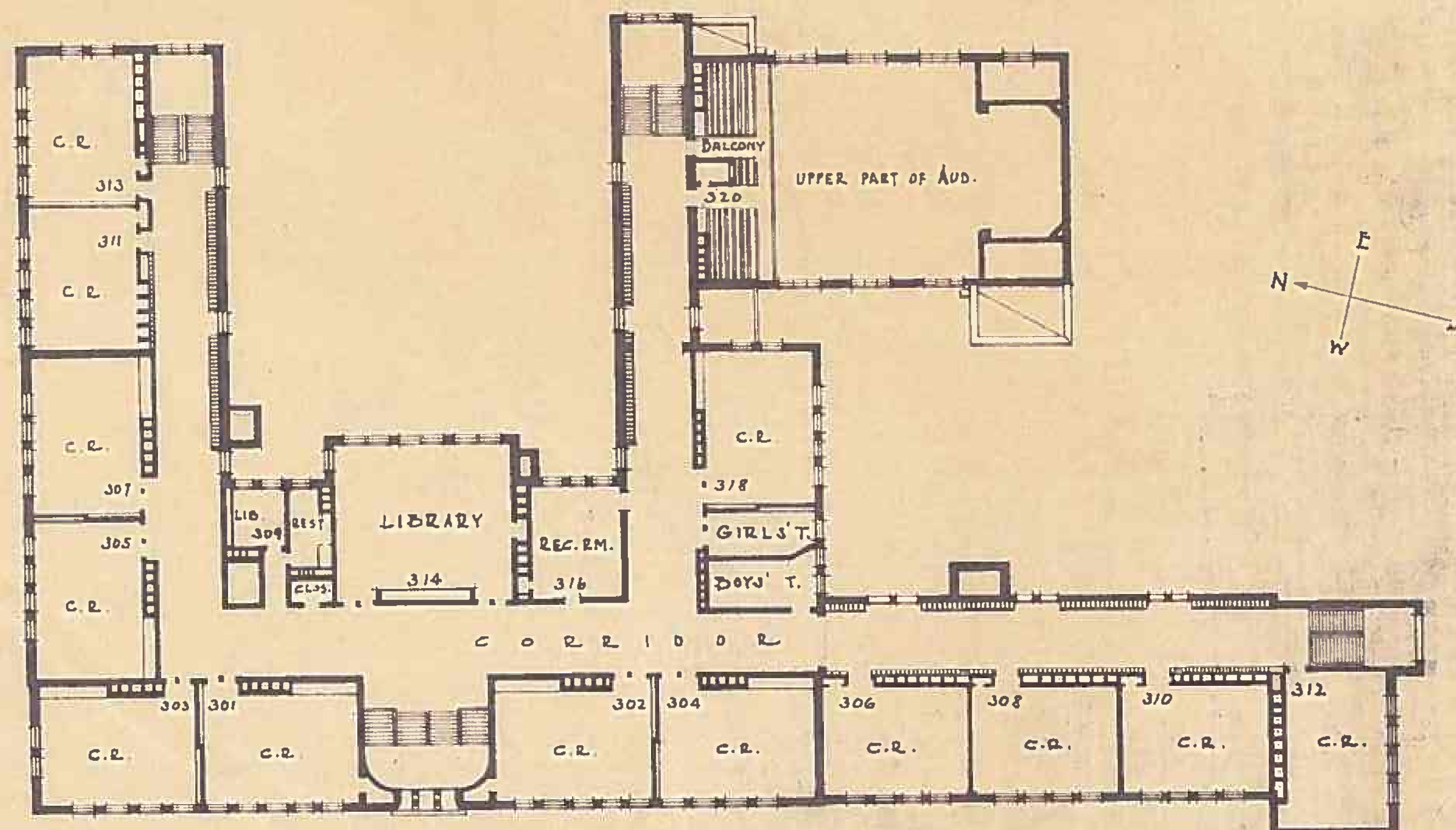


FIRST FLOOR PLAN
SCALE $\frac{1}{32}$" = 1'-0"

HATTIE CARSTENS SCHOOL
SECOND FLOOR PLAN
SCALE 1/32" = 1'-0"

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
W.H.M.	1-14-21				



SECOND FLOOR PLAN
SCALE $\frac{1"}{32}$ = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Guyton Elementary School

Basic Property Information: COD 4-Guyton-355 Philip

Short Name:	Guyton
Address:	355 Philip Street, Detroit, Michigan 48215
Year Built:	1922
Additions Built:	1925
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	135 feet x 280 feet
Square Footage:	46,127 sq. ft.
Number of Stories:	2
Building Height:	42 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	4	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	JC	**Window System(s):**	▪ Wood-framed ▪ Steel-framed ▪ Leaded Glass
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains ▪ Clay Tile Shingles ▪ Asphalt Shingles ▪ Gutters

Assessment Summary

Assessment Date:	May 28, 2020
WJE Inspector(s):	Sarah Rush; Andrew Lobbestael
Report Date:	November 11, 2020
Building Risk Index:	**77.10**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,563,100
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,690,160
Sub-Total	$6,153,260
Contingency (25%)	$1,538,315
Sub-Total	$7,691,575
Overhead and Profit (15-18%):	$1,153,736
Sub-Total	$8,845,311
Escalation (6% for 2 years)	$530,718
Sub-Total	$9,376,029
Architectural and Engineering Design Services (20%):	$1,875,205
TOTAL COST ESTIMATE:	$11,251,235

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition, but an unmanned aerial vehicle (drone) was used to take detailed aerial photographs. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded, and thus, was not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- Investment Memo
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed in phases between 1922 and 1925. The initial construction was primarily rectangular in footprint with accentuated bay window spaces extending from both the north and south facades at the west end of the building. The second, 1925 phase was constructed from the east end of the south facade of the original portion. The 1925 addition is primarily rectangular in footprint with relatively symmetrical setbacks along the length of the addition.

The facade consists of dark red and brown clay brick masonry in English bond and ornate brickwork details at the spandrels and entrances. Limestone accent units are present at the entrances, window sills, copings, buttresses, and horizontal bands. Wood clad dormers are located on the south, east, and north facades, as are roof dormers clad in brick and limestone masonry. Wood-framed windows are generally present in punched wall openings, though the auditorium, attic, a conservatory, and select other rooms have leaded-glass and steel-framed windows. The building entrances generally consist of conventional steel doors.

The roof layout consists of steep-sloped roof surfaces at the front exterior walls of the building and low-sloped areas between the sloped surfaces. The steep-sloped roofing consists of clay tile roof shingles manufactured by Ludowici, which have a green-colored exterior surface, though the roofing on the north and southernmost facades have been replaced with red-colored asphalt shingles. These roof areas are drained with external gutters and downspouts. The low-slope roofing areas appear to consist of a smooth surface built-up roof (BUR) with an aluminumized roof coating. A vaulted mechanical space is located in the rear of the building. The waterproofing assembly over this region consists of a bituminous system. Several modern outbuildings are present at the perimeter of the vaulted space, which are clad in either exposed concrete masonry (CMU) or clay brick veneer.

The roof structure over the majority of the building consists of wood decking supported by steel channel purlins spanning over steel roof trusses with riveted connections. These roof trusses bear on interior and exterior mass brick masonry walls. The floor slabs consist of concrete pan joists. Three types of forms were used for the pan joist systems: stay in place steel forms, removable forms, and gypsum forms. The roof structure in the gymnasium consists of a pan joist slab that spans in the north-south direction between plaster-clad girders that span east and west.

In general, the building is in serviceable condition with the majority of observed distress resulting from water infiltration due to the damaged and deteriorated roof assemblies (commonly at the eaves and valleys). Within steep-sloped roof areas, flashing elements and downspouts have been removed, and the asphalt shingles are significantly deteriorated. Several drain systems for the low-slope roof are failed. The majority of observed masonry deterioration is attributed to water infiltration, as well as subsequent corrosion of the embedded steel support elements. The structure is in serviceable condition with the majority of distress concentrated within the roof deck, but it is at considerable risk of more substantial deterioration in the near future due to the deteriorated roofing conditions. A majority of the building interior finishes are already compromised. Addressing the roofing elements is essential to mitigate additional distress to the building. Beyond the roof-related deterioration, the window assemblies exhibit significant distress due to damage from vandalism and deterioration from prolonged exposure to the elements with deferred maintenance. It may be more economical to replace the deteriorated wood-framed windows, though the majority of the leaded glass and steel-framed windows may be restored in-place if desired. Further detail of the observed distress is provided below.

Facade

The masonry walls are in serviceable condition. Corrosion of the steel lintels was observed, with some areas containing masonry distress and lintel displacement due to the development of pack rust. At the north conservatory, cracked limestone and bowing brick veneer above the window level are present, and some brick units are missing. Mortar deterioration and water staining is present at several locations where downspouts are missing or gutters are actively leaking. Common brick is exposed at the base of the roof dormers due to the missing flashing elements, and the exposed units are exhibiting spalling and mortar deterioration. The top four feet of the masonry chimney has been previously rebuilt, as indicated by differences in the brick color, and vertical cracks extend downward from the base of the rebuilt area. Rehabilitation of the building should include repair of the distressed masonry and steel support elements to mitigate further distress within the wall assemblies.

The wood dormers are significantly deteriorated. The flashings have been removed at the roof level and the ornate exterior panels are missing from the west and north dormers, exposing the wood plank sheathing below. The exposed sheathing and framing elements, where visible through the sheathing, are decayed. Rehabilitation of the dormers should be considered in conjunction with the roofing repair and replacement work to mitigate additional points of water infiltration and preserve these aesthetic elements.

The wood-framed windows are generally intact but contain visible distress and damage. Several wood frames and sash elements are missing, damaged, or displaced, and a majority of exterior sill surfaces exhibit minor decay. Glass units are cracked or missing and paint and sealant materials are failed. Though it is possible that these wood-framed windows may be restored, it is likely more economical to replace these units based on the extent of distress and our experience with similar rehabilitation work. A few leaded glass and steel-framed windows are also missing. Where present, these windows are in serviceable condition with minor distress including localized, cracked, and missing glass, and paint and sealant failure. These window types may be restored in-place where present. The exterior steel doors are typically corroded near the base, dented, or missing, and should be replaced in-kind.

Roofing

Deterioration and damage within roofing assemblies is leading to significant deterioration of the wall assemblies, structural system, and building interior finishes.

Within steep-sloped roof areas, copper flashing elements and downspouts are missing, which has been attributed to vandalism. This includes flashing elements over two projected bays. The asphalt shingles are significantly deteriorated, and areas of the asphalt shingles are missing; these roof areas are recommended for replacement. Temporary measures are recommended in the near term to stabilize the observed deterioration and mitigate additional distress to the wood-framed structural system. The clay tile singles are in serviceable condition beyond the missing flashing and drainage elements, though isolated shingles are displaced or are missing and require repair.

Missing drain conductors within the low-slope roofing assembly are permitting bulk water infiltration into the building interior. Some areas of the low-slope roofing have blown off and flashing elements are missing at transitions to the steep slope roof. However, based on a lack of water intrusion below the field of the low-slope roofing, the roof itself appears to be performing well and requires only maintenance related repairs to extend the service life of the existing roof assembly. Localized areas of roof deck replacement are anticipated in areas of sustained water infiltration, such as areas near roof drains, asphalt shingle roofing, and missing flashings.

The waterproofing assemblies at grade over the vaulted mechanical spaces are significantly deteriorated, including displaced and missing flashings, vegetative growth, ponded water, and crushing of tapered insulation materials underfoot. A portion of the vaulted space has been covered with asphalt pavement. The waterproofing assemblies are recommended for removal and replacement. The basement was flooded and could not be accessed, though based on the distress observed within the waterproofing materials and our experience with similar structures, repairs to the elevated concrete slab are anticipated.

Structure

The most significant structural distress is extensive decay of the wood decking at the roof. The wood decking is commonly decayed at the steep slope portions of the roof. The decking on the low slope portions is in better condition and has more limited areas of decay. The decay on the low sloped areas is typically associated with roofing penetrations and the transition to the steep slope roof. It would be prudent to replace the decayed wood decking. We recommend a detailed survey to further delineate the areas that require replacement and the areas that could be salvaged. Based on our limited survey about half or more of the decking could be salvaged; the roofing replacement discussed above would need to be coordinated with the decking replacement.

The steel roof framing in the attic exhibits localized areas of surface corrosion. The corrosion is more prevalent at the channel purlins and at the trusses where they are set into the masonry. Repainting all of the steel is not necessary at this time, but rather it would be appropriate to do touch up painting at the areas of corrosion, particularity at the trusses.

Most of the concrete floor slabs are concealed by plaster finishes. Only limited distress or deterioration of the concrete structure was observed, and significant concrete repairs are not anticipated. Two haunches of concrete visible on the facade do warrant repair. We recommend that the exposed reinforcing steel and poorly consolidated concrete be repaired using the form and pour repair technique.

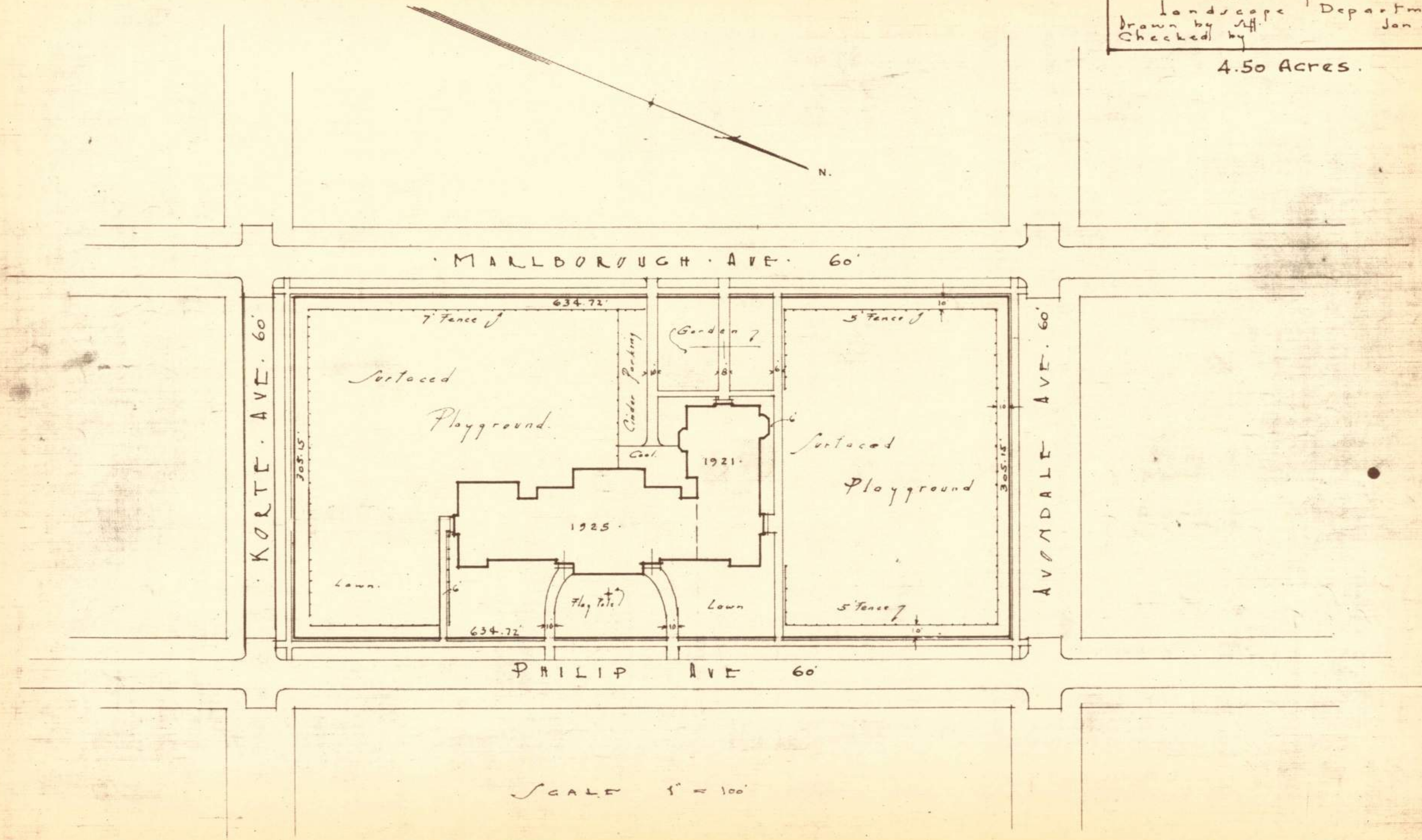
Miscellaneous

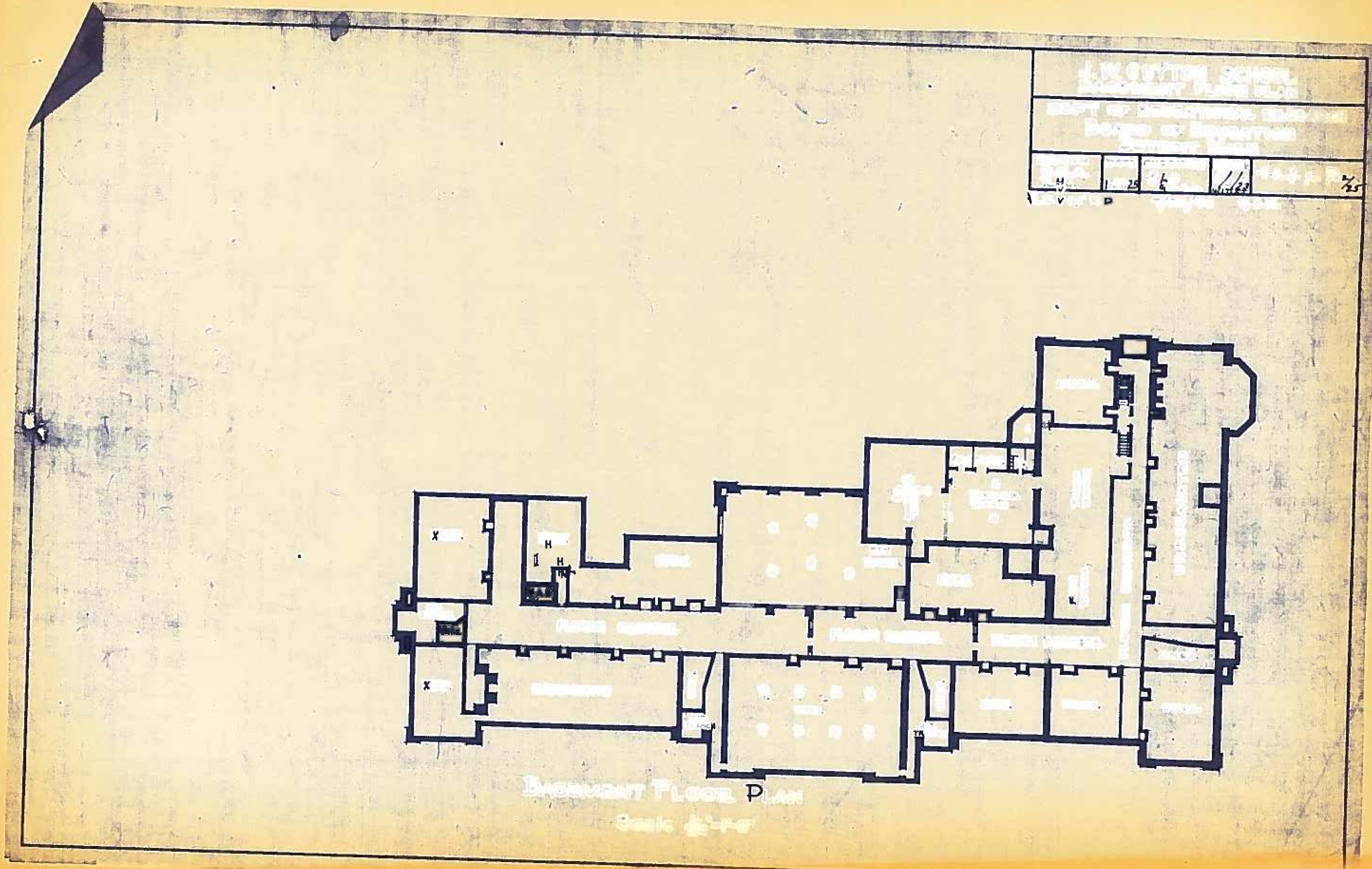
Water intrusion is causing extensive distress to interior finishes as well as gypsum forms in the pan joist flooring system and non-load bearing gypsum block infill walls. The gypsum-based materials expand from repeated wetting and drying and are susceptible to damage from water intrusion as compared to other more durable construction materials. Stopping the water intrusion is important to minimize additional damage to these elements and the interior finishes. The interior finishes are typically plaster on expanded wire lath at the ceilings, and direct applied plaster on the walls, and hard wood flooring is present in many of the classrooms.

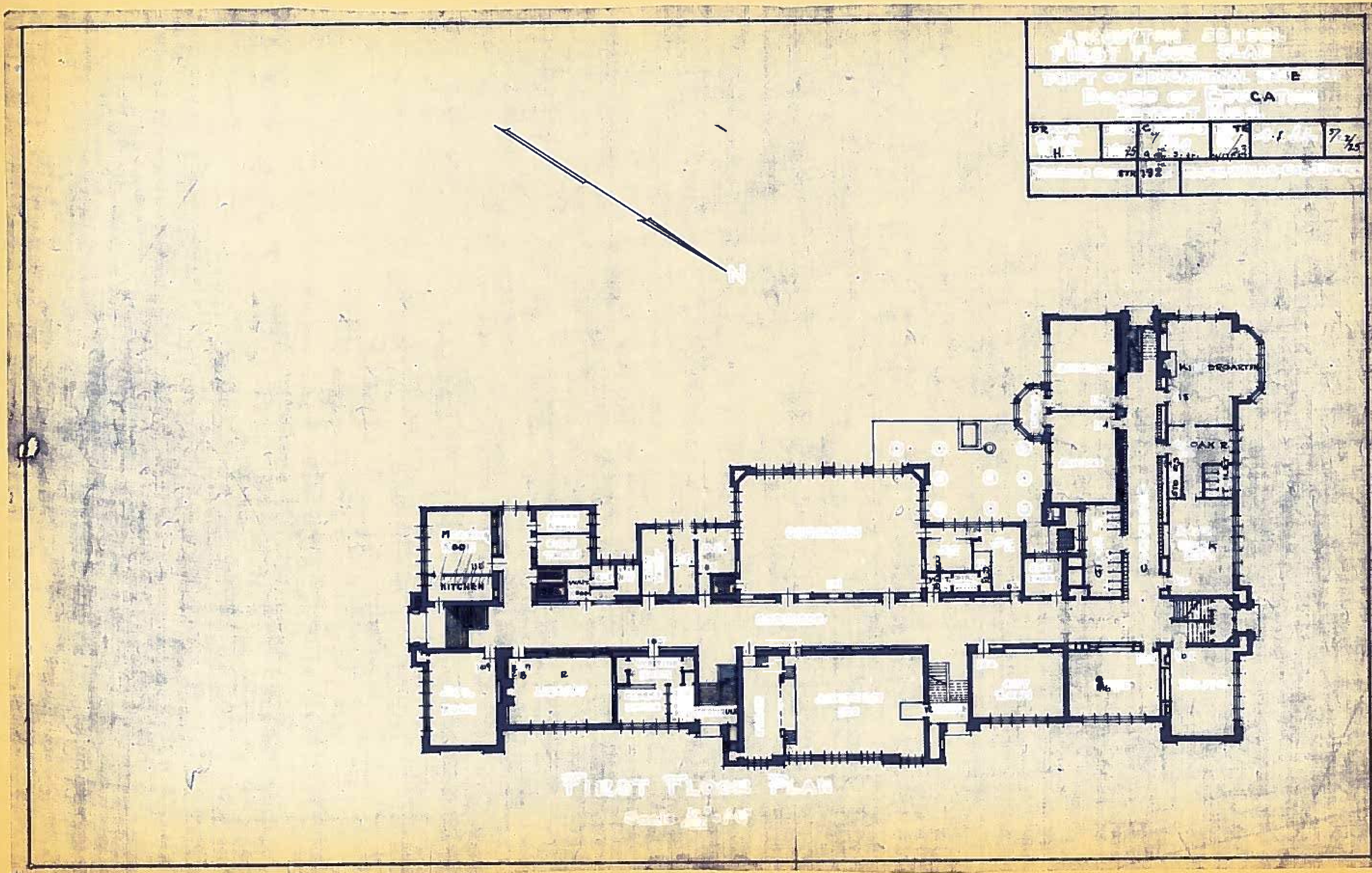
The pump room, fan rooms and boiler rooms were not accessible due to standing water in the basement. The adjacent plenum chambers were accessible and WJE did not identify any significant or notable deterioration.

DETAIL of SITE
GUYTON SCHOOL
BOARD of EDUCATION
CITY of DETROIT
Landscape Department
Drawn by S.H.
Checked by
Jan 16. 1925

4.50 Acres.




Basement Floor Plan



FIRST FLOOR PLAN
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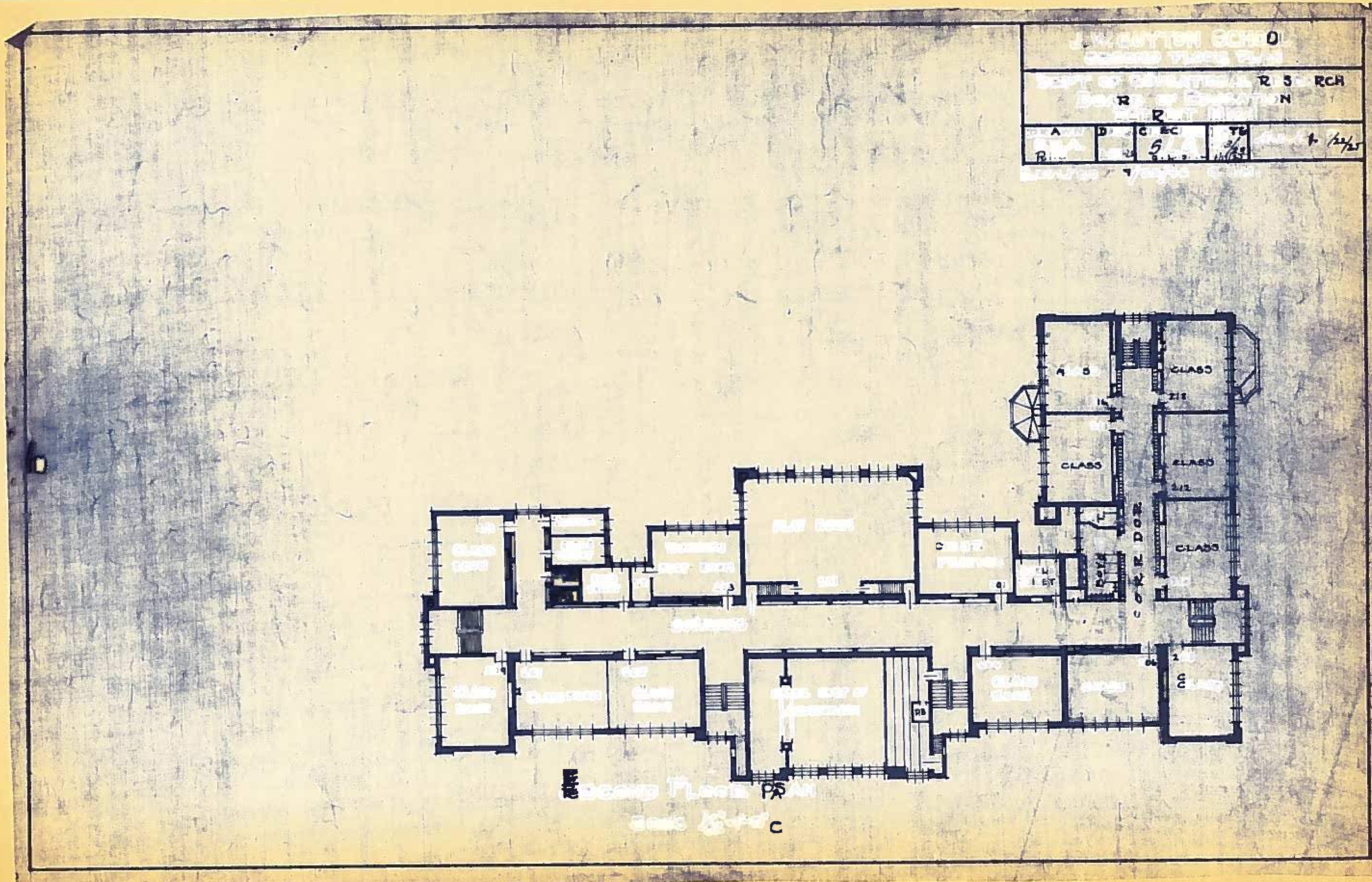
KITCHEN
OAK R
FIRST FLOOR PLAN


J. W. GUYTON SCHOOL
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CORRIDOR

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248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Hutchinson Elementary School

Basic Property Information: COD 4-Hutchinson-5220 French

Short Name:	Hutchinson
Address:	5220 French Road, Detroit, Michigan 48213
Year Built:	1916
Additions Built:	1922
Outbuildings:	None
Year Vacated:	2011
Building Footprint:	204 feet x 636 feet
Square Footage:	56,711 sq. ft.
Number of Stories:	2
Building Height:	37 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Wood
City Council District:	4	**Exterior Wall System:**	▪ Brick Masonry ▪ Terra Cotta ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood ▪ Aluminum replacement
		Roofing System(s):	▪ Built-Up Roof (coal tar) ▪ Gravel Surfaced ▪ Internal Roof Drains ▪ Asphalt Shingle ▪ Gutters

Assessment Summary

Assessment Date:	May 26, 2020
WJE Inspector(s):	Sarah Rush; Andrew Lobbestael
Report Date:	November 11, 2020
Building Risk Index:	**48.66**

Cost Estimate

Base Rehabilitation Cost Estimate:	$878,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,536,880
Sub-Total	$6,315,380
Contingency (25%):	$1,578,845
Sub-Total	$7,894,225
Overhead and Profit (15-18%):	$1,184,133
Sub-Total	$9,078,358
Escalation (6% for 2 years)	$544,701
Sub-Total	$9,623,060
Architectural and Engineering Design Services (20%):	$1,924,612
TOTAL COST ESTIMATE:	$11,547,672

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof level, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level was partially flooded; flooded areas were not accessed. The interior finishes are deteriorated in some areas exposing the structural framing systems. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
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BUILDING OVERVIEW

Overall

The main building is rectangular shaped in plan and is two stories in height with a basement level. The original school building was constructed in 1916 with an addition constructed to the south in 1922. A powerhouse structure and a chimney are connected to the east of the original building, though they were constructed during the 1922 addition.

The facades generally consist of a clay brick masonry, limestone masonry, and terra cotta. The brick masonry units are typically oriented in a running bond with a header course every seven courses vertically, while brick masonry units at pilasters are oriented in a stack bond. Limestone units are located at the window sills and copings; ashlar limestone accent units are also present near the tops of the walls and some of window corners. Terra cotta is present above the main building entrances, the upper horizontal bands and water table, and at ornate accent units located at the parapets and the tops of the pilasters. Steel-framed doors are set within the building entrances. The windows are primarily composed of aluminum replacement windows set into the original wood frames, which are covered with aluminum caps on the exterior surface.

The low-slope roof assembly consists of a gravel surfaced, built-up roofing (BUR) system with granulated cap sheet base flashing and internal drains. The BUR appears to consist of coal tar bitumen. The sloped conservatory roofing consists of asphalt shingles. The conservatory and some of the lower roofs above the entrances are drained with perimeter gutters.

The framing of the original building roof consists of wood joists and rafters supported by load bearing mass masonry walls. The structure for the addition consists of the reinforced concrete joist slabs, supported by concrete-encased steel columns.

In general, the building is in good condition. Repair of some decayed wood members below a missing access hatch and further investigation of the concrete structural framing below the fuel room are recommended. Maintenance repairs are recommended within the roofs. Localized masonry distress was observed throughout the facade; the majority of the observed masonry distress is attributed to prolonged moisture penetration through the masonry walls and failed previous repairs. The aluminum replacement windows are largely missing and require replacement.

Facade

Cracking and displacement of the brick masonry was observed at window heads due to corrosion of the embedded steel lintels caused by prolonged water infiltration. Severe corrosion and deflection of the steel lintels was also noted in some locations. Previous brick masonry repairs, involving replacement of localized brick units and repointing, were performed at some of the corroded lintels. These previous repairs are largely in good, serviceable condition, though some repairs near the base of the wall did not adequately address the steel lintel corrosion, causing continued distress to the masonry and steel support elements. Spalling of the brick masonry at the south facade alcove was observed due to corrosion of the embedded steel framing. Localized areas of eroded and debonded mortar was observed throughout the facade. Rebuilding localized regions of distressed brick masonry, window lintel repairs, and grinding and repointing mortar joints is recommended. Repair of the window lintels should include removal and replacement of brick masonry to expose the steel, cleaning and painting of embedded steel lintels or replacement if steel exhibits severe deflection and/or section loss, and installation of through-wall flashing.

Cracking and spalling were noted at some of the terra cotta units above the main building entrances and within the upper horizontal band and water table. Unilateral cracks in terra cotta units should be repaired by routing and sealing the cracks and installing supplemental lateral anchors as needed. Small surface chips and spalls may be repaired in-place. If cracking is multi-dimensional, or if the unit is significantly spalled, the terra cotta units may require replacement. Terra cotta typically requires a long fabrication lead time (9 months minimum); therefore, this should be considered as part of a rehabilitation schedule. Alternate materials may also be considered to replicate the terra cotta, including fiber reinforced polymer (FRP), glass fiber reinforced concrete (GFRC), or cast stone/precast concrete to restore the original aesthetic. Repair or replacement of the distressed terra cotta elements, as well as grinding and repointing of deteriorated mortar joints to mitigate further distress is recommended.

The limestone coping units were missing in localized areas, and isolated units were cracked and spalled. The mortar in the coping unit head joints was typically eroded. Replacement of the missing coping units, repair or replacement of the distressed units, and repointing and installing sealant between all coping unit head joints is recommended.

The exterior wood canopy above the east entrance has localized areas of decay of the soffit elements caused by moisture infiltration through the roofing above. The paint on the underside of the canopy was typically flaked and blistered, but the supporting wood brackets were sound when probed. Repairs at the canopy, involving removal and replacement of the decayed wood elements and cleaning and coating of the exposed wood surfaces in conjunction with replacement of the roofing above, are recommended.

Masonry distress was observed near the top of the chimney, including cracking and displacement. Some of the limestone band units are cracked and spalled. Rehabilitation of the brick masonry chimney should include rebuilding the displaced areas of the brick masonry with appropriate lateral reinforcement, replacement or repair of the cracked and spalled limestone units, pointing of deteriorated mortar with crack stich repairs across vertical cracks as needed. Rehabilitation should also include removal and resetting or replacement of the copings with new through-wall flashing.

The majority of the aluminum replacement windows are missing, except in some isolated classrooms and some stairwells where the windows remain intact and in serviceable condition. The remaining original wood window frames and mullions are generally in serviceable condition, though localized regions of decay were observed in some regions, particularly near the sills. Installation of new aluminum replacement windows within the original wood frames, with localized rehabilitation of the decayed areas as necessary, is recommended. The conventional steel-framed doors contain minor corrosion and are welded shut and should be repaired or replaced.

Roofing

The low slope roofs are generally in good, serviceable condition. The counter flashing is missing within the south 1922 addition, potentially removed by vandals, and an isolated area of base flashing was pulled away from the south wall. Evidence of limited water infiltration was observed from the interior in isolated locations, including near the north roof hatch. Isolated shingle tabs are missing within the south conservatory roof. Rehabilitation of the building should include maintenance repairs of the existing roofing assemblies including installation of new counterflashing to cover the existing base flashings within the south 1922 addition, replacement of base flashings where they are peeled away from the south wall, and replacement of isolated missing shingles at the conservatory.

An elevated concrete slab spans above the fuel room attached to the east facade. The slab is stepped up above grade level, and asphalt pavement is installed on top of the concrete slab, sandwiching the waterproofing between the concrete slab and asphalt pavement (i.e., a split slab assembly). The waterproofing system, where exposed, contains localized cracks and seam failures with vegetation growing along some of the failed seams. The interior surfaces of the elevated concrete slab could not be inspected due to flooding in the fuel room. Further investigation of the concrete slab is recommended to verify the extent of distress and determine appropriate repairs, though minor maintenance repairs to the exposed regions of the existing waterproofing should be anticipated in the near term.

Structure

Most of the structural framing was concealed by interior plaster finishes. The portion of the original building structure that was visible, including wood joists and wood roof decking, generally appeared to be in good condition; however, localized decay of the wood floor joists was observed below a missing roof access hatch. The portion of the building addition structure that was visible, including reinforced concrete joist slabs supported by concrete encased steel, also generally appeared to be in good condition. Significant structural repairs are not anticipated at this building. Replacement of the missing access hatch and decayed wood elements is recommended.

Efflorescence and moisture staining were observed on the interior of the original school building at the below-grade walls, attributable to water infiltration through cracks and joints through the failed exterior waterproofing. Repair or replacement of the exterior below-grade waterproofing and drainage systems is recommended. Alternatively, moisture-tolerant interior finishes may be used and the use of the space maybe modified to reflect the potential for periodic moisture exposure, depending on the future use of the building.

Miscellaneous

Two of the exterior concrete and limestone entrance steps and landings are cracked and spalled due to cyclic freeze-thaw deterioration caused by moisture penetration through cracks or joints. Given the vegetation growth, existing cracks, and presence of cracked previous repairs, repair and/or rebuilding of the stairs and landing is recommended with likely improvements in accessibility.

WJE was not able to access portions of the basement due to standing water. This included the Boiler Room, the Fuel Room, and the plenum chambers. WJE recommends dewatering these spaces and a follow-up condition assessment of these areas.

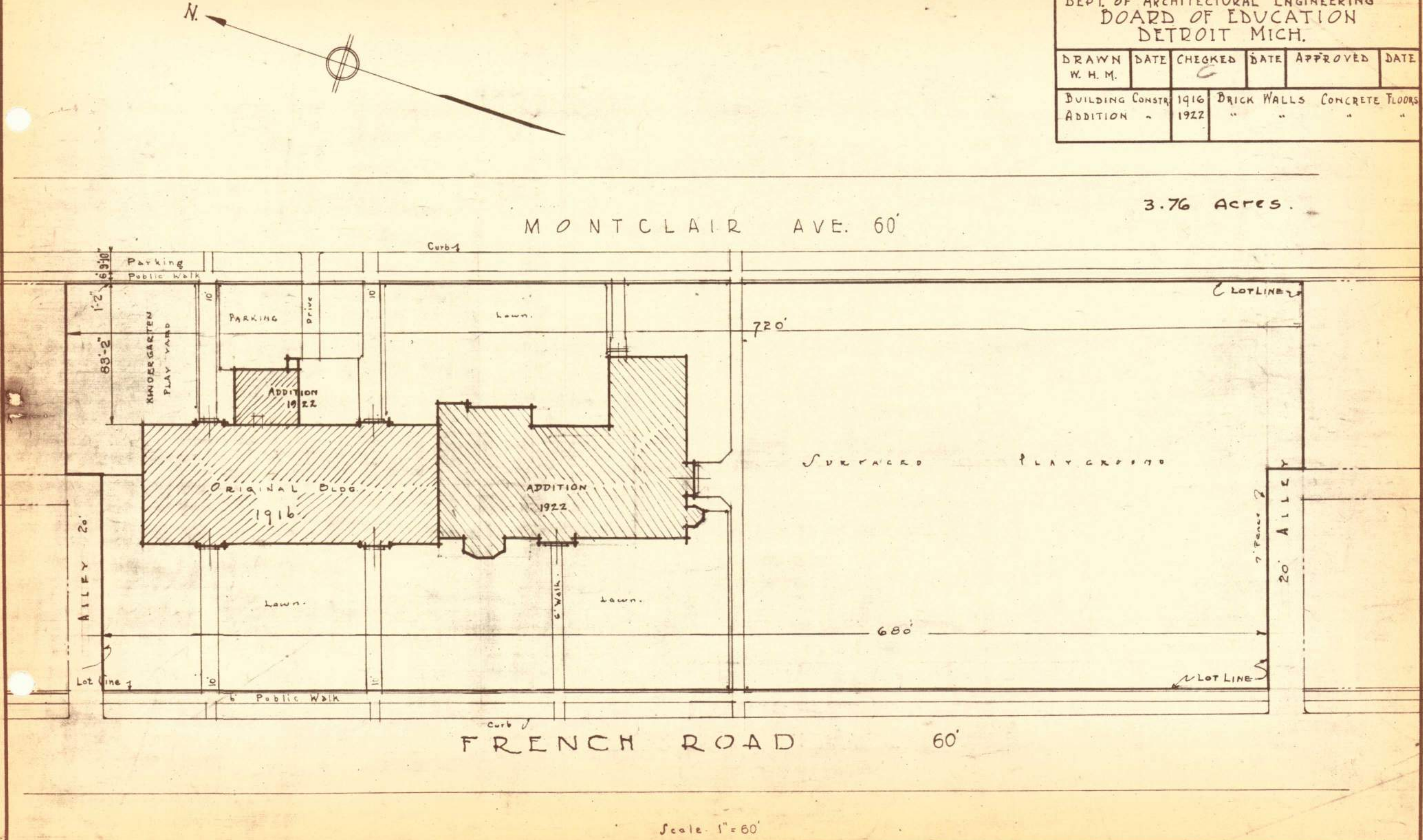
The interior finishes of the walls and ceilings were typically plaster, with vinyl composite tile and hard wood flooring. The plaster was typically intact with peeling paint. A large section of the plaster (about 400 square feet) is collapsed in Room 312. There were no obvious signs of water intrusion or other deterioration to suggest that the collapse is related to moisture. It would be appropriate to evaluate the integrity of any existing finishes to remain prior to the building re-entering service.

HUTCHINSON SCHOOL
DETAIL OF SITE

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
W. H. M.		G			

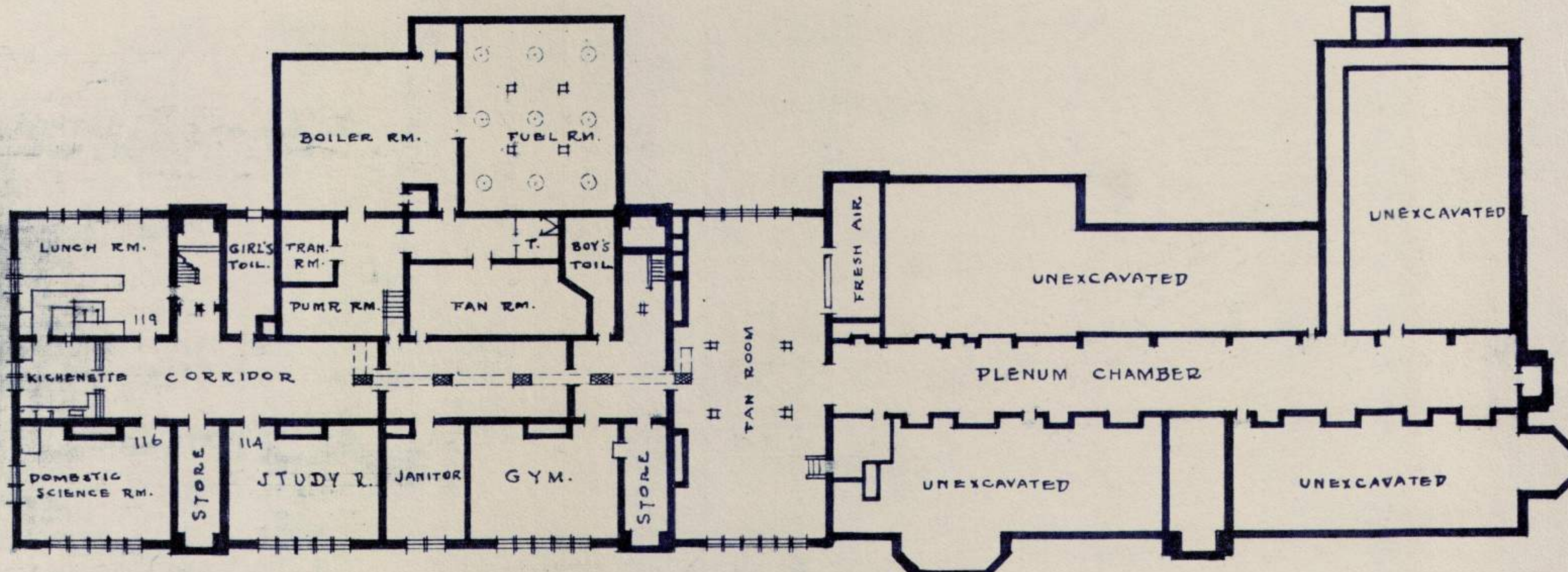
BUILDING CONSTR.	1916	BRICK WALLS	CONCRETE FLOORS
ADDITION "	1922	" "	" "



HUTCHINSON SCHOOL
BASEMENT PLAN
Scale 1/32" = 1'-0"

DEP'T OF BUILDING RESEARCH
BOARD OF EDUCATION
DETROIT MICH

DRAWN	DATE	CHECKED	DATE
W.H.M. C.N.A.	3-19-23	S.L.O.	3-23-23



BASEMENT PLAN

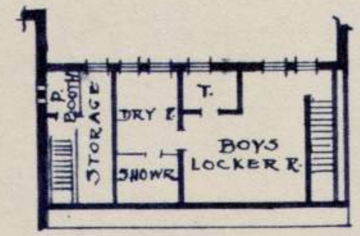
Scale 1/32" = 1'-0"

HUTCHINSON SCHOOL
FIRST FLOOR PLAN

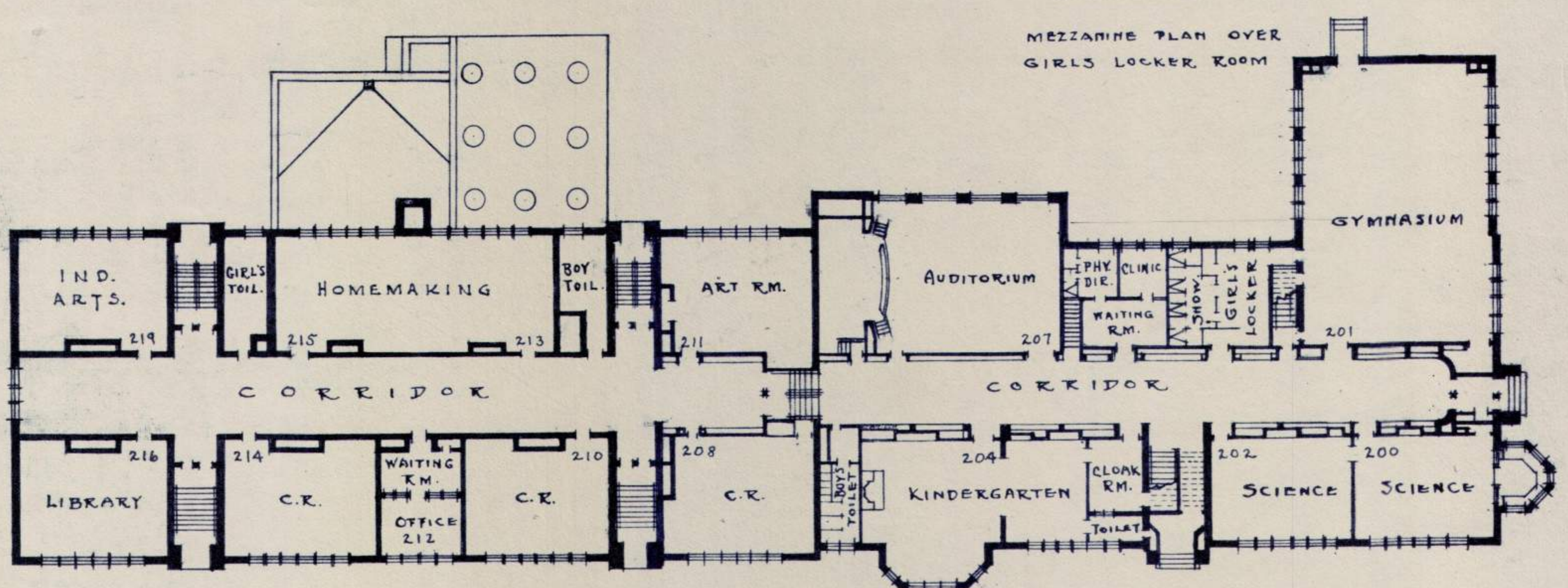
DEPT OF BUILDING RESEARCH
BOARD OF EDUCATION
DETROIT MICH

DRAWN	DATE	CHECKED	DATE
W.H.M. C.N.A	3-18-23	SLO.	3-23-23

BLDG. CONSTR.	1916	BRICK WALLS	CON. FLOORS
ADD. "	1922	" "	"



MEZZANINE PLAN OVER
GIRLS LOCKER ROOM



5.375
32
10750
16125
181000

FIRST FLOOR PLAN

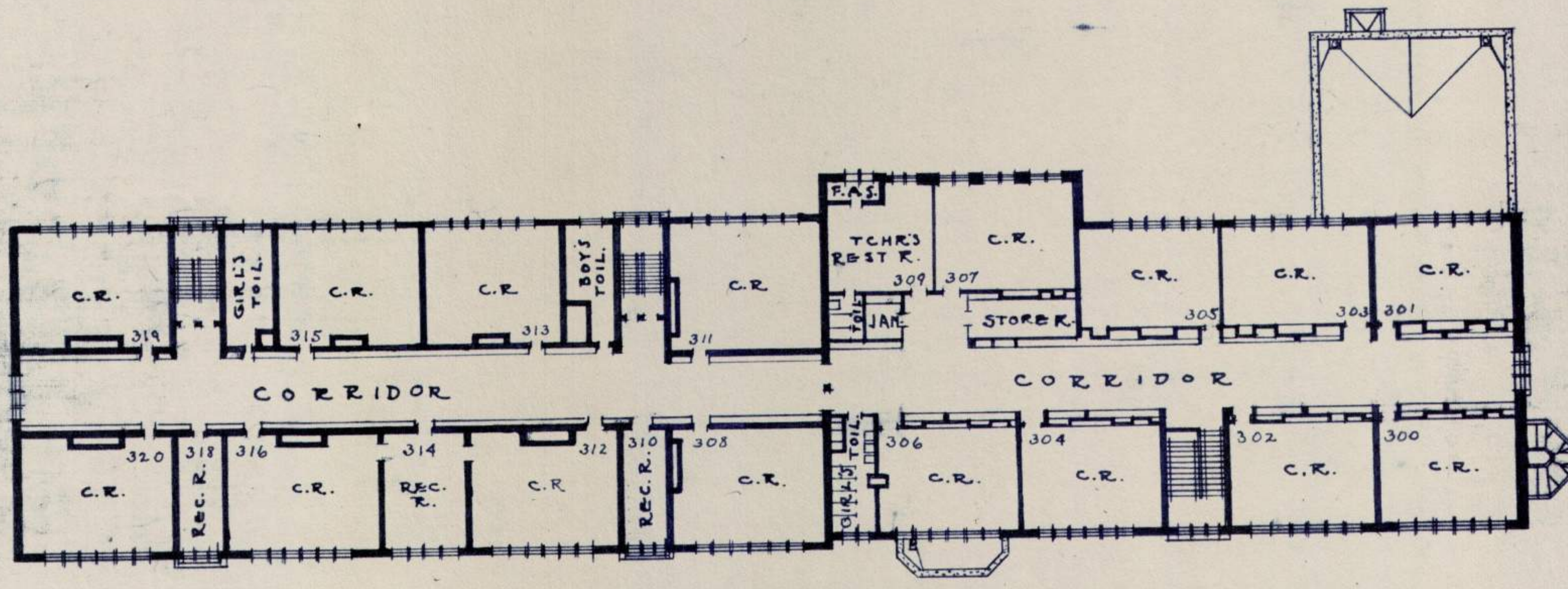
Scale 1/32" = 1'-0"

2.25
32
450
675
7200

HUTCHINSON SCHOOL
SECOND FLOOR PLAN
scale 1/32" = 1'-0"

DEPT of BUILDING RESEARCH
BOARD of EDUCATION
DETROIT MICH

DRAWN	DATE	CHECKED	DATE
W.H.M. C.N.A.	3-18-23	S.L.O.	3-23-23



SECOND FLOOR PLAN

scale 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Macomb Elementary School

Basic Property Information: COD 4-Macomb-12051 Evanston

Short Name:	Macomb
Address:	12051 Evanston Street, Detroit, Michigan 48213
Year Built:	1928
Additions Built:	None
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	140 feet x 150 feet
Square Footage:	26,243 sq. ft.
Number of Stories:	2
Building Height:	28 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ CMU
City Council District:	4	**Exterior Wall System:**	▪ Brick Masonry ▪ Cast Stone ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood ▪ Aluminum Replacement
		Roofing System(s):	▪ Built-up Roof ▪ Asphalt Shingles ▪ Gutters ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	May 21, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 28, 2020
Building Risk Index:	**47.72**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$501,050
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,099,440
Sub-Total	$3,500,490
Contingency (25%)	$875,122
Sub-Total	$4,375,612
Overhead and Profit (15-18%):	$787,610
Sub-Total	$5,163,222
Escalation (6% for 2 years)	$309,793
Sub-Total	$5,473,016
Architectural and Engineering Design Services (20%):	$1,094,603
TOTAL COST ESTIMATE:	$6,567,619

ASSESSMENT METHODS

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BUILDING OVERVIEW

Overall

The two-story building was constructed in 1928. In plan, the classrooms are primarily of a rectangular footprint with the gymnasium space extending to the west at the south end of the building, creating a backward "L" shaped total footprint.

The building facade generally consists of clay brick masonry with concrete masonry unit (CMU) backup. The brick masonry is typically laid in Flemish bond. The clay brick masonry is accented with cast stone and limestone masonry sills, horizontal bands, door surrounds, and at the two crenellated towers located along the east facade. The coping is made up of terra cotta units. The side entrances, along the north and south facades, are delineated with two-story projections with gabled roofs. Along the west facade, there are two single story rooms extending outward from the main footprint of the building. The windows consisted of original wood framing with aluminum covers and aluminum replacement windows installed within the original openings. Most aluminum window components are currently missing. The roof consists of a gravel surfaced, bituminous built-up roof (BUR) with granulated cap sheet base flashing, internal drains, and hanging gutters. A small rooftop tower is present on the southeast end of the roof area, which is wood framed with asphalt shingle roofing.

The interior surfaces primarily consist of exposed, painted structural elements. The structural frame is a concrete, or steel encased in concrete, beam-and-column system with flat concrete slabs spanning between the beams. The columns are presumed to be located in the exterior walls and are located in the corridor walls at regular intervals between classroom doors and locker blocks. It is unknown if the concrete masonry unit (CMU) walls are serving as the primary lateral load resistance system of the structure, or if they are mainly infill to partition the rooms and corridors. The basement level was flooded and inaccessible.

Overall, the building is in relatively good condition. Localized distress of the masonry facade was observed and requires minor maintenance repairs. The windows and doors require replacement, and the roof requires maintenance repairs. The undersides of the second floor and roof concrete slabs are frequently cracked, but the majority of the cracks are in expected locations relating to detailing of concrete structures at the time of building construction. Cracking is also present in the CMU walls, and similar to the concrete cracks, is occurring in expected locations related to the original construction detailing and the unconditioned state of the building.

Facade

The masonry facade is largely in good, serviceable condition with minor maintenance-type repairs required. Vertical cracks are present at some of the building corners, and one area of the veneer is displaced on the north wing. Localized brick units should be replaced and the displaced area should be rebuilt. Corroded steel lintels are present in isolated locations. Masonry distress was not observed at these locations but spalling, cracking, and/or bulging of the brick masonry may occur if left unaddressed. Rehabilitation of the building should include localized removal and replacement of brick at the lintels to access the concealed portions of the corroded lintels for further assessment and re-coating, as appropriate. Cracked, spalled, and missing clay tile coping units are present in isolated locations, and the mortar at these coping units is typically eroded or separated. Repair or replacement of the distressed coping units, as well as repointing and installation of sealant at the coping joints is recommended. Mortar between the stone units is also typically deteriorated and should be repointed. Spalled brick masonry was observed near the base of the wall on the projected bay on the west elevation. Waterproofing was previously applied to these surfaces, accelerating the progression of the distress by encapsulating water behind the waterproofing layer, which subsequently caused further damage to the brick in freezing and thawing cycles. Repairs should include removal of the coating, replacement of the localized spalled brick units and repointing deteriorated mortar; or rebuilding the outer wythe of masonry in this region.

Decorative cast stone elements are missing or cracked at the corners of the crenellated towers which face the roof. The adjacent clay brick masonry is also distressed including cracked, spalled, and missing units. The observed distress is attributed to vandal activities and is not visible from the ground. The four cast stone units may be replaced in kind, or infilled with brick masonry in conjunction with repairs to the surrounding brick. Five stone sills are missing or displaced above the projected bay on the west facade. This distress is also attributed to vandalism, and the units should be replaced or reset as needed.

On the west facade of the west wing, wall mounted anchor plates are present along the roof level. Masonry distress was not observed in this region, though surface corrosion is present on the plates. The anchors are securing an interior steel angle ledger which is supporting the perforated metal ceiling of the gymnasium space. Surface corrosion on the steel plates should be cleaned and the plates should be painted to mitigate further corrosion.

The chimney is in serviceable condition. Cracked and spalled brick were observed in isolated locations, especially near the top of the chimney attributed to water infiltration in cyclic freeze-thaw deterioration. Bond separation and erosion of the mortar was also observed near the top of the chimney and at the limestone joints, with minor displacement observed at the limestone cap. Repairs should include resetting the displaced coping units with a new cap flashing, replacement of localized distressed brick units, and repointing distressed mortar.

The windows are generally missing. Where the original wood frames are exposed, the paint is peeled and the frames are typically decayed. Corrosion was observed on the surface of the exterior metal doors. Replacement of the window and door assemblies is recommended.

Roofing

The roofing assembly is generally in serviceable condition. Indications of localized water infiltration were visible on the building interior that appeared to be related to the missing drain strainers and failed drain conductors. Seam failures were observed in isolated regions. Displaced and missing metal flashings were present on the lower gabled roofs above the entrances. However, based on a lack of water intrusion below the field of the low-slope roofing, the roof itself appears to be performing well. Rehabilitation of the building should include maintenance repairs of the existing roofing assemblies in conjunction with more substantial repairs at the drains, rooftop towers, and flashing elements.

Structure

Overall, minimal distress was observed with the concrete, or steel encased concrete, beam and column frame system. A small crack was observed at a spandrel beam in Classroom 291 above the window, and a roof beam was observed to be heavily water stained in an isolated location. The flat slab roof and second floor structures are cracked throughout, but the cracking is primarily related to shrinkage of the concrete slabs as they cured shortly after initial construction. Water is migrating through many of the cracks causing localized failure of the paint finishes and potential localized initiation of corrosion to steel reinforcement within the concrete. The water infiltration is recommended to be addressed, the cracks further assessed, and only injected or repaired if necessary.

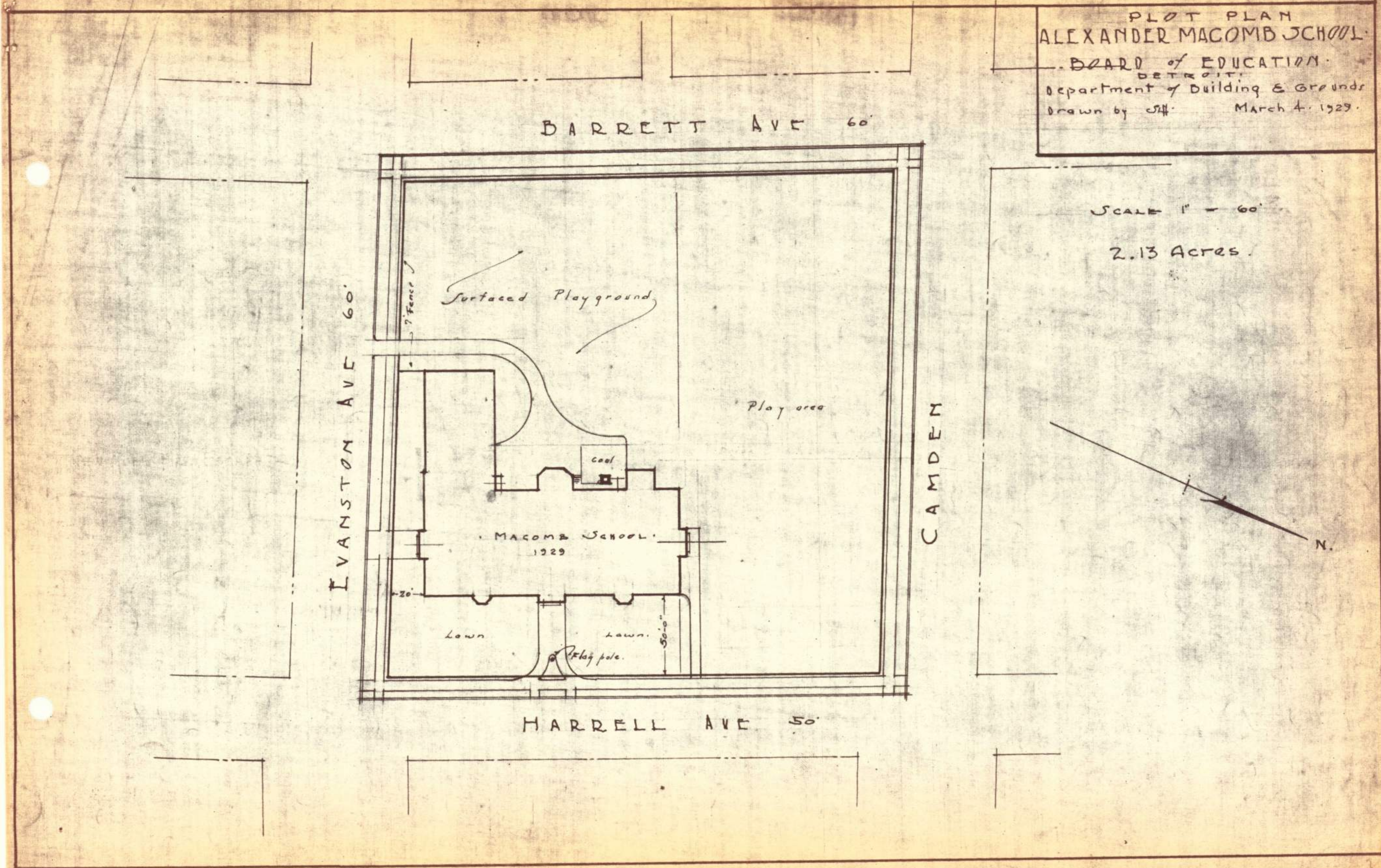
The CMU walls partitioning the various interior spaces may be part of the lateral force resisting system of the structure, or they may be infill between the concrete frame members. Regardless, the CMU is cracked frequently below beam bearing locations, in corners, at mid-length of the walls, and above windows. Repairs had been attempted at some of the crack locations. The cracking may be related to thermal or volumetric changes in the wall materials or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Unique cracking patterns were observed in the CMU walls in Playroom 105 at the southeast corner of the building. An approximate 1/8 inch wide horizontal crack was observed in the masonry pier between the windows in this room at the bottom corners of the windows. No displacement or other distress was observed but may be masked by the stud partition wall that frames into the CMU at this location. On the north wall of this same room, the CMU is cracked vertically at mid-length of the wall, but at mid-height, the crack becomes horizontal in nature. Further evaluation of the cracking in the CMU is recommended to determine appropriate repairs to mitigate re-cracking of the CMU. The cracks can be repointed and monitored for additional movement or re-cracking.

Localized areas of wood roof decking were observed to be deteriorating and require replacement. As stated above, the basement level was flooded at the time of the assessment preventing access to this level. The basement should be dewatered allowing for assessment of the basement level.

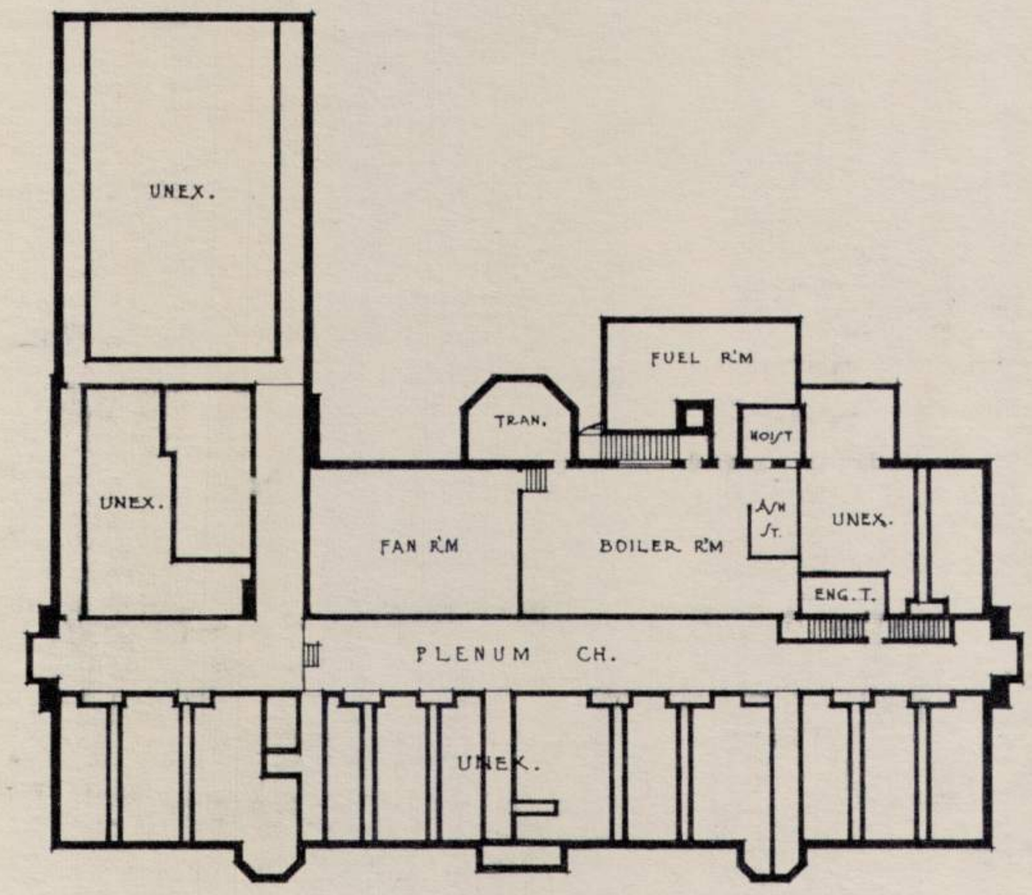
Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.


PLOT PLAN
ALEXANDER MACOMB SCHOOL
BOARD of EDUCATION
DETROIT
Department of Building & Grounds
Drawn by
March 4. 1929.
BARRETT AVE 60'
SCALE 1" – 60'
2.13 Acres.
Surfaced Playground
7' Fence
EVANSTON AVE 60'
Play area
CAMDEN
Coal
MACOMB SCHOOL
1929
20'
50'-0"
Lawn
Lawn
Flag pole
N.
HARRELL AVE 50'

MACOMB SCHOOL BASEMENT PLAN					
DEP'T OF BUILDINGS & GROUNDS BOARD of EDUCATION DETROIT ~ MICH.					
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	12-28-28	A. O. B.	1/10/29		

REVISED 9/19/46 G.H.M.

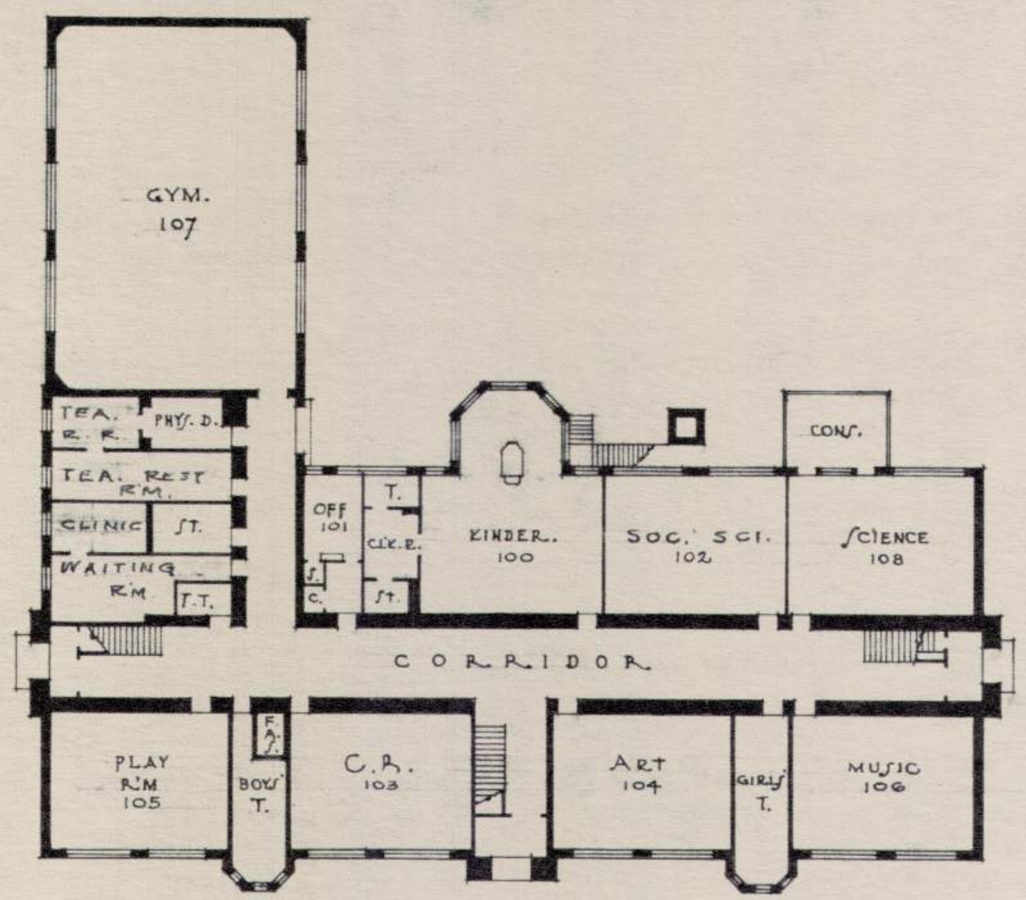


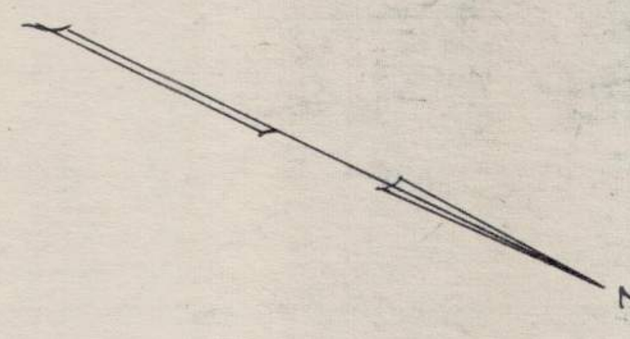
MACOMB SCHOOL
FIRST FLOOR PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT ~ MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	12-28-'28	F. L. B.	1/10/29		

REVISED 9/19/46 G. H. M.



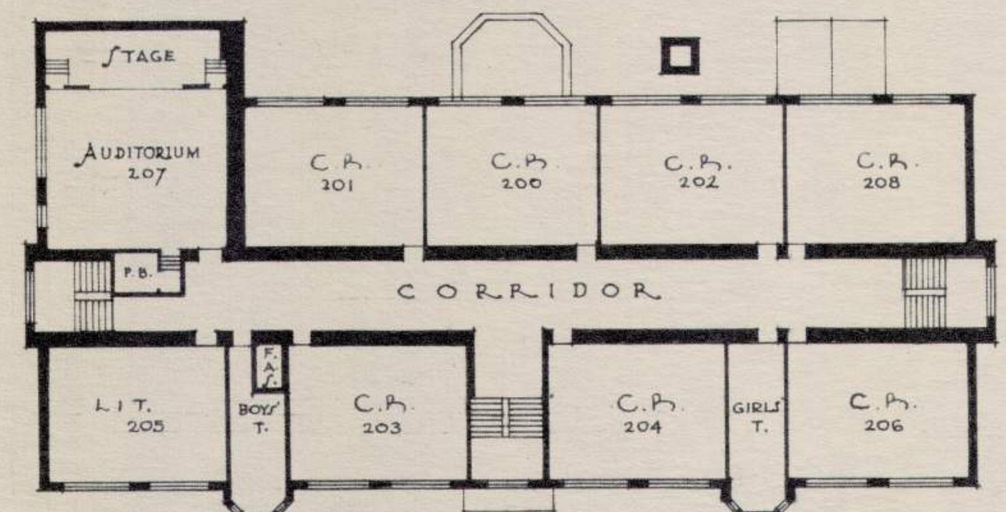


MACOMB SCHOOL
SECOND FLOOR PLAN

DEPT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	12-28-28	F.A.B.	1-10-29		

REVISED 9/19/46 G.H.M.



WJE

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Wilkins Elementary School

Basic Property Information: COD 4-Wilkins-12501 Hamburg

Short Name:	Wilkins
Address:	12501 Hamburg Street, Detroit, Michigan 48205
Year Built:	1924
Additions Built:	1926
Outbuildings:	None
Year Vacated:	2013
Building Footprint:	190 feet x 170 feet
Square Footage:	48,920 sq. ft.
Number of Stories:	2
Building Height:	32 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU Masonry ▪ Structural Steel ▪ Wood Decking
City Council District:	4	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Cast Stone
SNF District:	NA	**Window System(s):**	▪ Metal
		Roofing System(s):	▪ Built-Up Roof ▪ Gutters ▪ Internal Roof Drains ▪ Stone Ballast

Assessment Summary

Assessment Date:	June 02, 2020
WJE Inspector(s):	Cheryl Early; Justin Barden
Report Date:	November 11, 2020
Building Risk Index:	**56.43**

Cost Estimate

Base Rehabilitation Cost Estimate:	$2,341,950
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,913,600
Sub-Total	$7,155,550
Contingency (25%)	$1,788,887
Sub-Total	$8,944,437
Overhead and Profit (15-18%):	$1,341,665
Sub-Total	$10,286,103
Escalation (6% for 2 years)	$617,166
Sub-Total	$10,903,269
Architectural and Engineering Design Services (20%):	$2,180,653
TOTAL COST ESTIMATE:	$13,083,923

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof access was obtained through an existing interior roof hatch. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded near full height, and thus, was not accessed. The interior finishes are mainly intact, minimally exposing the structural framing systems. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior’s Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building is U-shaped in plan and was constructed in two phases, the first in 1925 and the second in 1926.

The building facade generally consists of clay brick masonry with concrete masonry unit (CMU) backup. The brick masonry is laid in running bond with header courses every seventh masonry course. Limestone accent units are present at entrance surrounds, window sills, and horizontal bands at the base of the facade and near the parapet. Cast stone coping units are present at the top of the parapet at the main and upper roof levels. Terra cotta coping units are present at the top of the parapet at the lower roof within the courtyard area. Conventional steel-framed doors are located within punched entrance openings in the masonry facade. The original window configuration was modified as part of a past building improvement project, which reduced the size of the original openings in the masonry facade. New steel-framed windows were installed and the remaining space between the new windows and original openings was infilled with brick masonry. The low-slope roof assembly consists of a gravel surfaced, bituminous built-up roofing (BUR) system with granulated cap sheet base flashing and internal roof drains.

The primary structural system consists of concrete beams and columns, or concrete encased steel beams and columns, at the interior corridor walls and load bearing masonry walls at the exterior of the building. The roof structure over the auditorium consists of wood decking spanning between steel purlins and built-up steel trusses. Above the second-floor corridor, near mechanical equipment roof penetrations, the plaster ceilings are deteriorated and partially missing, exposing the concrete tee joist-slab roof structural system. The second-floor structure consists of concrete tee joist-slab systems, as verified in mechanical hatches and isolated areas where the finishes are deteriorated.

In general, the building is in serviceable condition with many of the interior finishes intact. The windows require replacement. Water infiltration within the wall assemblies due to failed drains and debonded sealant at roof flashings resulted in significant masonry distress and corrosion of embedded steel support elements within the facade. Although water infiltration has been causing damage to the plaster finishes, little to no distress was observed in the primary structural system. Further detail of the observed distress is provided below.

Facade

The facade is generally in fair-to-poor condition. The original window configuration was modified as a part of a previous building improvement project. Smaller steel-framed windows were installed along with brick masonry to infill the original openings. The original steel lintels were not removed. Cracking, bulging, and displacement of the brick masonry was observed at many of the original window infill areas, which is primarily attributed to water infiltration and corrosion of the original steel lintels. Additionally, vertical cracking in the plaster finish was observed at the interior side of the walls, adjacent to window openings, especially along the northern most exterior wall at the second-floor level. The interior cracking is suspected to be related to the efforts to complete the previous building improvement project.

Isolated stone units exhibited spalling throughout the facade. Stone units in the horizontal band at the courtyard walls are displaced outward, due to corrosion of the underlying steel support elements, and could pose a potential falling hazard. Rehabilitation of the building should include repair of the distressed masonry elements to mitigate further distress. The repairs will be dependent on the decision to either keep the existing window configuration or to restore the original configuration.

The chimney attached to the south exterior wall is in poor condition. Bulging and cracking of the brick masonry was observed near the top of the chimney on all sides. Antennas appear to be secured to the masonry near the top interior surface of the chimney. The anchorage of these antennas may be corroding and attributing to the distress in the masonry. Rehabilitation of the brick masonry chimney and inspection/repair of the antenna anchorage should be performed to address the masonry distress at the chimney and mitigate potential falling hazards in the future.

The windows are missing throughout the facades and require replacement. Corrosion was observed on the surface of the existing steel frames, which may require full frame replacement of the window systems. Until a facade rehabilitation is undertaken, the existing plywood coverings over the window openings should be maintained to mitigate further water infiltration-related distress and deter vandalism. The exterior steel doors are typically corroded. Rehabilitation of the building should include replacement of the window and door assemblies.

Roofing

The roofing assembly is generally in fair condition, largely due to openings in the roof near abandoned or missing rooftop mechanical units, missing drain covers, and deferred maintenance. Cracking, seam failures, ponded water, and organic growth were observed on the roof surface. The metal flashing at vertical roof terminations is generally intact; however, some sections are missing and the sealant between the flashing and parapet is typically debonded, permitting water to enter behind the roofing assembly. Rehabilitation of the building should include maintenance repairs of the existing roofing assemblies, localized termination flashing repairs, and replacement of the drain and drain pipe systems.

Structure

Little to no distress was observed in the concrete structural members where exposed. The structure is minimally exposed due to the relatively good condition of the floor, wall, and ceiling finishes. Generally, the condition of finishes is indicative of the condition of the structural elements behind.

Minor cracking and scaling of the concrete roof tee joist-slab system is occurring at the roof penetrations for the mechanical systems. Full depth replacement of the slab sections between the tee joists is anticipated in these areas during future rehabilitation efforts.

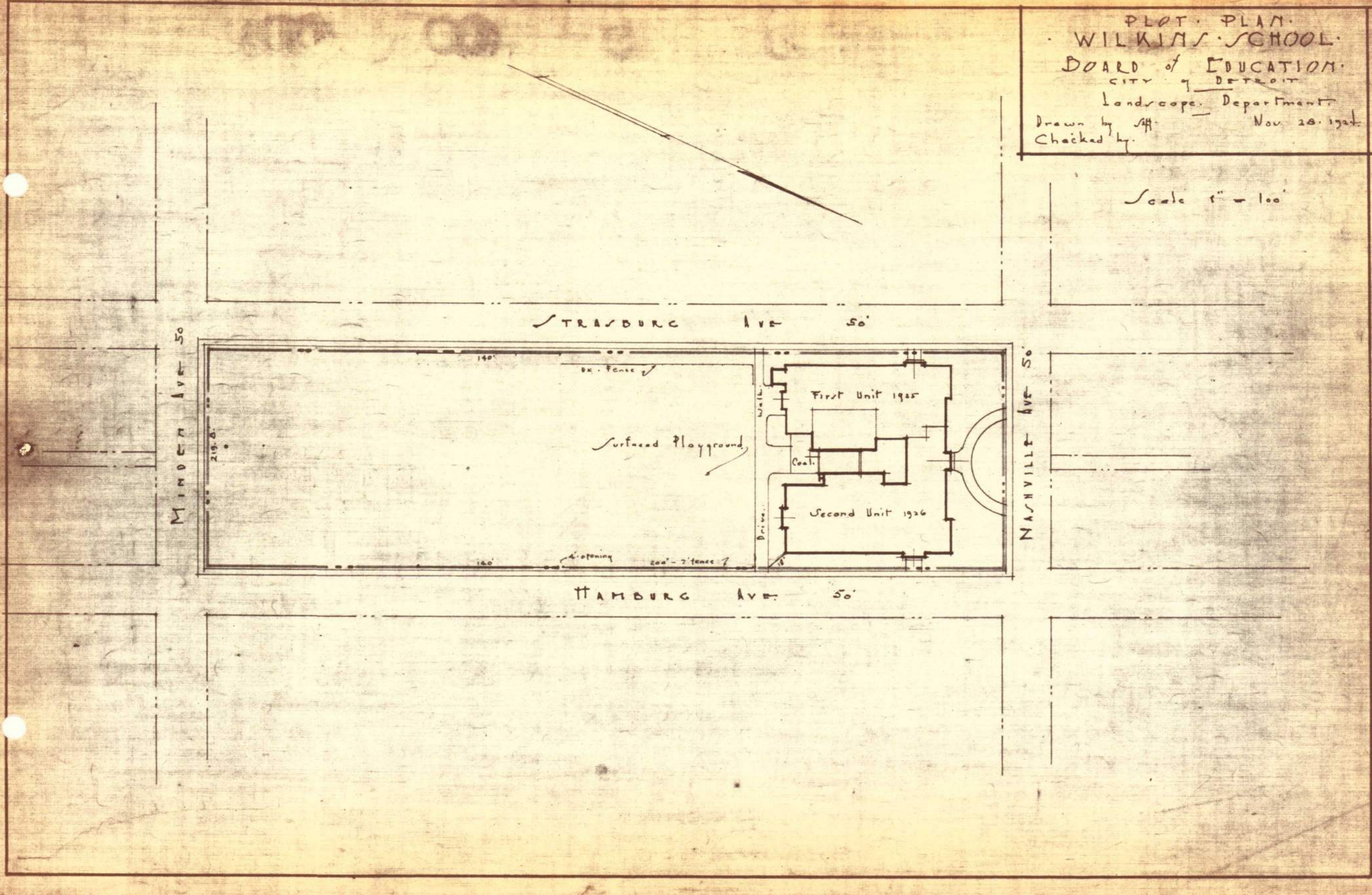
The wood roof deck over the auditorium is water stained and fungal growth is present. Coordinate replacement of approximately 25 percent of this roof deck with a re-roofing effort.

Cracks have occurred in the interior masonry walls in several locations. The cracking appears to be generally related to corrosion of embedded steel lintels within the walls. Other locations may be related to volumetric changes of the materials in the unconditioned building. The steel lintels are recommended to be exposed, cleaned, assessed and recoated prior to repointing the masonry joints and replacing cracked masonry units.

The basement was flooded for more than half the height of the basement. The ponded water was reflecting the first-floor concrete tee joist-slab system above the northeastern fan room. No distress was observed in the floor structure reflection. The basement should be dewatered allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

Miscellaneous

Many of the finishes of the classroom walls oriented perpendicular to the exterior wall and the stairwell walls are cracked vertically or diagonally along the length of the walls. Repairs had been attempted at some of the crack locations. The cracking may be related to thermal or volumetric changes in the wall materials or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

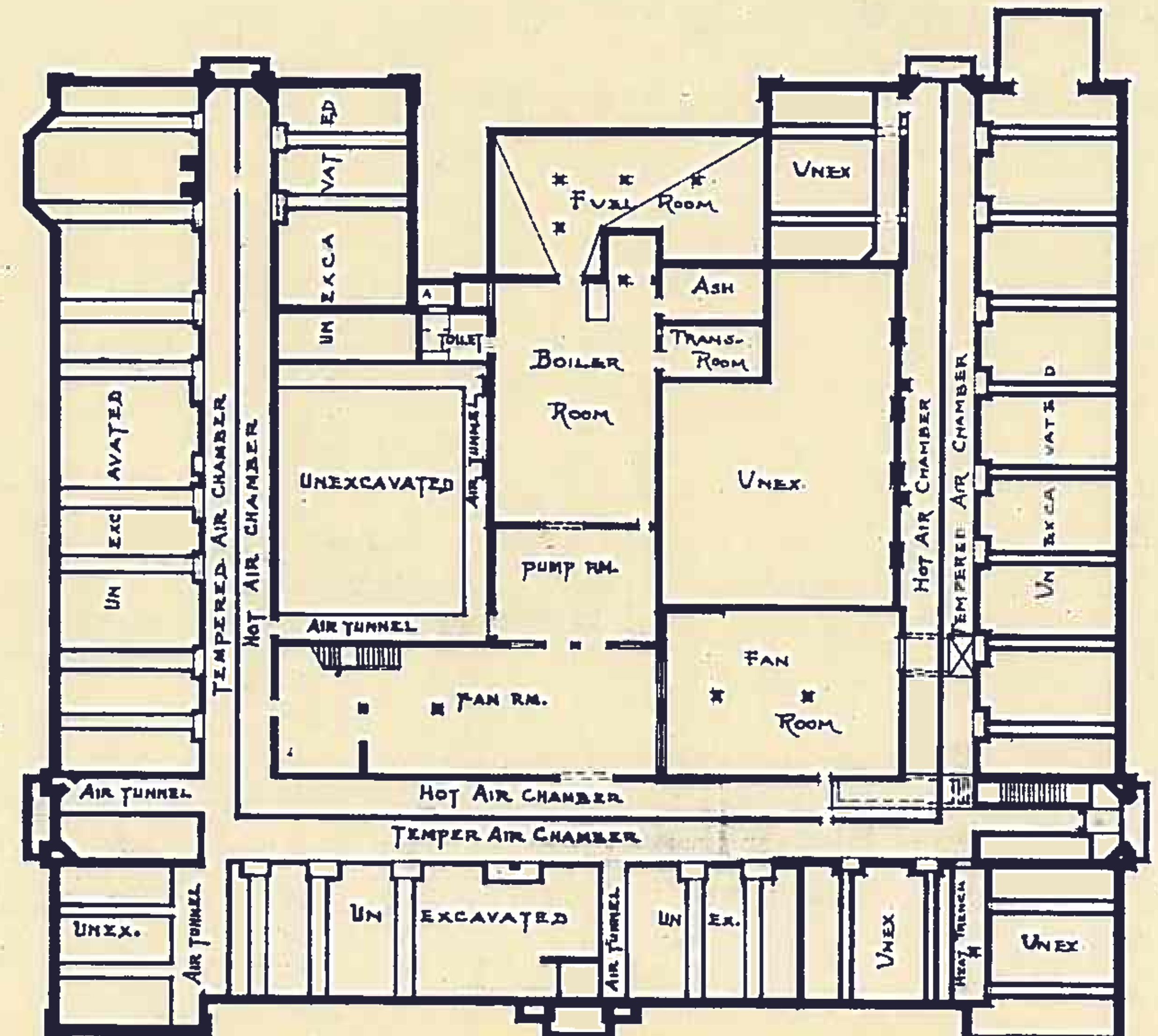


PLOT · PLAN ·
· WILKINS · SCHOOL ·
BOARD of EDUCATION ·
CITY of DETROIT
Landscape Department
Drawn by S.H.
Nov. 28. 1927.
Checked by.
Scale 1" = 100'
STRASBURG AVE 50'
MINDEN AVE 50
NASHVILLE AVE 50'
HAMBURG AVE 50'
140'
Ex. fence
219.8'
Surfaced Playground
Walk
Coal
Drive
First Unit 1925
Second Unit 1926
16'
opening
200' - 7' fence
140'

WILKINS SCHOOL

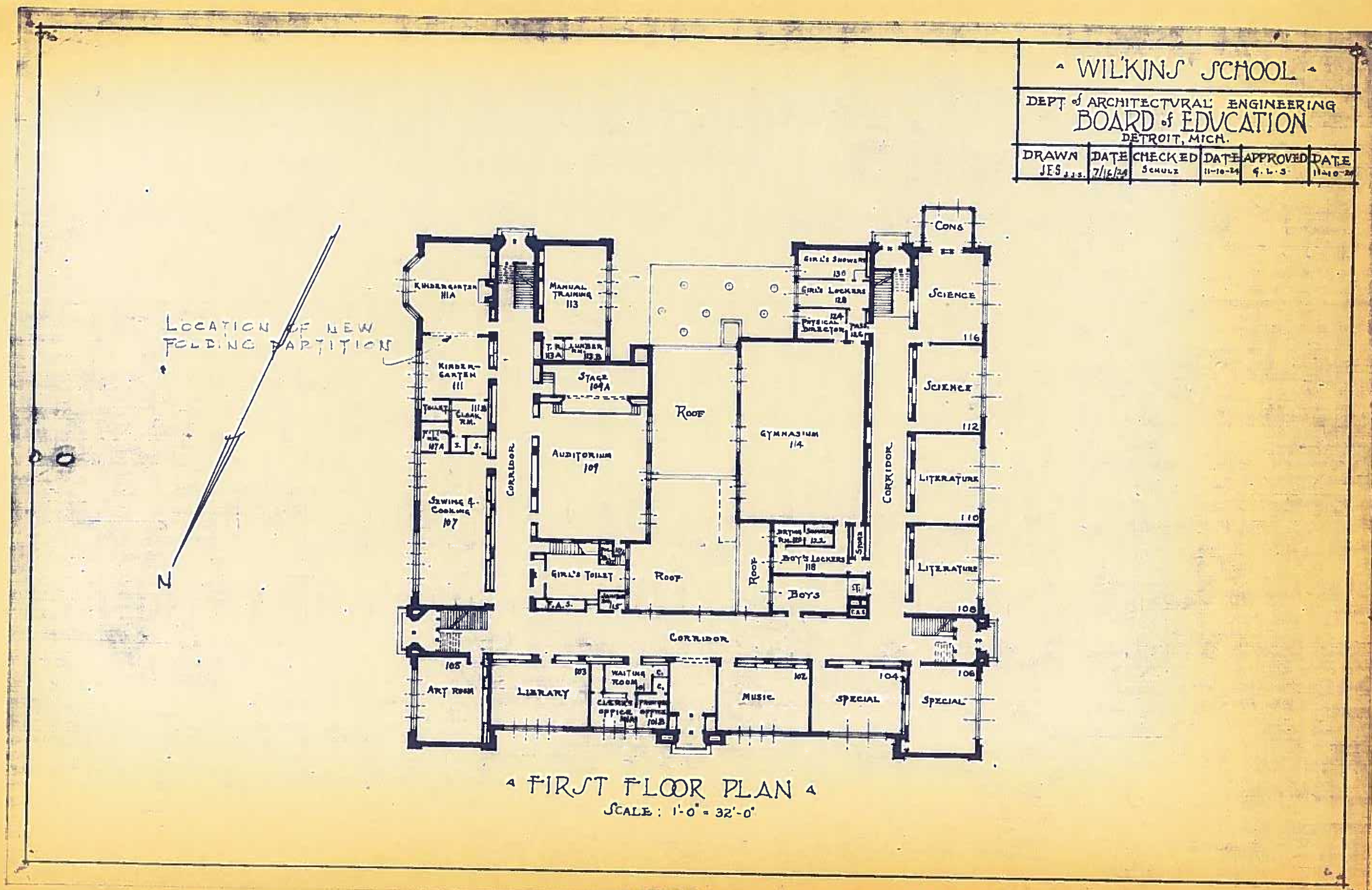
DEPT of ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
J.E.S.	7/15/24	SCHULZ	11-10-24	G. L. S.	11-10-24



BASEMENT PLAN

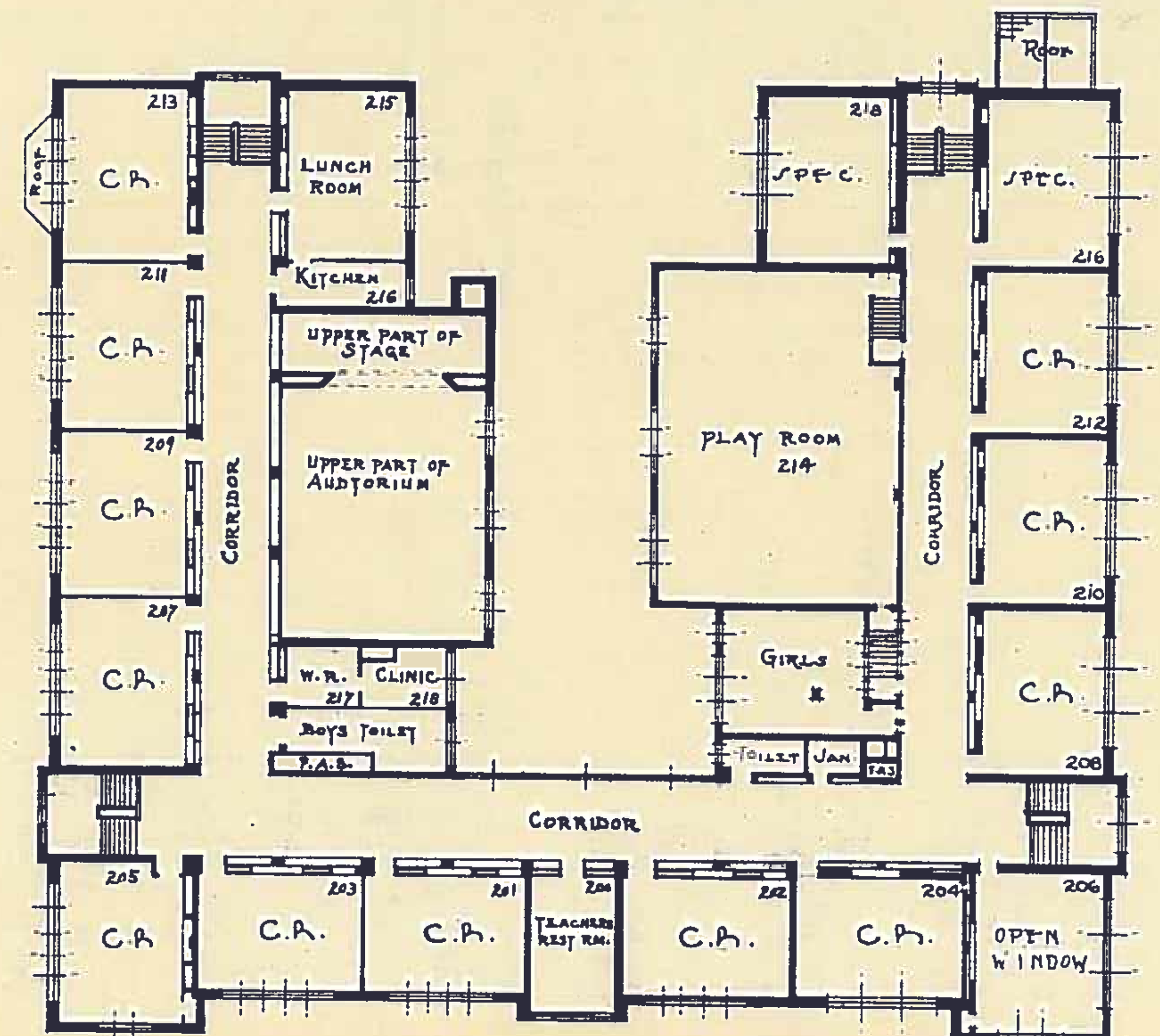
SCALE: 1'-0" = 32'-0"


WILKINS SCHOOL
DEPT of ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT, MICH.
DRAWN JES | DATE 7/15/24 | CHECKED SCHULZ | DATE 11-10-24 | APPROVED G.L.S. | DATE 11-10-24
LOCATION OF NEW FOLDING PARTITION
N
KINDERGARTEN 111A
MANUAL TRAINING 113
T.R. 113A
LUMBER RM. 113B
KINDER-GARTEN 111
STAGE 109A
ROOF
GYMNASIUM 114
GIRL'S SHOWERS 130
GIRL'S LOCKERS 128
PHYSICAL DIRECTOR 124
PASS. 126
CONS
SCIENCE
116
SCIENCE
112
LITERATURE
110
LITERATURE
108
TOILET
CLOAK RM. 111B
117A
S.
S.
CORRIDOR
AUDITORIUM 109
SEWING & COOKING 107
GIRL'S TOILET
T.A.S.
115
ROOF
ROOF
DRYING RM.
SHOWERS 122
STORE
BOY'S LOCKERS 118
BOYS
CORRIDOR
CORRIDOR
105
ART ROOM
103
LIBRARY
WAITING ROOM
101
C.
C.
CLERK'S OFFICE
PRIN'S OFFICE 101B
MUSIC
102
SPECIAL
104
SPECIAL
106
FIRST FLOOR PLAN
SCALE: 1'-0" = 32'-0"

WILKINS SCHOOL

DEPT. of ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT, MICH

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
JES	7/16/24	SCHULZ	11-10-24	G. L. S.	11-10-24



SECOND FLOOR PLAN
SCALE: 1'-0" = 32'-0"

32
6
19

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Foch

Basic Property Information: DPS 4-Foch-2962 Fairview

Short Name:	Foch
Address:	2962 Fairview Street Detroit, Michigan 48214
Year Built:	1924
Additions Built:	None
Outbuildings:	Powerhouse
Year Vacated:	2005
Building Footprint:	335 feet x 215 feet
Square Footage:	117,058 sq. ft.
Number of Stories:	3
Building Height:	64 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete
City Council District:	4	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone ▪ Terra Cotta
SNF District:	IVGV	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Asphalt Shingles ▪ Built-Up Roof (assumed) ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 16, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**23.47**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,626,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$9,364,640
Sub-Total	$11,890,640
Contingency (25%)	$2,972,660
Sub-Total	$14,863,300
Overhead and Profit (15-18%):	$1,486,330
Sub-Total	$16,349,630
Escalation (6% for 2 years)	$980,977
Sub-Total	$17,330,607
Architectural and Engineering Design Services (20%):	$3,466,121
TOTAL COST ESTIMATE:	$20,796,729

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building facades to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layouts and conditions. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The three-story building was constructed in 1925. A stand-alone powerhouse structure with a chimney is located to the east of the school building and is connected to the building via a below grade tunnel.

The building facade generally consists of clay brick masonry with limestone and terra cotta accents. The brick masonry is oriented in a Flemish bond, and the west (primary) facade features a central two-story arcade with arched limestone and brick masonry window openings and limestone buttresses. The wall areas at the spandrels between the second and third floor windows are clad with polychromatic terra cotta tiles with floral motifs. The cornice at the third-floor window heads consists of two courses of terra cotta, which includes a window head course hung from the embedded steel structure and a water table course that includes alternating decorative ornamentation. Terra cotta is also present at the parapet throughout the facades with large arched ornamental terra cotta panels at the north and south ends of the parapet. Brick masonry pilasters with terra cotta accent units at the second-floor level and a terra cotta cap at the third-floor level are present between windows at most facade areas. Aluminum framed windows and steel framed doors are located within punched openings in the exterior walls.

The roof was not accessed during this assessment because the access door was locked. A majority of the roof area consists of an internally drained, gravel-surfaced, bituminous built-up roof based on review of aerial photographs. The west roof above the main entrance consists of a steep sloped roofing system with asphalt shingles. This steep sloped roof area appears to drain to an internal drainage channel at the base of the parapets.

In general, the building is in serviceable condition. Masonry distress was observed at isolated locations throughout the facade, including at the parapet, window heads, and pilasters. The distress appears to be related to a combination of freeze/thaw deterioration and corrosion of embedded steel support elements, both related to prolonged moisture penetration through the masonry walls. Masonry repairs and repairs to the roofing assembly are needed to promote the continued long-term serviceability of the building. The window assemblies may be restored in place. Further investigation of the roof is recommended.

Facade

Widespread brick masonry cracking, spalling, and displacement was observed at window heads due to corrosion of the steel lintels caused by prolonged water infiltration. This issue was noted at the first and second floor windows at the north, west, and south facades, as well as at all windows at the east facade. At many of the window heads, severe corrosion and deflection of the steel lintels was noted with some lintels exhibiting section loss. Window head repairs are recommended as part of a building rehabilitation. The repair approach should include removal and replacement of the brick masonry (or resetting of terra cotta accent units), cleaning and painting of embedded steel lintels or replacement if steel exhibits severe deflection, and installation of appropriate flashing. Considering the widespread masonry distress and lintel deflection observed during this assessment, these repairs are recommended to be applied at all first and second floor window heads and all window heads at the east elevation exhibiting distress.

Moisture staining, biological growth, and eroded and spalled mortar is present at the parapets and typically appears to align with the roof deck. The staining and mortar deterioration is likely attributed to failure of the roofing and/or roof base flashings along the parapet, therefore allowing excessive moisture penetration into the masonry wall assembly. If the source of water infiltration is not addressed in the near future, the masonry distress will continue to worsen. In order to address this issue, evaluation and repair of the roof should be performed to limit the moisture penetration into the masonry at the roof side of the parapet. Once the roofing repairs are complete, grinding and pointing of deteriorated mortar joints throughout the facade, including 100 percent of the parapets, and cleaning of the wall surface should be performed to remove biological growth and miscellaneous surface staining.

Localized cracked brick masonry was observed at some of the pilasters and parapets. Additionally, cracked brick masonry was observed at the easternmost facade near the bottom of the facade as a result of long-term differential movement. Replacement of the localized cracked brick units and repointing of distressed mortar is recommended.

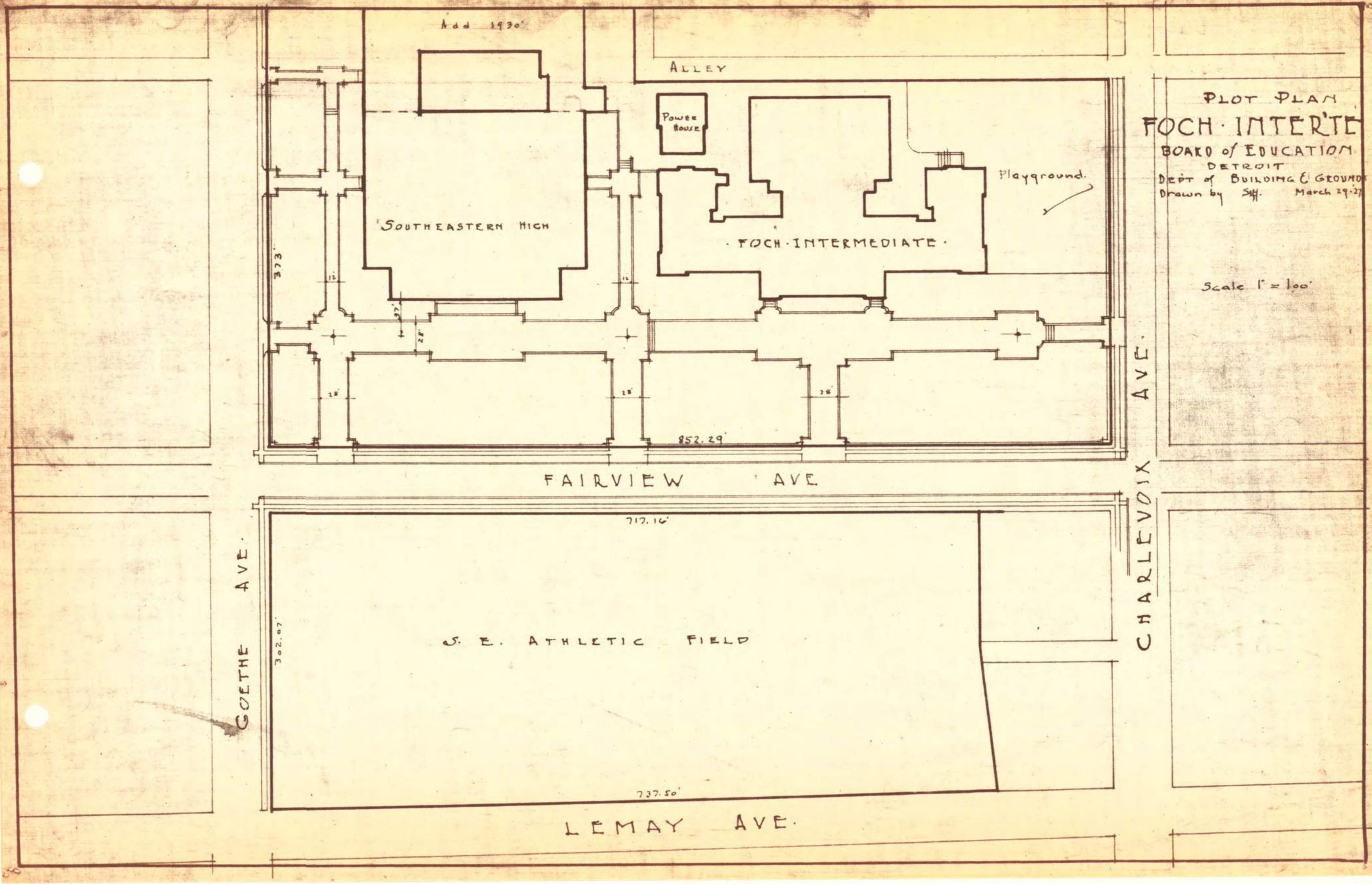
Cracking and spalling were noted at many of the terra cotta units at the pilasters, particularly at the sloped terra cotta pilaster caps that align with the third-floor level, as well as at the third level cornice. Additionally, erosion of the mortar was observed below the terra cotta pilaster caps due to moisture penetration through the cracked cap units and water runoff over the surface of the sloped caps onto the masonry below. Unilateral cracks in terra cotta pilaster caps and accent units should be repaired by routing and sealing the cracks and installing supplemental lateral anchors on either side of the cracks. If cracking is multi-dimensional, the terra cotta units are recommended for replacement. Terra cotta typically requires a long fabrication lead time (9 months minimum); and should be considered as part of a rehabilitation schedule. Alternate materials may also be considered to replicate the terra cotta, including fiber reinforced polymer (FRP), glass fiber reinforced concrete (GFRC), or cast stone/precast concrete. Repair or replacement of the distressed terra cotta elements, as well as grinding and repointing of deteriorated mortar joints to mitigate further distress, is recommended.

The brick masonry near the top of the chimney is cracking and shifting above the upper horizontal stone band. Based on the observed level of distress, dismantling and rebuilding the brick masonry walls above the upper band (terra cotta or limestone), which should also include removal and resetting or replacement of the limestone copings with new through-wall flashing, is recommended.

Overall, the windows are in good, serviceable condition. The windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate many of the window framing members. Cracked, broken, or missing glass lites were observed in isolated regions, and the sealant at the perimeter joints typically exhibited weathering and bond failure. Beyond these areas of isolated distress, the windows are thermally broken and are in good condition. The windows may be restored, including replacement of cracked and broken lites, installation of new sealant at the window perimeters and within the holes in the frame created by the fasteners where/if the protective covering is removed. The exterior metal doors are typically corroded, and the protective enclosure bars penetrate the doors, likely warranting replacement.

Roofing

The roof level could not be accessed during WJE's assessment. Indications of isolated water infiltration were visible from the building interior, often near the perimeter of the building, though the majority of the interior spaces were dry and undamaged. Given the distress observed at the parapets, localized roof deterioration near the roof perimeter appears likely. Based on a lack of water intrusion below the field of the low-slope roofing, the roof appears to be performing well and requires only maintenance related repairs to extend the service life of the existing roof assembly.


PLOT PLAN
FOCH · INTER'TE
BOARD of EDUCATION
DETROIT
DEPT of BUILDING & GROUNDS
Drawn by S.H. March 29-27
Scale 1" = 100'
Add 1930'
ALLEY
POWER HOUSE
SOUTHEASTERN HIGH
· FOCH · INTERMEDIATE ·
Playground.
373'
852.29'
FAIRVIEW AVE
717.16'
302.07'
S. E. ATHLETIC FIELD
737.50'
GOETHE AVE
CHARLEVOIX AVE
LEMAY AVE.

* FOCH INTERMEDIATE *

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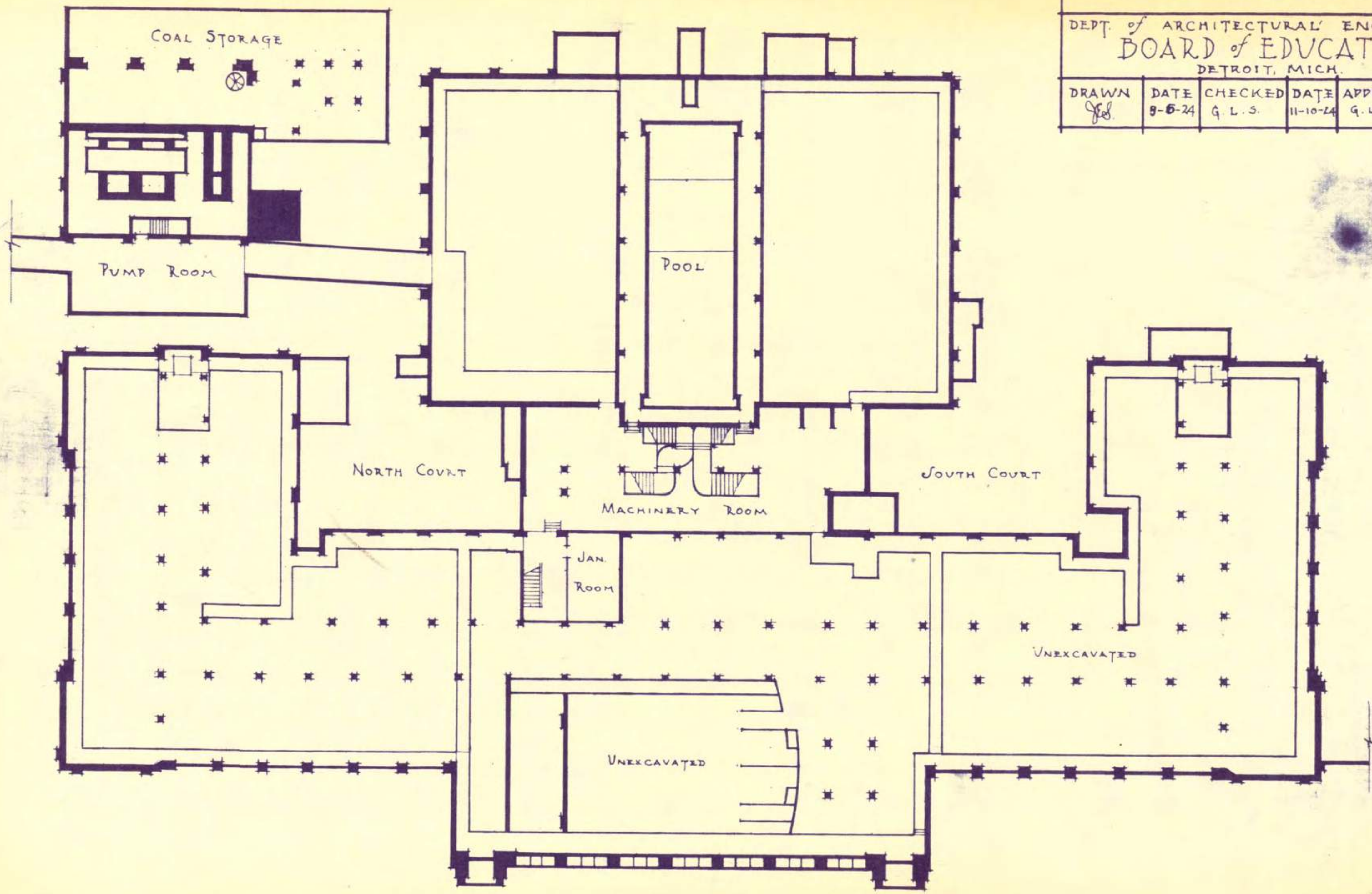
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
	9-6-24	G. L. S.	11-10-24	G. L. S.	



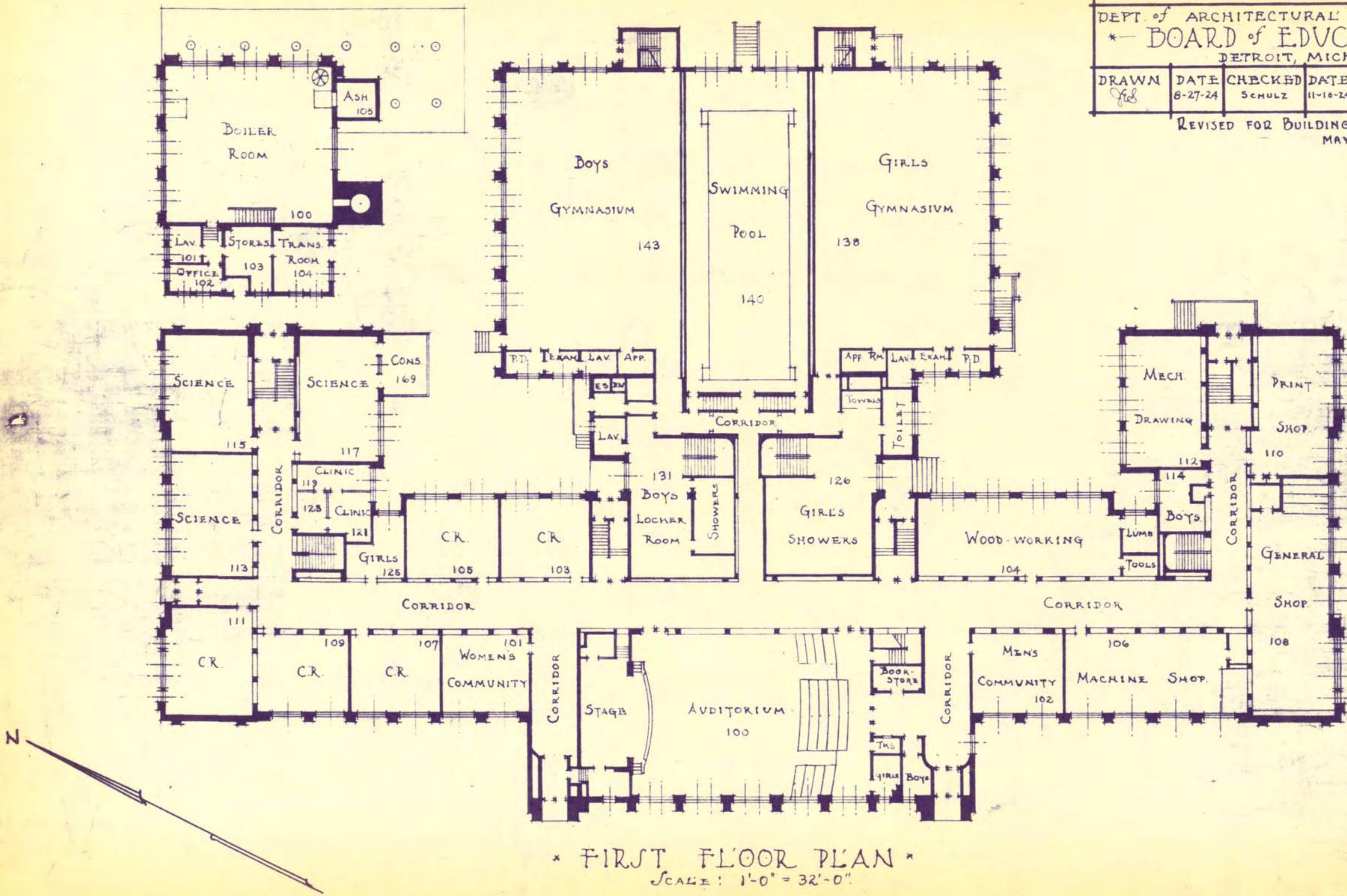
° BASEMENT PLAN °
SCALE: 1'-0"-32'-0"

* FOCH * INTERMEDIATE *

DEPT. of ARCHITECTURAL ENGINEERING
— BOARD of EDUCATION —
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
[illegible]	8-27-24	SCHULZ	11-10-24		

REVISED FOR BUILDING ALTERATIONS TO:- MAY 10, 1929.



* FIRST FLOOR PLAN *

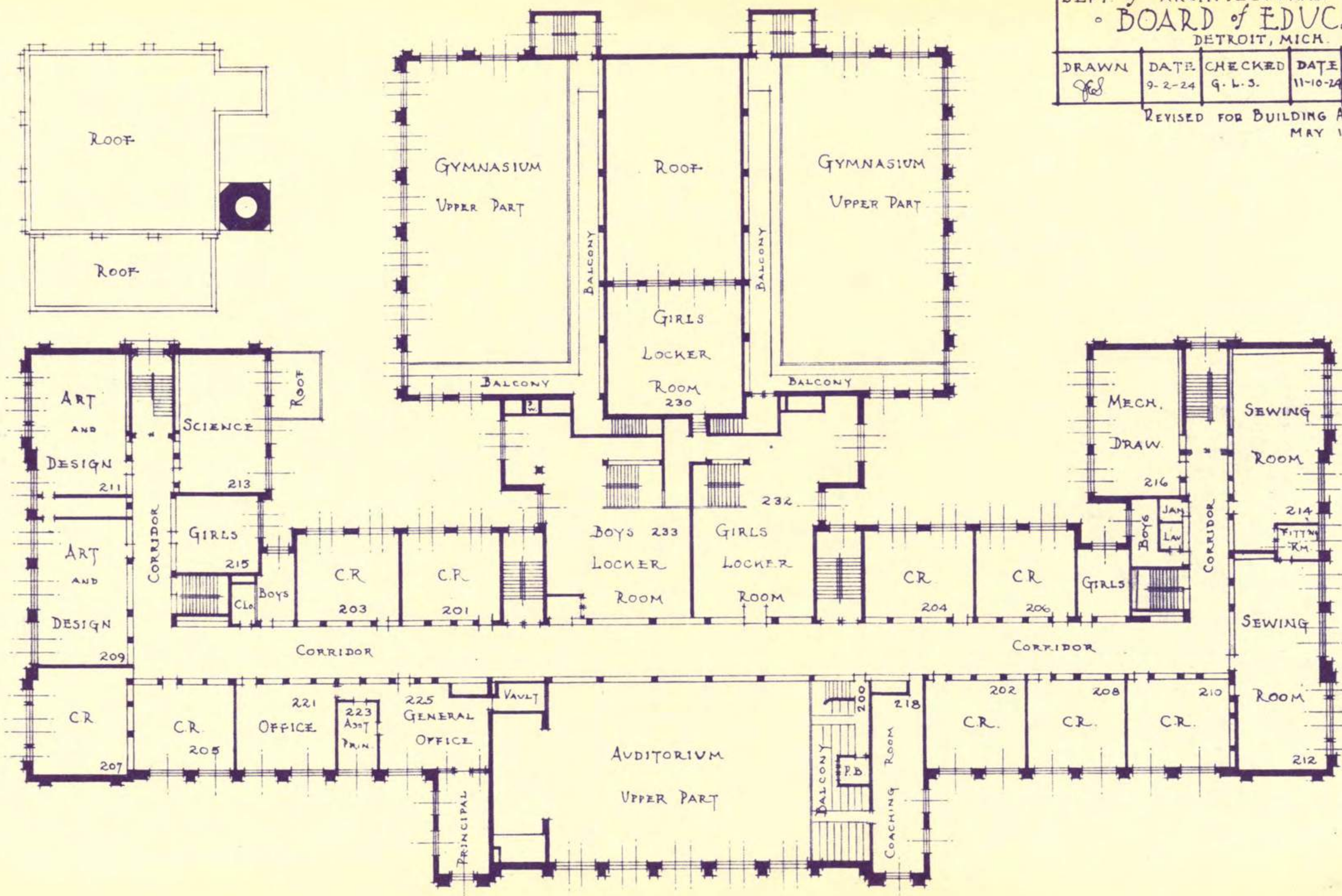
SCALE: 1'-0" = 32'-0"

FOCH INTERMEDIATE

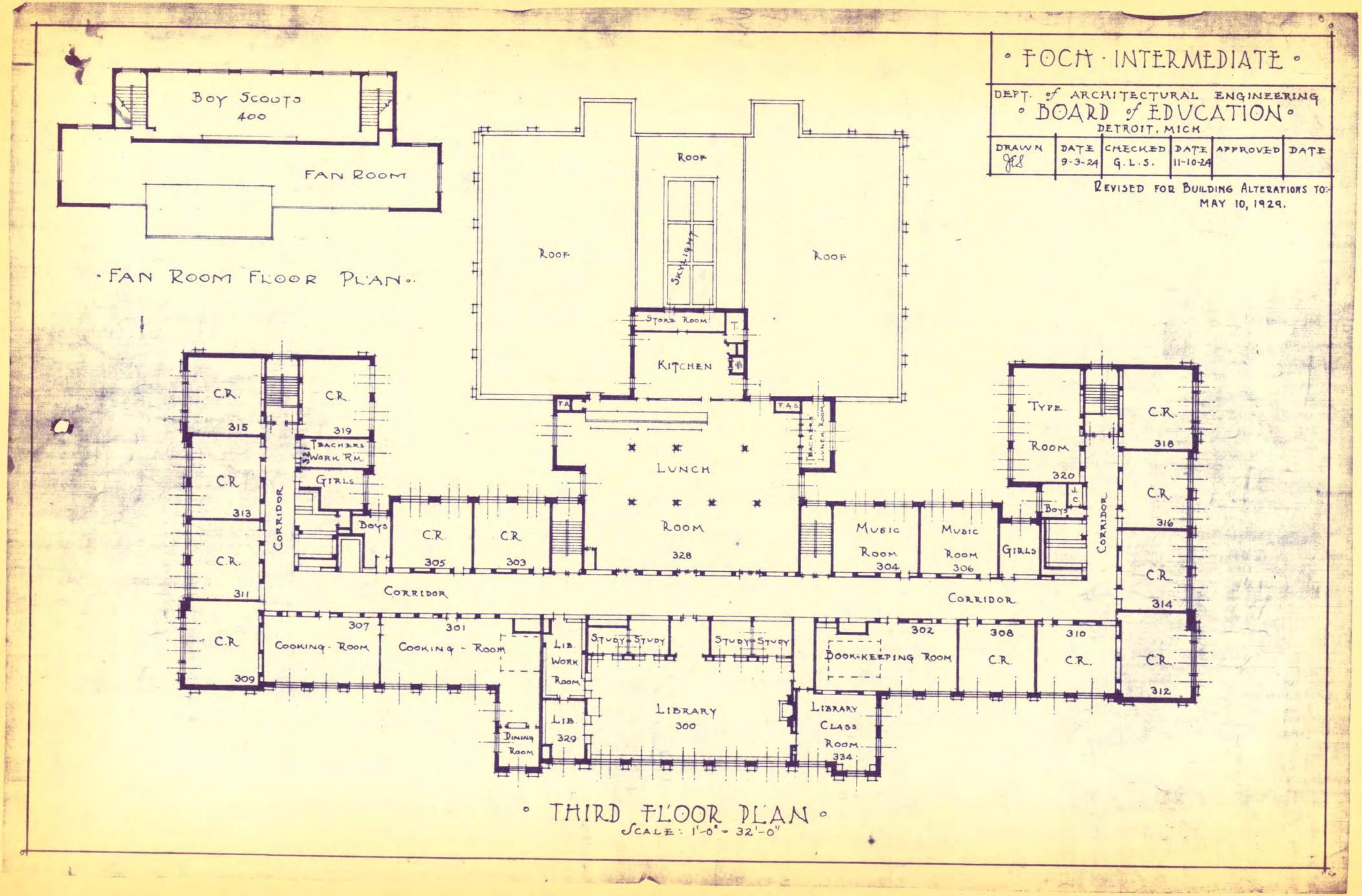
DEPT of ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
[illegible]	9-2-24	G. L. S.	11-10-24		

REVISED FOR BUILDING ALTERATIONS TO:- MAY 10, 1929.



SECOND FLOOR PLAN
SCALE: 1'-0" = 32'-0"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DEPT. of ARCHITECTURAL ENGINEERING
• BOARD of EDUCATION •
DETROIT, MICH.
DRAWN
J.E.S.
DATE
9-3-24
CHECKED
G.L.S.
DATE
11-10-24
APPROVED
DATE
REVISED FOR BUILDING ALTERATIONS TO:-
MAY 10, 1929.
BOY SCOUTS
400
FAN ROOM
• FAN ROOM FLOOR PLAN •
ROOF
ROOF
ROOF
SKYLIGHT
STORE ROOM
T.
KITCHEN
F.A.
F.A.S.
TEACHERS LUNCH ROOM
LUNCH
ROOM
328
C.R.
315
C.R.
319
TEACHERS WORK RM.
GIRLS
BOYS
C.R.
313
C.R.
311
CORRIDOR
C.R.
305
C.R.
303
C.R.
309
COOKING - ROOM
307
COOKING - ROOM
301
LIB. WORK ROOM
LIB.
329
DINING ROOM
STUDY - STUDY
STUDY - STUDY
LIBRARY
300
LIBRARY CLASS ROOM
334
BOOK-KEEPING ROOM
302
C.R.
308
C.R.
310
C.R.
312
CORRIDOR
CORRIDOR
MUSIC ROOM
304
MUSIC ROOM
306
GIRLS
BOYS
J.C.
TYPE ROOM
320
C.R.
318
C.R.
316
C.R.
314
CORRIDOR
• THIRD FLOOR PLAN •
SCALE: 1'-0" = 32'-0"

District 5

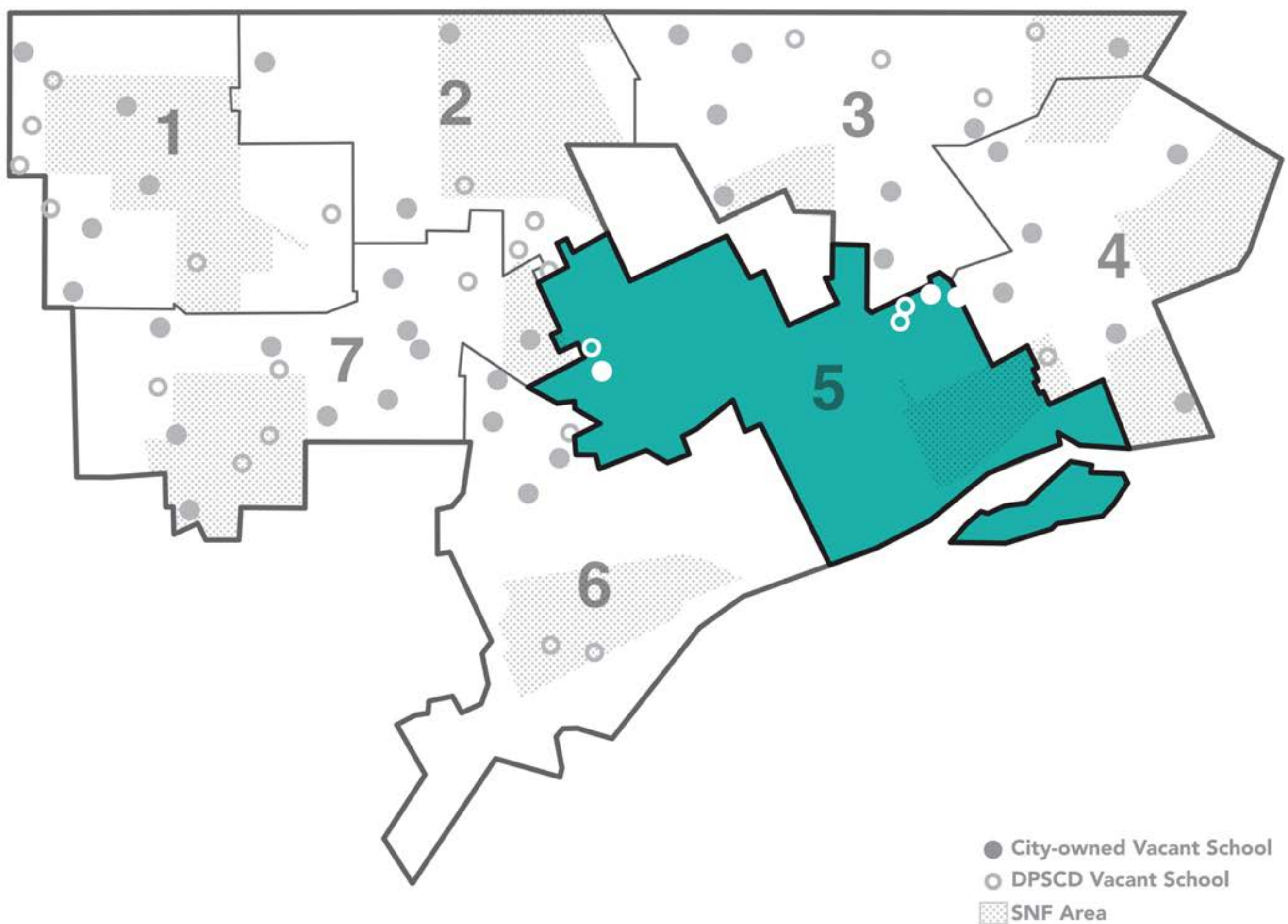
City of Detroit Schools:

Chandler
Jamieson
Stephens

DPSCD Schools:

Brady

Detroit
City Council District 5



Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Chandler Elementary School

Basic Property Information: COD 5-Chandler-9227 Chapin

Short Name:	Chandler
Address:	9227 Chapin Street, Detroit, Michigan 48213
Year Built:	1905
Additions Built:	1922, 1962
Outbuildings:	None
Year Vacated:	2004
Building Footprint:	200 feet x 165 feet
Square Footage:	50,147 sq. ft.
Number of Stories:	3
Building Height:	52 ft.

Current Ownership:	City of Detroit
City Council District:	5
SNF District:	NA

Structural Framing System:	■ Cast-in-Place Concrete ■ Precast Concrete ■ Brick Masonry ■ Concrete masonry (CMU) ■ Structural Steel ■ Wood
Exterior Wall System:	■ Brick ■ Limestone ■ Sheet Metal
Window System(s):	■ Wood ■ Aluminum
Roofing System(s):	■ Asphalt Shingles ■ Built-Up Roof ■ Gutters ■ Internal Roof Drains

Assessment Summary	
Assessment Date:	May 26, 2020
WJE Inspector(s):	Sarah Rush; Andrew Lobbestael
Report Date:	November 20, 2020
Building Risk Index:	**68.86**

Cost Estimate		
Base Rehabilitation Cost Estimate:		$1,076,450
Preparation for Rehabilitation Work:		$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):		$4,011,760
	Sub-Total	$5,988,210
Contingency (25%)		$1,497,052
	Sub-Total	$7,485,262
Overhead and Profit (15-18%):		$1,122,789
	Sub-Total	$8,608,051
Escalation (6% for 2 years)		$516,483
	Sub-Total	$9,124,534
Architectural and Engineering Design Services (20%):		$1,824,907
TOTAL COST ESTIMATE:		$10,949,441

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and lower roof levels, using binoculars as needed. The upper roof level was inaccessible due to safety concerns pertaining to the access ladder condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including the attic and portions of the basement. Localized interior finishes are in a state of deterioration, exposing the structural framing systems in some locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

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Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
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BUILDING OVERVIEW

Overall

The original building was constructed in 1905 with additions to the east and north added in 1921. The north 1921 addition includes an attached powerhouse. Windows are present at the basement, first, and second levels; classrooms within the basement level are finished and include stairs to access egress windows. Another addition was added to the northeast in 1962 which houses the gymnasium and cafeteria.

The facade generally consists of common bond brick masonry with header courses every six courses. Limestone accent units are present at the entrances, window sills, and horizontal belt courses. A large sheet metal fascia extends around the building perimeter below the flat hip roof, while a decorative wood cornice is exposed on a lower roof area on the north facade. Dormers are present on the north and south facades of the original building portion, which are clad in wood and slate shingles. A small corrugated sheet metal area is present on the exterior wall above the kindergarten alcove located above the boiler room. Decorative sheet metal water tables are present above the west and south entrances. Limestone, clay tile, and sheet metal copings are present within the north building additions. Aluminum replacement windows were set within the original wood window frames, though the aluminum components are now largely missing due to vandals. The entrances consist of conventional steel doors.

The main flat hip roof has asphalt shingles along the building perimeter and a low slope, internally drained roof at the interior of the building footprint that appears to consist of a smooth surfaced bituminous built-up roof (BUR) with an aluminum coating based on a review of aerial photographs. The lower roofs to the north generally consist of internally drained, bituminous built-up roof (BUR) assemblies with slag surfacing and granulated cap sheet base flashing.

The roof structure in the original building is composed of wood decking supported by wood rafters supported by wood beams, trusses, columns, and other "stick" framing methods conventional for wood structures of this vintage. The wood-framed trusses and rafters are supported by load bearing masonry walls. The floor framing of the original building consists of wood decking supported by wood joists. The powerhouse framing is cast-in-place concrete slabs and columns with multi-wythe masonry walls. The 1962 addition has two distinct structures: the east half consists of hollow core concrete planks supported by concrete masonry walls and the west half consists of long-span metal deck and concrete topping slab supported by steel beams, which are in turn supported by steel columns set within the concrete masonry walls.

In general, the building is in fair condition. Masonry repairs are recommended to address distress caused by corroded steel lintels and damage from vandalism. The windows and exterior doors are missing or significantly damaged and require replacement. The roofing is generally in good, serviceable condition with minor maintenance-type repairs recommended within the majority of the roof areas, though the roof over the 1962 gymnasium addition is in poor condition and is recommended for replacement. Overall, the structure is in good condition; this is likely attributed to the good condition of the roofing. However, there are five locations that are permitting water intrusion into the attic which is leading to decay of the framing members, and if not corrected, advancement of this deterioration could develop into significant structural problems. The finishes are damaged especially within the vicinity of the roof leaks. Further detail of the observed distress is provided below.

Facade

Corrosion of the steel window lintels is present throughout the building, with some lintels exhibiting significant section loss and pack rust. Sealant has typically been applied between the steel and brick, which may slow moisture from exiting the wall assembly and accelerate corrosion of the steel given that the protective coatings of the steel have failed. The surrounding brick masonry is cracked and displaced in some locations, with significant bowing and displacement observed within the north powerhouse and gymnasium additions. Repairs should include repair or replacement of the distressed brick masonry and repair or replacement of the distressed steel lintels with installation of appropriate through-wall flashing details.

Beyond distress at the lintels, isolated limestone sills are cracked and require repair. Coping units are missing from several of the lower roof areas with roof base flashings pulled away from the masonry substrates. This condition is allowing water penetration into the wall assembly and interior spaces below. The corresponding brick masonry parapets are deteriorated, including areas of cracked and spalled masonry, which requires replacement. Common brick is present at the base of the facades with a surface-applied parge coat. In some regions, particularly at the failed downspouts, the parge coat material is unsound or missing. The exposed masonry contained localized areas of mortar deterioration and spalled brick units, which require repair. Localized cracks are present within the brick masonry chimney, which require repointing and isolated brick unit replacement.

The perimeter sheet metal fascia at the base of the hip roofs is in serviceable condition, though it may be concealing distress within the underlying masonry and/or wood cornice. Where the wood cornice is exposed at a lower roof level on the north facade, peeled paint and water staining are present and localized regions appear decayed. The decorative sheet metal water tables above the entrances are bent, with corrosion staining visible near the skyward surfaces. Further investigation is needed to determine the presence and condition of concealed elements below the fascia in conjunction with the restoration of the decorative wood and sheet metal elements.

The dormers are deteriorated and require repair. Some of the flashings and cladding materials have been removed, exposing the wood sheathing below. The exposed sheathing and wood framing elements, where visible through the sheathing, are decayed in some regions. The wood soffit on the south dormer contains cracked and peeling paint. The louvers on the north dormers are damaged. Restoration of the dormers should be considered in conjunction with the roofing repairs to mitigate additional points of water infiltration and preserve these aesthetic elements.

The aluminum replacement windows are missing and the exposed original wood-framed window frames are significantly decayed, damaged, or missing. The exterior doors are also significantly damaged or are missing. Rehabilitation of the building should include replacement of all windows and exterior doors.

Roofing

The asphalt shingle roofing within the hip roofs is generally in serviceable condition, though localized regions of displaced flashing and shingles are visible, which generally correlate with observed locations of structural wood decay below. Several downspouts are missing or damaged, though the surrounding masonry does not show evidence of distress. The upper flat roof was not accessed during our assessment, but based on the limited evidence of water intrusion within this area, the roof appears in serviceable condition. Minor maintenance-type repairs are anticipated within these roof areas to extend the service life of the existing assembly in conjunction with replacement of the missing and damaged downspouts.

The lower low-slope roof areas on the north side of the building have been damaged by vandals. Several coping units have been removed and the base flashing is pulled away from the masonry substrate. Organic growth and vegetation are present on the roof surface in portions of the field of the roof and near failed drains. Cracking and seam failures were present in areas of intact base flashing, and some regions above the 1961 gymnasium addition were soft underfoot. The perimeter walls are distressed due to water penetration through the damaged roof into the wall assembly. Evidence of water penetration is also present within the gymnasium roof structure, which correlates with regions of failed base flashing and failed roof drains. Localized water related distress is present in the south bay of the boiler room, though the remaining mechanical spaces were dry. Based on the extent of distress, the roof above the 1961 addition is recommended for removal and replacement. Localized repairs are recommended within the other lower roof areas to extend the service life of the existing assemblies.

Structure

There are approximately five locations that are permitting water intrusion into the wood-framed attic which is leading to decay of the framing members. These locations are typically at the transition from the low slope roof to the steep slope roof. One location is due to a missing roof access hatch. The water intrusion has caused damage not only to the wood decking, but also to some of the heavier supporting framing members, columns, and sill plates. Repairs are warranted to stop the water leaks and restore the wood framing. If left uncorrected, the decay which has initiated could advance and become a significant problem with regards to structural strength and/or serviceability.

The gymnasium is constructed partially below grade. Efflorescence and water intrusion are present near base of west exterior wall. The adjacent wood flooring on the gym is also saturated likely from the moisture intrusion at the base of the wall. Additionally, there is also horizontal line separation in the concrete masonry back-up that may be indicative of a structural concern or simply corrosion of horizontal joint reinforcement. We recommend that the west wall be investigated further to determine if there is a significant structural concern. A new waterproofing system may be required along this wall to address the water infiltration.

In the gymnasium, corrosion is present on three areas of the long span metal deck and slab systems[1] in two areas. One location occurs at a roof drain and the other two appear to be related to roof leaks. The locations away from the roof drain are also causing surficial corrosion of the supporting steel beams. Corrosion of the metal deck is not a structural concern if it was used as a form deck but could be a minor structural concern if is behaving compositely with the concrete. Additional investigation would be required

[1] Initial review of the 1950s-1960s era long span metal deck system indicates the decking is acting non-compositely with the concrete slab, and that the decking was used as a stay-in-place form for the cast-in-place concrete. However, a non-technical, marketing brochure from this era was noted to advertise the decking as a “composite” concrete floor system.

to determine if the deck is composite. At a minimum, the exposed steel is recommended to be cleaned and re-coated with a rust inhibiting paint as part of the rehabilitation effort. Further investigation into the condition of the structure above the corroded metal ceilings is recommended; additional localized repairs may be identified as needed pending the results of such an investigation.

Two of the steel lintels at wall openings in the basement are corroded. It is appropriate to clean and recoat the exposed steel.

The underside of the concrete floor slab above the boiler rooms and fuel room is generally in good condition and the paint is typically intact. However, the very south bay of the north boiler room is saturated and has considerable concrete distress including cracks, spalls, and corroded steel reinforcement that is partially exposed. We recommend an investigation to determine the cause of the water intrusion in the one affected bay in the boiler room and to further assess the condition of the concrete. At this time, we anticipate that structural concrete repairs will be necessary, and may include supplemental reinforcing steel. The repairs should be coordinated with roofing and facade work.

The southwest corner of Room 102 (the old gymnasium) has an active leak that has saturated the concrete and corroded the metal pan in the joist-slab in the floor framing above. The cause of the leak is not known and should be investigated and corrected. Localized concrete repairs may be needed to address the deteriorated condition of the affected joists and slab.

The masonry walls around the stairs in the fuel room have wide step cracks and cracked brick units. Similar cracks are present at the demising wall at the north end of the east wall of Room 101. The cracks may be due to differential settlement and do not represent a significant structural concern. We recommend that the cracks be repointed with new mortar. If cracks redevelop, then it would be prudent to investigate the cause of the cracks.

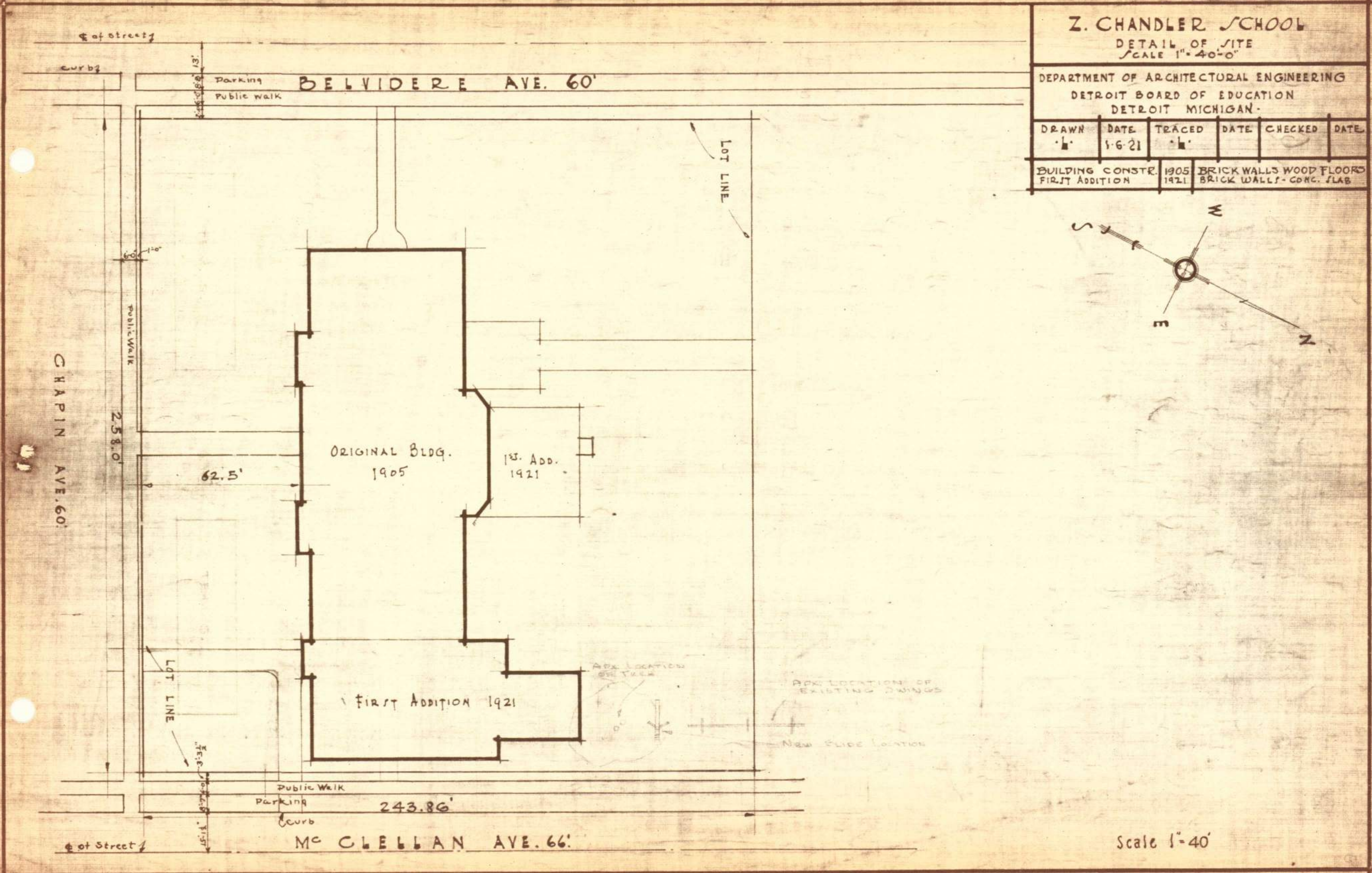
Miscellaneous

The interior finishes typically consist of plaster on wood lath on the walls and ceilings with hardwood flooring or vinyl composite tiles on the floors. Long term exposure to water has damaged these finishes and a large portion of the finishes will require replacement.

A small fire has damaged the west end of the auditorium stage affecting the stair and stage floor framing. We recommend replacing the damaged framing.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

At one entrance, the concrete sidewalk has settled several inches. At another entrance the concrete sidewalk has settled and the granite step is cracked and heaved. We recommend replacing the sidewalk approaches to eliminate these tripping hazards and provide code-complaint entrances. The granite steps can be reset.


Z. CHANDLER SCHOOL
DETAIL OF SITE
SCALE 1" = 40'-0"
DEPARTMENT OF ARCHITECTURAL ENGINEERING
DETROIT BOARD OF EDUCATION
DETROIT MICHIGAN.
DRAWN
DATE
1-6-21
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DATE
BUILDING CONSTR. 1905 BRICK WALLS WOOD FLOORS
FIRST ADDITION 1921 BRICK WALLS - CONC. SLAB
℄ of street
Curb
Parking
Public walk
BELVIDERE AVE. 60'
13'
LOT LINE
Public Walk
CHAPIN AVE. 60'
258.0'
62.5'
ORIGINAL BLDG. 1905
1st. ADD. 1921
FIRST ADDITION 1921
APX. LOCATION OF EXISTING SWINGS
NEW SLIDE LOCATION
LOT LINE
Public Walk
Parking
Curb
243.86'
℄ of Street
Mc CLELLAN AVE. 66'
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Z. CHANDLER SCHOOL
BASEMENT PLAN
SCALE $\frac{1}{32}$" = 1'-0"

DEPARTMENT OF ARCHITECTURAL ENGINEERING
DETROIT BOARD OF EDUCATION
DETROIT MICH.

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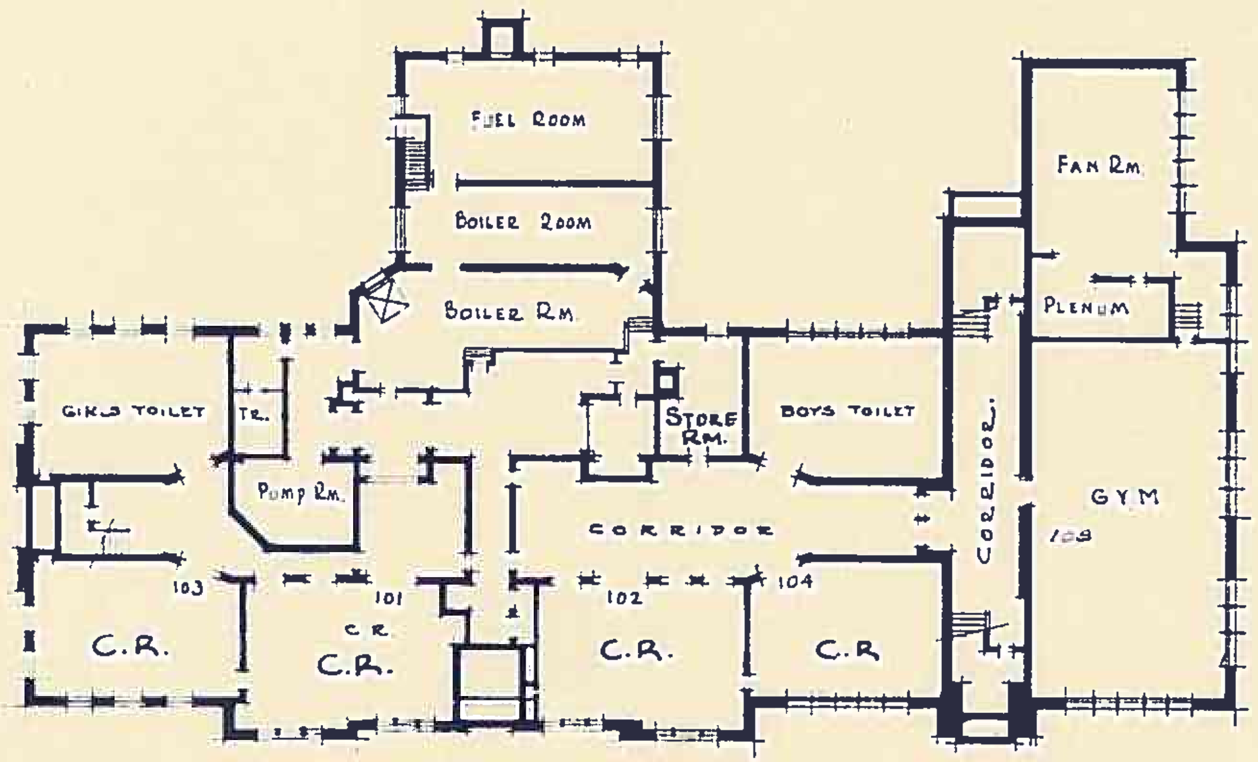

BASEMENT PLAN
Scale $\frac{1}{32}$" = 1'-0"

Z. CHANDLER SCHOOL
FIRST FLOOR PLAN
SCALE 1/32" = 1'-0"

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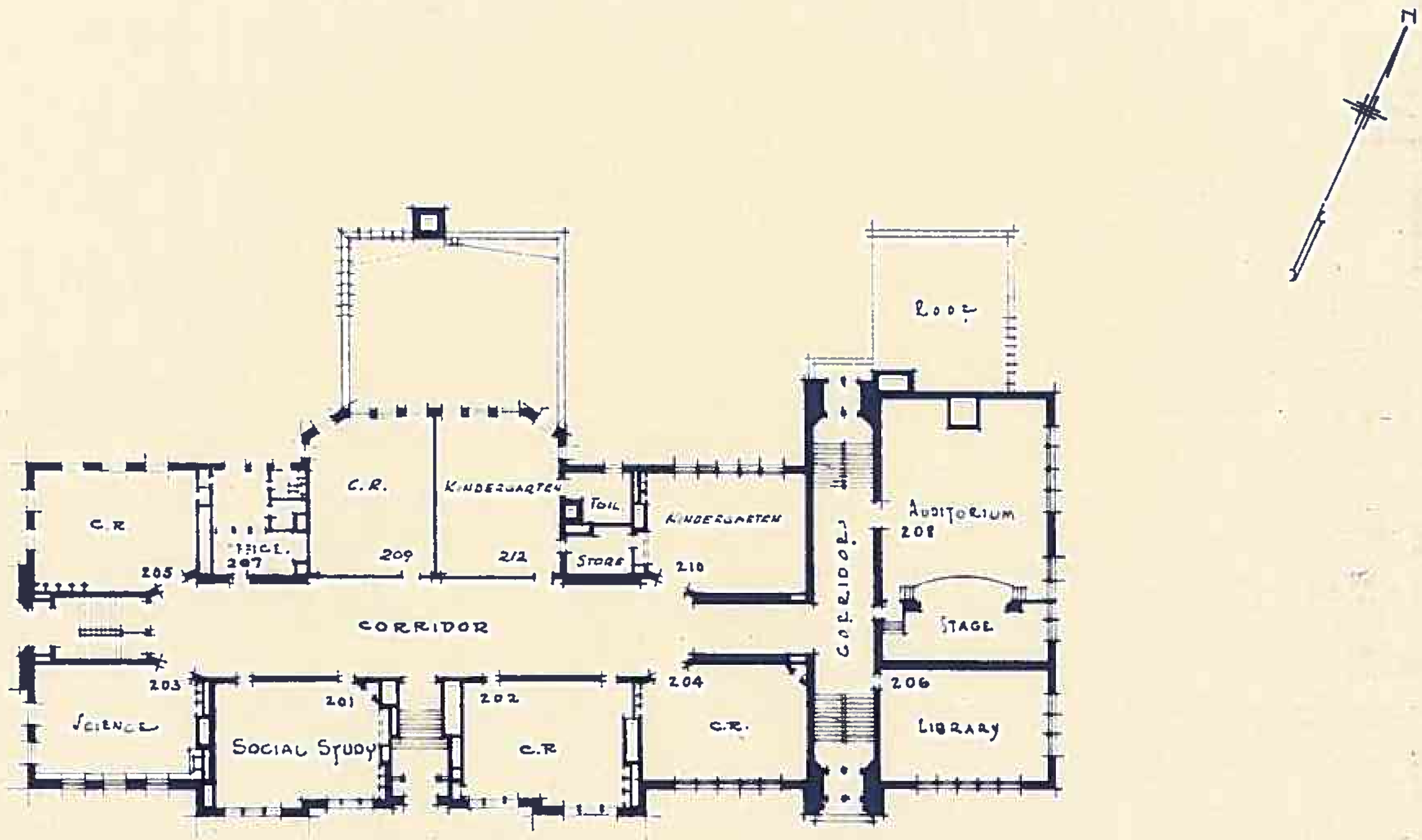
BUILDING CONSTR.	1905	BRICK WALLS	WOOD FLOORS



FIRST FLOOR PLAN
Scale 1/32" = 1'-0"

Z. CHANDLER SCHOOL
SECOND FLOOR PLAN
SCALE 1/32" = 1'-0"

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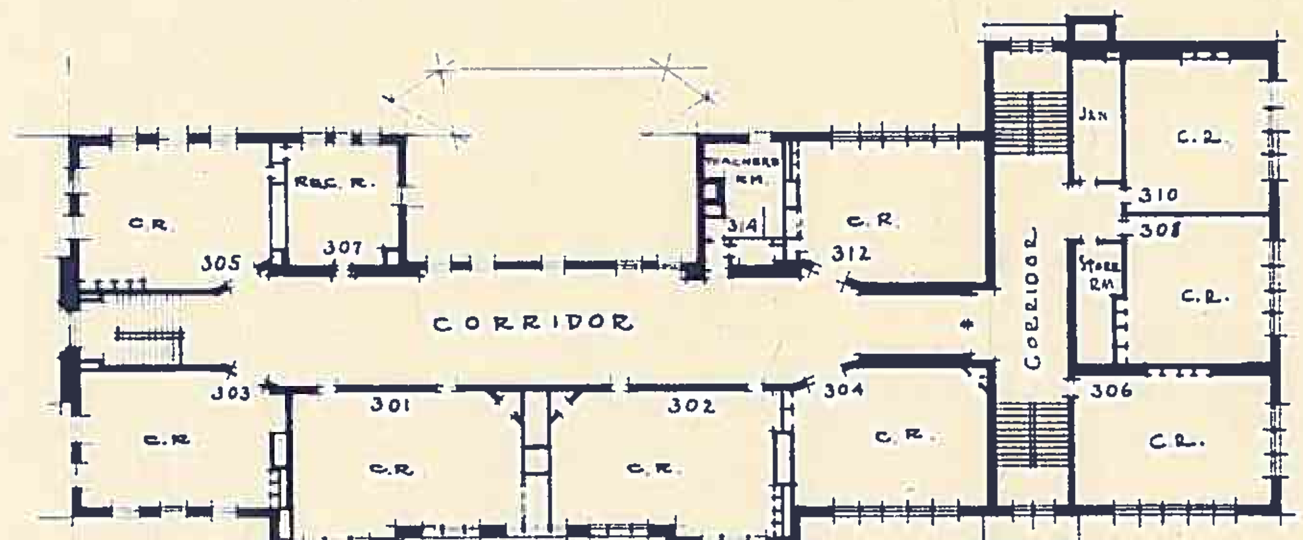

SECOND FLOOR PLAN
scale 1/32" - 1'0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Jamieson Elementary School

Basic Property Information: COD 5-Jamieson-2900 W Philadelphia

Short Name:	Jamieson
Address:	2900 West Philadelphia Street, Detroit, Michigan 48206
Year Built:	1961
Additions Built:	1964
Outbuildings:	None
Year Vacated:	2010
Building Footprint:	175 feet x 325 feet
Square Footage:	62,294 sq. ft.
Number of Stories:	2
Building Height:	24 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ CMU ▪ Structural Steel ▪ Open Web Steel Joists and Concrete Deck ▪ Gypsum Roof Deck
City Council District:	5	**Exterior Wall System:**	▪ Brick ▪ Precast Concrete Panels ▪ Metal Panels ▪ Curtain Wall
SNF District:	NA	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	May 19, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 28, 2020
Building Risk Index:	**124.80**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$3,733,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,983,520
Sub-Total	$9,616,520
Contingency (25%)	$2,404,130
Sub-Total	$12,020,650
Overhead and Profit (15-18%):	$1,202,065
Sub-Total	$13,222,715
Escalation (6% for 2 years)	$793,362
Sub-Total	$14,016,077
Architectural and Engineering Design Services (20%):	$2,803,215
TOTAL COST ESTIMATE:	$16,819,293

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a cursory visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a cursory visual review of the building envelope from grade and the second-floor structure, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the condition of the gypsum roof deck. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement areas, located in the corners of the original building, are flooded or access stairs removed, and thus, were not assessed. The structural system is mainly exposed throughout the building as part of the original design of the building. The walls are of painted concrete masonry unit (CMU) construction and a suspended ceiling allows for access to the underside of the roof and second floor structures. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment.

The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)
- Environmental Reports

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

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BUILDING OVERVIEW

Overall

The 1961 original building is square in footprint with an interior courtyard space. A second floor was constructed above the north wing of this original footprint. Three years later, a nearly identical single-story addition was constructed to the south, including a second courtyard space.

The facade consists primarily of a dark colored brick veneer with concrete masonry (CMU) back-up, metal panels, and precast concrete accent panels with an exposed aggregate surface. The presumed curtain wall system is missing at all fenestration locations. The low-slope roofing consists of an internally drained, smooth-surfaced, bituminous built-up roof (BUR).

The exposed structure consists of CMU walls infilling steel beam and column frame systems. Open web steel joists (OWSJ) span between the beams and support a draped concrete slab spanning the approximate twenty-four inch spacing between the OWSJ system of the second-floor structure. The OWSJ are spaced at a greater distance at the roof levels and support either a gypsum or metal roof deck, respective of the area of the building and corresponding date of construction.

The full exposure of the interior of the original portion of the building to the elements is affecting the structural members. The gypsum roof deck is considered unsafe to walk upon; corrosion of the structural steel elements, including the OWSJ system, is present, and the minimal depth of the second-floor concrete slab and observed water infiltration through the slab makes the structural capacity of the concrete suspect. Full replacement of the curtain wall system and roofing are required. The building can be rehabilitated but will most likely require demolition of all but the original steel frame and CMU walls of the original, northern portion. Localized repairs of the southern, single-story addition are required, but are more feasible in scope and quantity.

Facade

The brick masonry veneer is generally in good, serviceable condition. Mortar deterioration was observed at the top of the brick masonry chimney, which should be repointed. The precast aggregate panels are generally in serviceable condition, though the sealant materials between the panels are deteriorated and require replacement.

The majority of the aluminum windows and curtain walls are missing. Where localized elements remain, damage and deterioration was observed, such as bent frames, missing glass, and failed sealant. Rehabilitation of the building should include full replacement of the curtainwall assemblies. The sheet metal panels are distressed including missing and displaced elements, dented panels, and localized areas of peeling paint and corrosion. These panels are recommended for replacement in conjunction with curtainwall replacement work.

Roofing

The roofing is in poor condition and requires full replacement. Several areas of the roofing have blown off, including a large area of adhesive failure over the upper second story portion based on a review of aerial photographs. This upper roof area also contains evidence of ponded water and large vegetative growth. The aluminum fascia along the building perimeter as well as other localized aluminum flashing elements have been removed, exposing and damaging the edge of the roofing assembly. Cracking and seam failures were observed throughout, in addition to organic growth and ponded water near drains. The expansion joint between the original building and addition was cracked. Deterioration of the roofing assembly, and the open nature of the exterior walls due to the missing curtain wall, are resulting in significant deterioration of the structural systems.

Structure

With minimal finishes throughout the original building and the addition, the structure is readily visible. In the northernmost wing of the building, the two-story segment of the original 1961 building contains ponding water on the second-floor structure and presumably on the upper roof based on the amount of water infiltration observed through the gypsum roof deck. The roof deck is visibly failing, and moss growth is prevalent on the second-floor structure indicating a sustained presence of water. Corrosion is evident at nearly every structural steel beam to column connection at the upper roof level. The second-floor concrete slab is relatively thin, and due to the continued water ponding, is vulnerable to potential freeze-thaw damage. Further assessment, potentially including concrete cores and petrography of the concrete, is recommended to determine the extent of damage of the second-floor deck. All of the gypsum roof deck is recommended to be replaced with metal roof deck, and all of the structural steel, including the OWSJ, should be cleaned of the corrosion byproduct (rust), assessed, reinforced if necessary, and recoated.

Based on the detailing of the structural steel beams and columns, the steel frames are not moment frames resisting lateral loads; the steel is intended to only support the gravity loads of the structure. The lateral loadings due to wind and seismic activity are intended to be resisted by the CMU infill walls. At the end walls at the north wing, the CMU is vertically cracked and visibly displaced inward. The cracking may be related to water infiltration, restrained thermal or volumetric changes in the materials, or relative stiffness of the walls within the steel frame. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

At the west wing corridor of the original building, adjacent to the courtyard space, a beam supporting the OWSJ roof members has been removed. The OWSJ in this area appear to be suspended from the gypsum roof deck system. This area of roof is recommended to be shored as soon as possible to mitigate the potential for a localized roof collapse and associated collateral damage to adjacent connected elements of the building. The temporary shoring can be replaced with a new support system if the building is to be re-used.

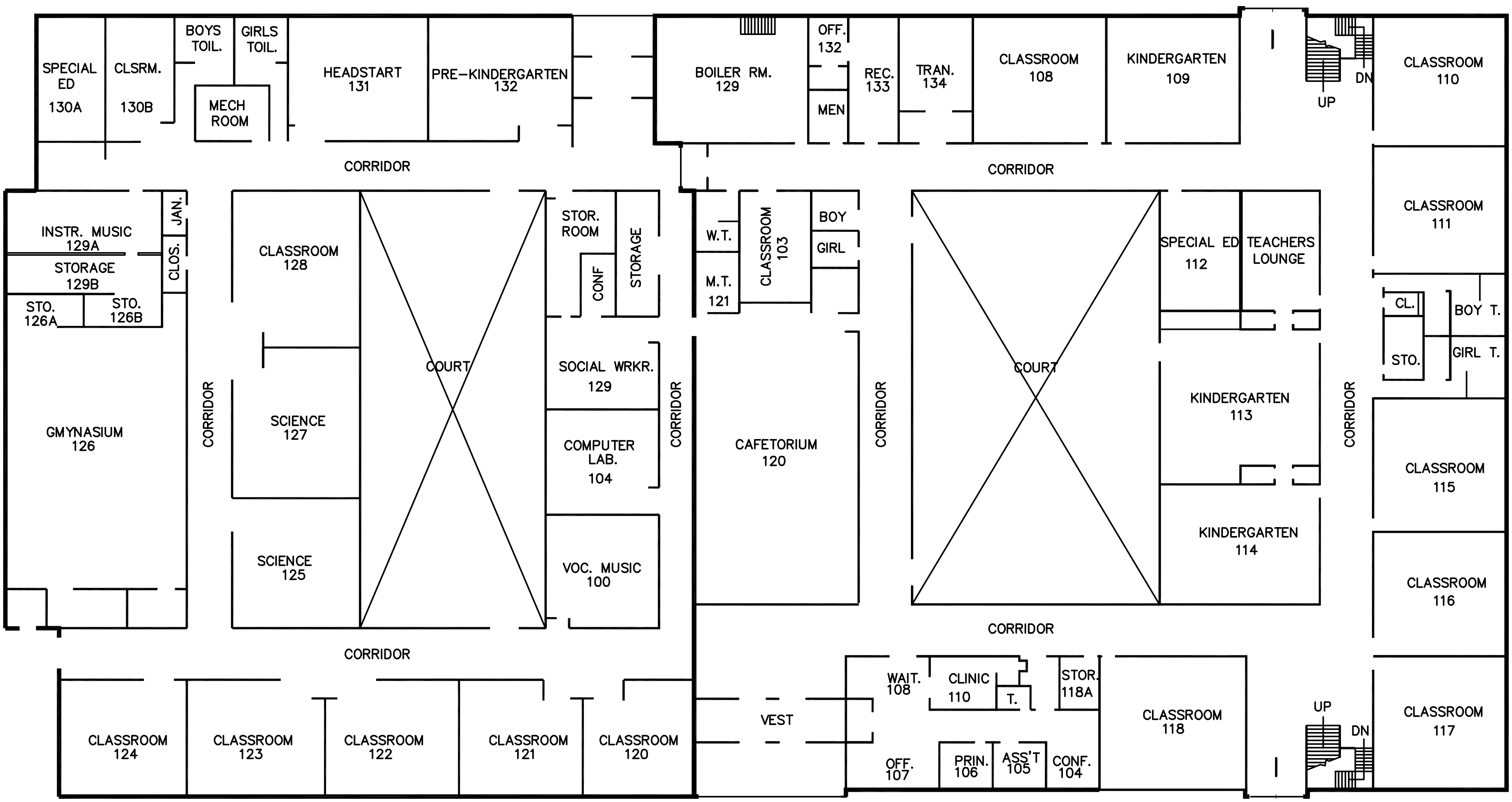
The southern addition is in better condition compared to the original building. The curtain wall system is missing, but the metal roof deck and structural steel are in better condition. The structure is sloped to accommodate the roof drainage, however localized corrosion of the roof deck is visible in multiple locations which may require localized reinforcement or replacement of the roof deck. The CMU walls are cracked in multiple locations throughout this addition, which may reflect water infiltration, restrained thermal or volumetric changes in the materials, or relative stiffness of the walls within the steel frame. Cracking of the CMU in a Janitor’s Closet in the southwest corner of the building is extensive, but it can be repointed and monitored if the walls are to remain with a potential new use. Corrosion staining on the

CMU at the OWSJ bearings should be further evaluated to assess the bearing condition of the OWSJ on the CMU.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

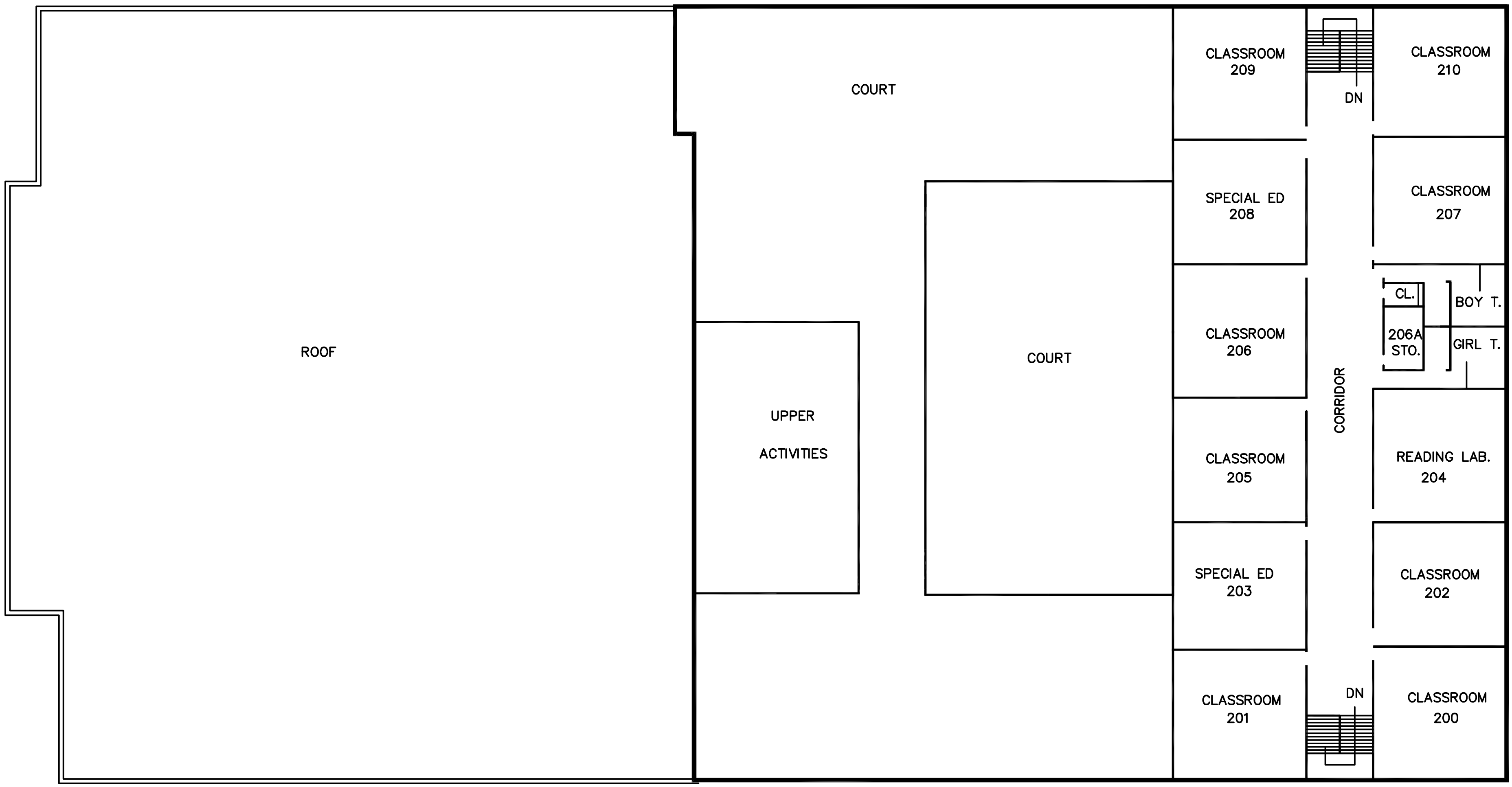
Similarly, dewatering and providing access into the basement spaces of the original building are recommended to allow for assessment of these portions of the building prior to the implementation of the recommendations stated herein.



JAMIESON ELEMENTARY
FIRST FLOOR

2900 W. PHILADELPHIA
NOT TO SCALE

UPDATED MAY 2006



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SECOND FLOOR

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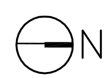

UPDATED MAY 2006

Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Stephens Elementary School

Basic Property Information: COD 5-Stephens-5974 Seneca

Short Name:	Stephens
Address:	5974 Seneca Street, Detroit, Michigan 48213
Year Built:	1913
Additions Built:	1918, 1922
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	145 feet x 192 feet
Square Footage:	73,719 sq. ft.
Number of Stories:	4
Building Height:	50 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	5	**Exterior Wall System:**	▪ Brick ▪ Stone
SNF District:	NA	**Window System(s):**	▪ Wood ▪ Aluminum Replacement
		Roofing System(s):	▪ Gutters ▪ Internal Roof Drains ▪ Modified Bitumen ▪ Built-up Roof

Assessment Summary

Assessment Date:	May 21, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 29, 2020
Building Risk Index:	**60.37**

Cost Estimate

Base Rehabilitation Cost Estimate:	$2,136,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,897,520
Sub-Total	$8,934,020
Contingency (25%)	$2,233,505
Sub-Total	$11,167,525
Overhead and Profit (15-18%):	$1,116,752
Sub-Total	$12,284,277
Escalation (6% for 2 years)	$737,056
Sub-Total	$13,021,334
Architectural and Engineering Design Services (20%):	$2,604,266
TOTAL COST ESTIMATE:	$15,625,600

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope (including the courtyard facades) from grade, main roof levels, and interior spaces using binoculars as needed. The upper roof level above the third floor “open air” addition was inaccessible due to safety concerns pertaining to the wooden roof framing condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is partially flooded, and thus, not all of the basement level was accessed. The interior finishes are largely intact excepting select locations. The structural framing systems are exposed in these select locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE’s observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under “Risk Characterization” below. A summary of the conditions observed is provided in the “Building Overview” section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE’s past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original building was constructed in 1913 with additions completed in 1917 and 1921 per the site plan provided to WJE. Both additions extend off the east elevation of the original building, creating a U-shaped building footprint, with the 1917 addition extending off the north end and the 1921 addition extending off the south end. A corridor extends between the two additions, creating an interior courtyard, which was likely constructed as part of the 1921 addition based on the similar construction types. Windows are present at the basement, first, and second levels; classrooms within the basement level are finished and include stairwells to access egress windows. An "open-air" level was also added above the original building roof level to accommodate students diagnosed with tuberculosis or other respiratory conditions.

The facade of the original building and north 1917 addition consists of multi-wythe clay brick masonry laid in a running bond without header courses in the exterior wythe. Stucco-faced panels are located in horizontal bands, while limestone and clay tile coping units line the building's perimeter parapets. The 1921 addition is similar, but contains header units every seven brick courses and limestone at the horizontal bands. The "open-air" third floor level consists of partial height masonry walls, continuous fenestration openings around the perimeter of the space, and an ornate sheet metal fascia with a built-in gutter at roof level. Throughout the building, the windows are generally wood framed with aluminum caps on the exterior and aluminum replacement windows inset within the original window openings, though most aluminum elements have been removed by vandals. A few original window openings have been infilled with brick masonry. The two main building entrances on the west facade have been altered to create vestibules which project from the original wall surface. These projecting entrances are multi-sided and appear to consist of a steel frame with clay brick infill, stucco cladding on the exterior and interior surfaces, and a concrete roof canopy. Conventional steel doors are present at the building entrances. Another multi-sided projected bay is located on the south facade, which houses the conservatory.

Over the sloped gymnasium wing and the "open-air" levels of the original building, the roof consists of a modified bitumen roofing assembly. The remaining roof levels consist of internally drained, bituminous built-up roof (BUR) assemblies with slag surfacing and granulated cap sheet base flashing. This includes the roofs over the vaulted mechanical spaces located within the interior courtyard. An elevated structural slab is located at grade over the Coal Room within the east courtyard, which has an exposed concrete surface and several manhole covers. Three masonry chimneys are present.

The primary structural system of the original building and additions is a reinforced cast-in-place concrete, or concrete encased structural steel frame with mass masonry walls at the perimeter and interior beam and column lines located within the corridor walls. The "open air" addition is wood framed.

Overall, the building is in good condition with minor, localized distress of the interior finishes and facade. The window assemblies and exterior doors exhibit significant distress due to damage from vandalism and deterioration, requiring replacement. The roofing over select roof areas is significantly distressed and warrants replacement, though other areas require only maintenance repairs to extend the service life of the existing systems. Active water damage is prevalent in the northeast and northwest corners of the building, with distress observed within the corresponding structural wood and concrete framing elements. An advanced level of distress was also observed in the concrete framing of the ceiling of the Coal Room, which is also the exterior pavement in the east courtyard. Further detail of the observed distress is provided below.

Facade

The facade is generally in good, serviceable condition. Minor brick repairs are recommended in localized areas, including cracks at some of the masonry parapets and building corners, and near isolated corroded steel lintels. Displacement is visible across the vertical expansion joint located between the original building and south addition, and should be repaired by routing out a larger joint to accommodate more movement, replacing the backer rod and sealant materials, and installing supplemental lateral brick ties as needed within the area of brick displacement. Localized displaced limestone coping units and brick masonry in this region should be reset. Mortar deterioration and water staining is present where isolated downspouts are missing, which should be repointed. Common brick is present at the base of the facades with a surface-applied parge coat which has delaminated in some regions, though the masonry was sound where exposed. Previous brick masonry repairs include localized steel lintel repairs, replacement of localized brick masonry, and localized mortar repointing. These repairs are generally in sound, serviceable condition.

The stucco-clad horizontal bands are generally cracked and delaminated, requiring repair. At the two projecting entrances on the west facade, the stucco walls are in poor condition and the concrete canopy is cracked. These elements will require repair if they are to remain. The limestone bands are in good condition with only localized mortar deterioration observed. The ornate sheet metal fascia that surrounds the built-in gutter at the "open air" third floor addition is dented, displaced, and missing in some regions, and the coated surfaces are peeling with isolated regions of corrosion visible. The fascia should be restored or replaced to mitigate further water infiltration into the wall assembly and corrosion of the sheet metal, with consideration of the original historical aesthetic.

The majority of the windows are missing or damaged, including missing sashes, missing and decayed frames, missing and displaced aluminum covers, and broken glass. The exterior steel doors are typically corroded near the base, dented, or missing, or have been damaged from the temporary measures to secure the building and barricade the doors. Rehabilitation of the building should include replacement of the window and exterior door assemblies.

Three brick chimneys are present at the building. The main east chimney contains minor isolated step cracks, vertical cracks, and eroded mortar. The large west chimney contains vertical cracks that extend down the north and south faces of the chimney. Previous repointing repairs have cracked and debonded, showing progression of the cracking and outward displacement of the masonry near top of the chimney. The small west chimney is slightly out-of-plumb (leaning) and the mortar is significantly eroded, though cracked and debonded mortar were not readily observed and the chimney appears sound and stable. These chimneys should be repaired as part of the building rehabilitation and monitored for further distress. Cracked brick units should be replaced and deteriorated mortar joints should be repointed. The existing caps should be repaired and new cap flashing should be installed to mitigate further water infiltration. Supplemental lateral brick ties should be installed near the top of the large west chimney to mitigate further displacement. The upper five feet of the small west chimney may need to be rebuilt if continued distress and displacement are observed following the recommended repairs; or selective demolition may be considered.

Roofing

The condition of the roofing varies by roof area, though the roofing is significantly deteriorated over the third floor "open air" addition, the northeast gymnasium/auditorium, and the lower mechanical spaces within the central courtyard, warranting replacement. At the sloped gymnasium/auditorium roof, the insulation crushed underfoot, sheet metal flashings have been removed by vandals, and the corresponding base flashings are pulled away from the masonry substrates. Seam failures within the mod-bit roofing and cracking within the BUR were also observed. Ponded water, organic growth, and vegetation are present on these roof surfaces near failed drains. Downspouts that drain the third floor "open air" addition are missing in some regions, and should be replaced to mitigate further masonry deterioration. Evidence of prolonged water infiltration was observed within the building interior of these regions, including water staining, damaged interior finishes, and deterioration of the concrete and wood structural elements. The elevated concrete structure over the vaulted fuel room is also deteriorated due to an insufficient and/or deteriorated waterproofing system, which is discussed in further detail below.

The roofing systems within the remaining roof areas are in serviceable condition with minimal evidence of water infiltration below; these areas likely require only minor maintenance repairs to extend the service life of the existing assemblies.

Structure

Overall, the primary structural system, which is either conventionally reinforced concrete or structural steel encased in concrete, is in good condition with relatively isolated areas of distress. The structural system was visually confirmed in isolated locations of damaged finishes, but most of the finishes are in place. Generally, the condition of finishes is indicative of the condition of the structural elements behind. The uppermost "open-air" level is of wood construction built atop the original concrete roof structure.

The wood structural framing of the upper level "open-air" addition is exhibiting areas of decay due to the fully exposed nature of this addition. The wood tongue and groove roof decking is heavily water stained at the perimeter and at the chimney. Similarly, the wood 2x roof rafters are heavily water stained at the bearings with visible decay present at the chimney. The 2x rafters are lapped over built-up wood beams which span between nominal 6x6 timber columns. At two locations, the built-up beams are water stained and locally crushing at the column bearings. A third built-up box beam in this roof structure has visibly deflected down away from the rafter bearing, however the rafters are supported on a nearby beam. The timber columns at the northwest end are visibly bowing; minor decay is present at one of these columns at the flooring elevation. The localized distress described herein is relatively simple to repair with reinforcement or replacement of the members. The lateral force resisting system of this upper level wood-framed structure is recommended to be further reviewed. Additional bracing, shear walls, or other systems may be required to meet current building code requirements as part of a full building rehabilitation project.

The ceiling of the coal room also serves as the exterior grade in the central courtyard. The reinforced concrete slab is cracked on both the top and underside surfaces. The slab is supported with reinforced concrete beams of which at least two have been previously repaired. Additional spalling and steel corrosion have occurred, requiring concrete repairs of each of the beams. Because the observed distress reduces the structural capacity of this concrete slab structure, near-term measures are recommended to be taken to mitigate the risk of vehicles loading this area of the pavement behind the building, or alternately, to shore the beams to provide supplemental structural capacity.

As discussed above, the exterior mass masonry walls are generally in good, serviceable condition. Brick masonry cracking and steel corrosion were apparent in isolated locations of the building interior surfaces. Masonry cracking in the gymnasium and adjacent locker rooms are likely related to corroded steel lintels embedded in the masonry walls causing rust jacking of the masonry. These concerns are minor and can be repaired with repointing and repair of the corroded steel elements.

Miscellaneous

Internal roof drains are damaged in the northeast and northwest corners of the building, leading to deterioration of the finishes in these areas. Other localized areas of water damage have deteriorated the finishes, exposing the structural system in these areas. The majority of the finishes, however, are extant.

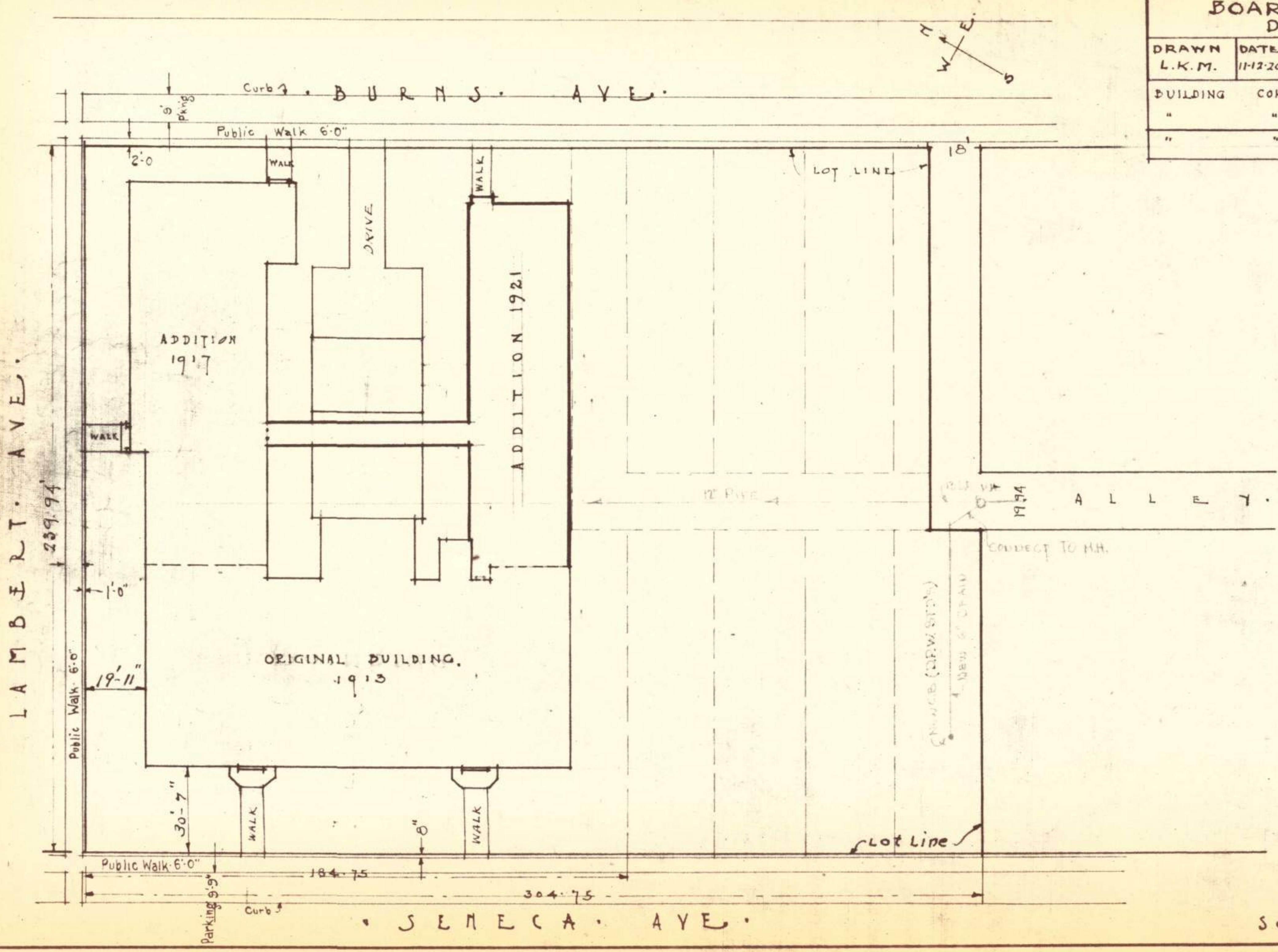
Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

· STEPHENS SCHOOL ·
DETAIL OF SITE.

DEP'T. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
L.K.M.	11-12-20	E	11-12-20		

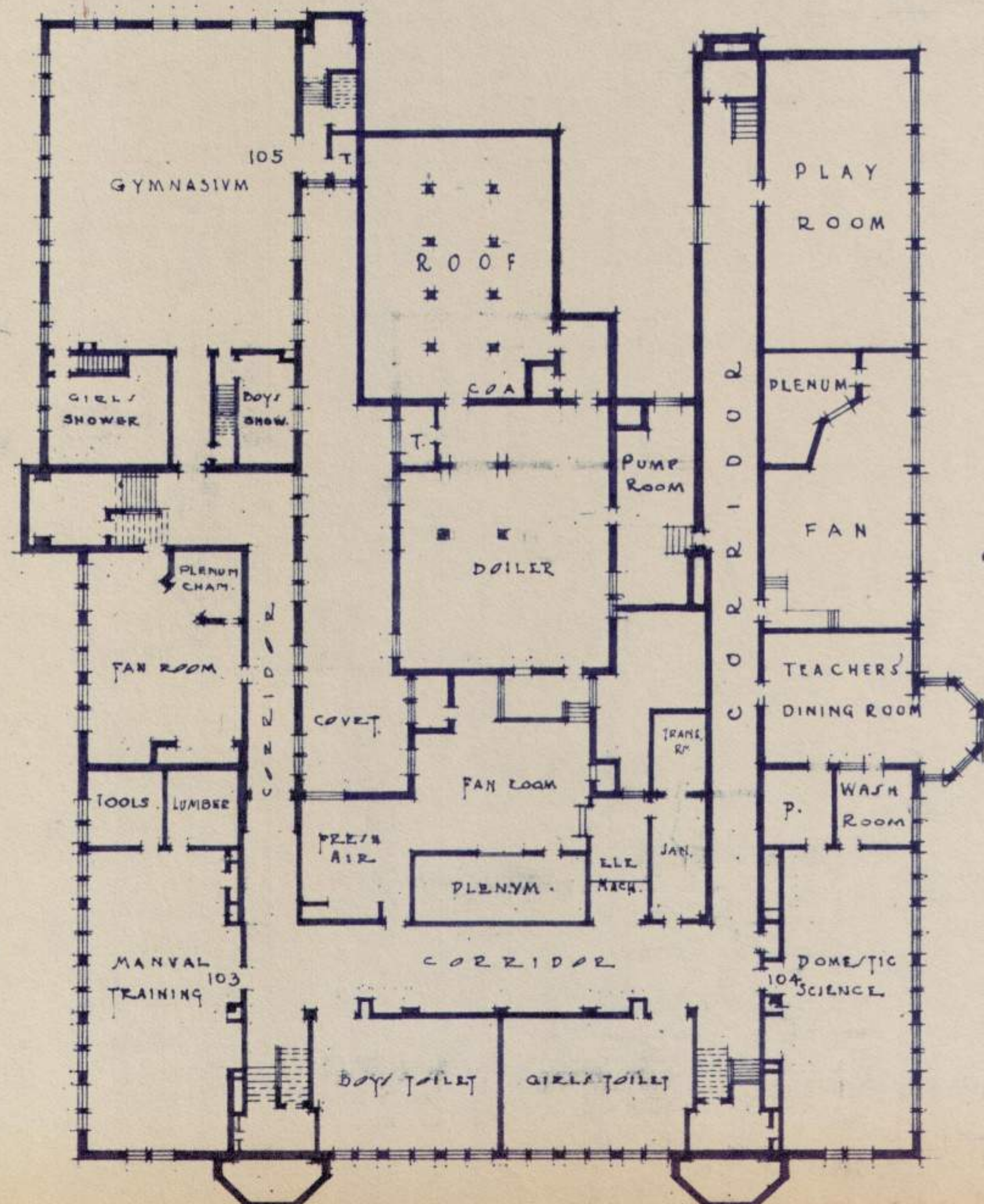
BUILDING	CONST.	1913	BRICK WALLS	CONCR. SLAB
"	"	1917	" "	" "
"	"	1921 1922	" "	" "



Scale · 1" = 40'-0"

STEPHENS SCHOOL					
BASEMENT FLOOR PLAN Scale $\frac{1}{32}$"=1'-0"					
DEP'T. OF ARCHITECTURAL ENGINEERING BOARD OF EDUCATION DETROIT, MICH.					
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.DL	10-30-20	CE	11-12-20		

REVISED 9/26/46 G.H.M.



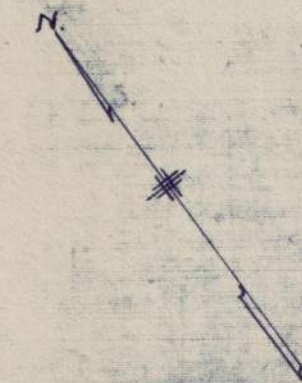
BASEMENT PLAN

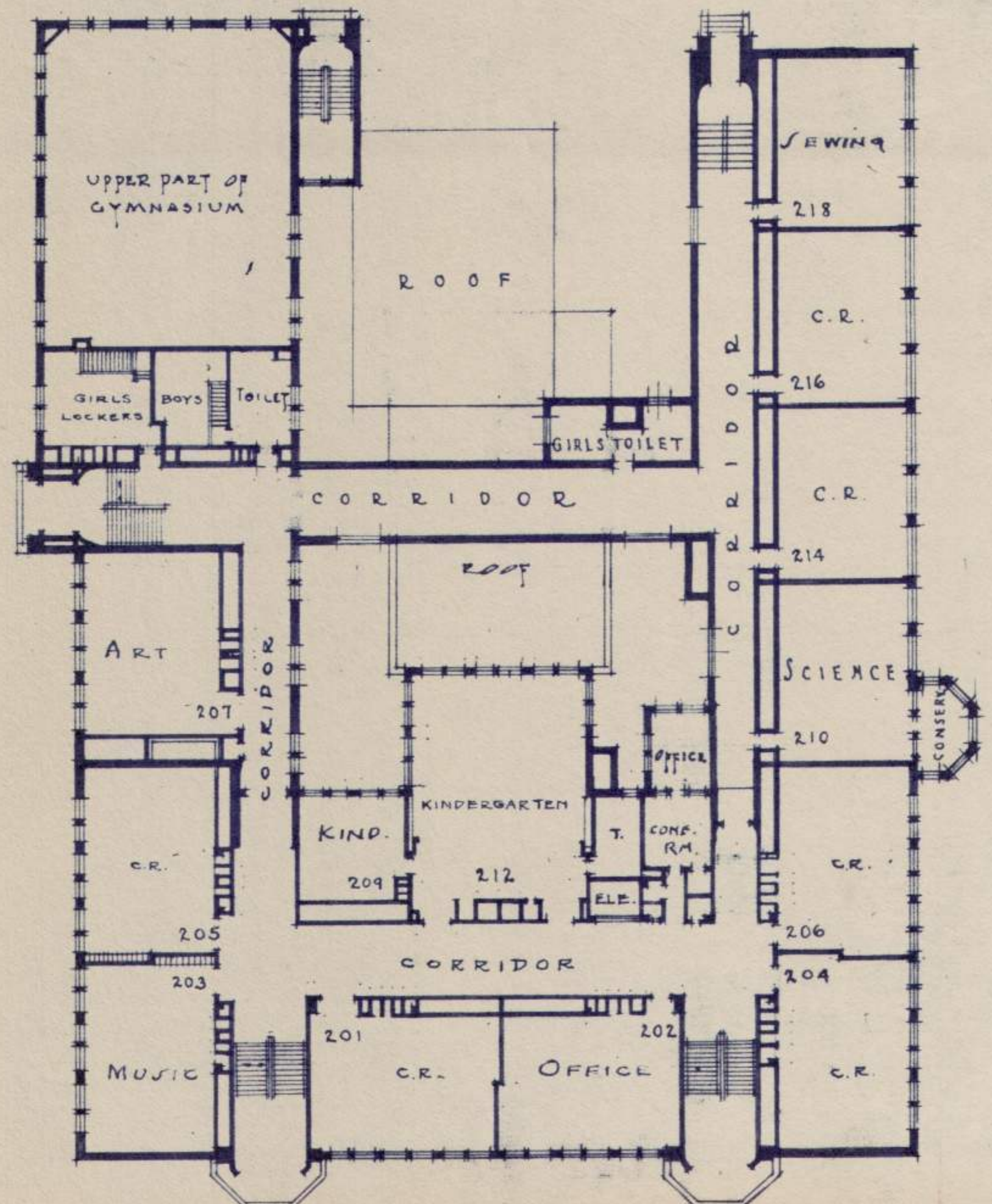
SCALE $\frac{1}{32}$"=1'-0"

STEPHENS · SCHOOL FIRST FLOOR PLAN · Scale $\frac{1}{32}$"=1'-0"					
DEPT. OF ARCHITECTURAL ENGINEERING BOARD OF EDUCATION DETROIT · MICH.					
DRAWN G.D.L	DATE 10-30-20	CHECKED CE	DATE 11-12-20	APPROVED	DATE

BUILDING CONST.	1913	BRICK WALLS	CONCR. SLAB	
" "	1917	"	"	" "
" "	1921 1922	"	"	" "

REVISED 9/26/46 G.H.M.

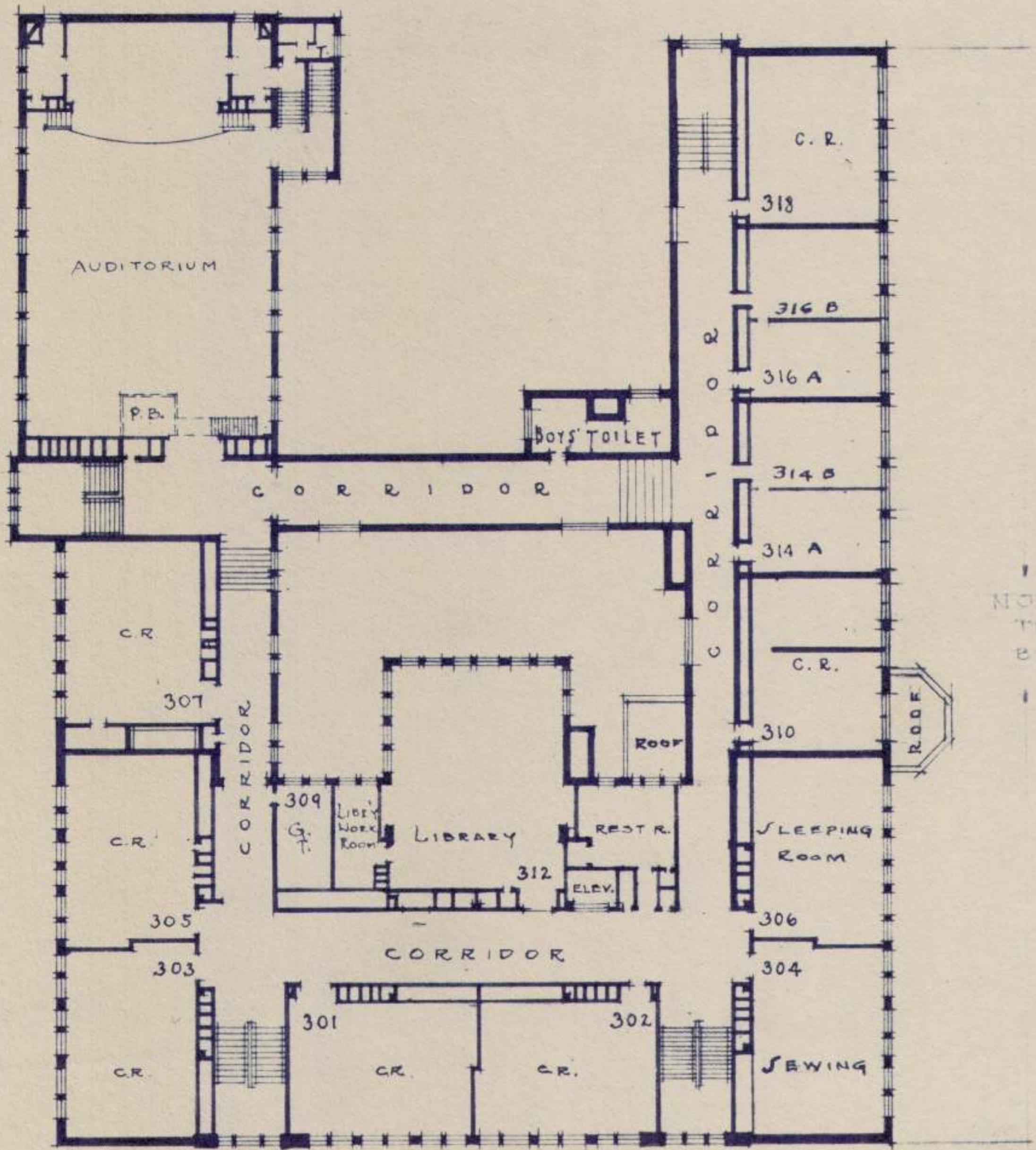




FIRST FLOOR PLAN
scale $\frac{1}{32}$"=1'-0"

STEPHENS • SCHOOL SECOND FLOOR PLAN • Scale $\frac{1}{32}$" = 1'-0"					
DEPT. OF ARCHITECTURAL ENGINEERING BOARD OF EDUCATION DETROIT, MICH.					
DRAWN G.D.L.	DATE 10-30-20	CHECKED CE	DATE 11-12-20	APPROVED	DATE

REVISED 9/26/46 G.H.M.



NOTE
THIS SECTION USED
BY DEAF CHILDREN

SECOND FLOOR PLAN
scale $\frac{1}{32}$" = 1'-0"

• STEPHENS • SCHOOL •
THIRD FLOOR PLAN • Scale $\frac{1}{32}$" = 1'-0"

DEP'T. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.D.L.	10-29-20	E	11-12-20		

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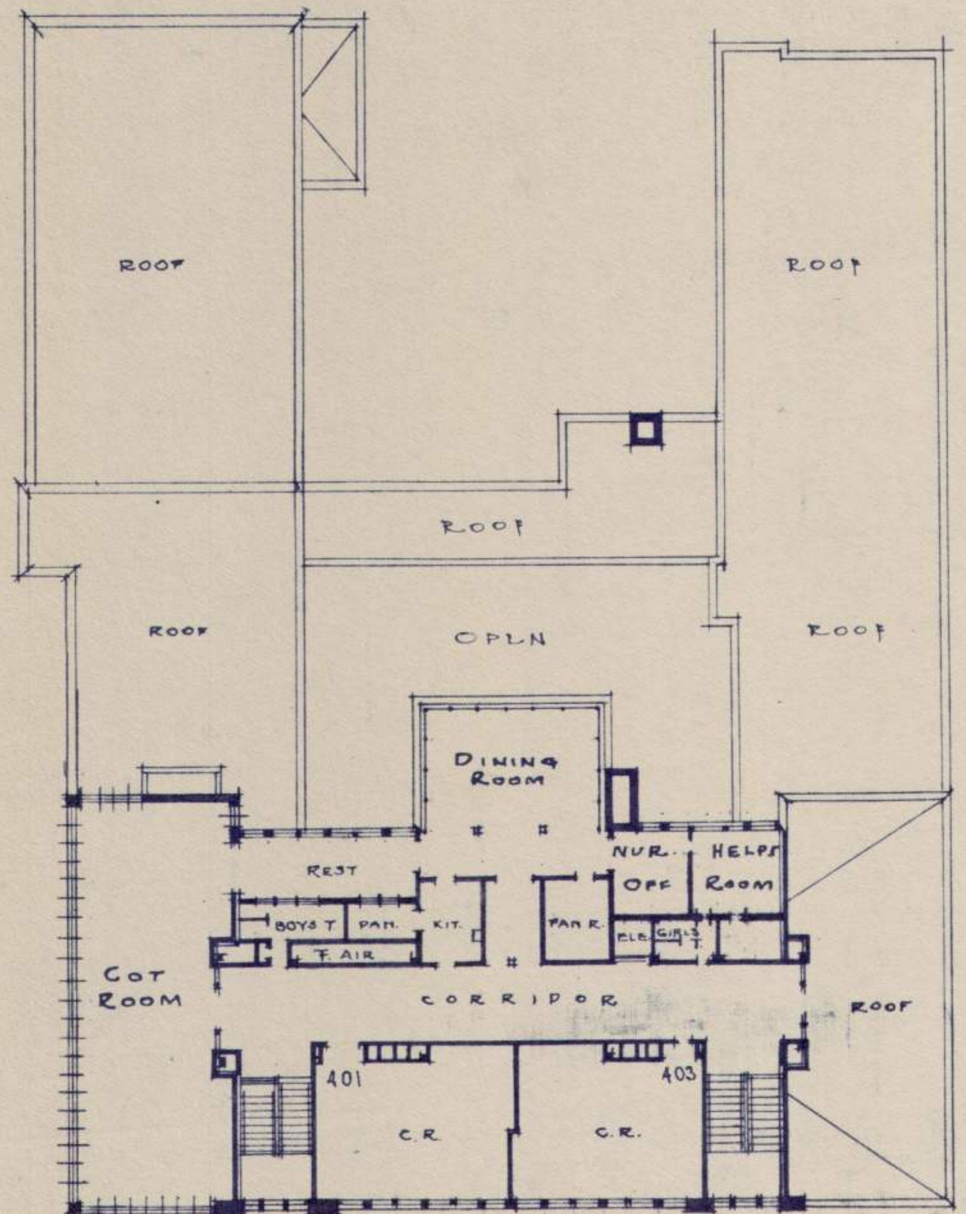

THIRD FLOOR PLAN

scale $\frac{1}{32}$" = 1'-0"

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Brady Elementary

Basic Property Information: DPS 5-Brady-2920 Joy Rd

Short Name:	Brady
Address:	2920 Joy Road Detroit, Michigan 48206
Year Built:	1921
Additions Built:	1923, 1961
Outbuildings:	None
Year Vacated:	2007
Building Footprint:	360 feet x 130 feet
Square Footage:	54,772 sq. ft.
Number of Stories:	2
Building Height:	46 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Wood
City Council District:	5	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood
		Roofing System(s):	▪ Built-Up Roof (assumed) ▪ Asphalt Shingles ▪ Gutters ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 21, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**81.07**

Cost Estimate		
Base Rehabilitation Cost Estimate:		$1,430,500
Preparation for Rehabilitation Work:		$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):		$4,381,760
	Sub-Total	$6,712,260
Contingency (25%)		$1,678,065
	Sub-Total	$8,390,325
Overhead and Profit (15-18%):		$1,258,548
	Sub-Total	$9,648,873
Escalation (6% for 2 years)		$578,932
	Sub-Total	$10,227,806
Architectural and Engineering Design Services (20%):		$2,045,561
TOTAL COST ESTIMATE:		$12,273,367

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed in 1921 with additions constructed in 1923 and 1961. The facade generally consists of clay brick masonry with limestone accent units at window sills, window heads, entrance surrounds, horizontal bands, and gable end walls. The brick masonry units are typically oriented in a running bond with a header course every six courses, vertically. Some of the building entrances contain conventional steel framed doors; however, the doors are missing at some building entrances and temporary protective enclosures have been installed. The windows are typically wood framed and appear to be original to the building construction. The low-slope roof areas at the center, east, and west wings were not reviewed during this assessment because of safety concerns near the access hatch. The low-slope roof appears to consist of an internally drained, gravel-surfaced, bituminous built-up roofing system with an aluminum surface coating based on the review of aerial photographs. Steep-slope gable roofs covered with asphalt shingles are present at the original (central) portion of the building. The gable roofs slope to external gutters and downspouts, or directly onto adjacent low-slope roof areas.

Overall, the building is in poor condition. Substantial brick masonry and limestone repairs are recommended throughout the facade due to long-term water penetration resulting in freeze/thaw damage and corrosion of embedded steel elements, and failure of the roofing systems above. The window and door assemblies are typically missing or severely damaged and require replacement. The low-slope and steep-slope roofing assemblies exhibit significant and widespread damage and require removal and replacement.

Facade

Severe masonry distress was observed at window heads throughout the facade, including cracking and bulging of brick masonry and spalling and displacement of limestone units due to corrosion of the embedded steel lintels. Severe corrosion and deflection were noted at some steel lintels, likely warranting replacement. Cracking, bulging, and displacement of the brick masonry was observed at the east wing parapets. Repairs should include replacement of areas of cracked, spalled, and bulging brick units; rebuilding areas of the east wing parapets; and repair or replacement of distressed steel lintels with installation of a durable repair detail including through-wall flashing.

Widespread mortar erosion was observed throughout the facade, as well as biological staining on the surface of the masonry at many facade areas. The staining and mortar deterioration at the parapets are attributed to prolonged moisture penetration due to deterioration of the roofing and/or roof base flashings along the walls and failed coping joints or missing copings. Staining and mortar deterioration are also common at building corners at locations of missing gutters and downspouts or where gutters are full of debris. Due to the extent of mortar deterioration and staining, grinding and pointing of 100 percent of the masonry facades and cleaning of the exterior wall surfaces is recommended.

Several limestone units are spalled, cracked, or displaced throughout the facade, attributed to water infiltration or corroded lintels and associated upward movement of the masonry. Localized stone coping units are missing at the gable end walls. Repair or replacement of the distressed stone elements is recommended to mitigate further distress to the stone and surrounding masonry facade.

The original wood window frames are typically present at window openings, though they typically exhibit peeling paint and localized wood decay, and the window sashes are typically missing with some openings covered with temporary protective enclosures. The steel framed doors are corroded and welded shut, and the other doors are missing. Due to the absence of the window sashes and some doors, as well as the deteriorated condition of the wood and steel frames that remain in place, replacement of all windows and doors is recommended.

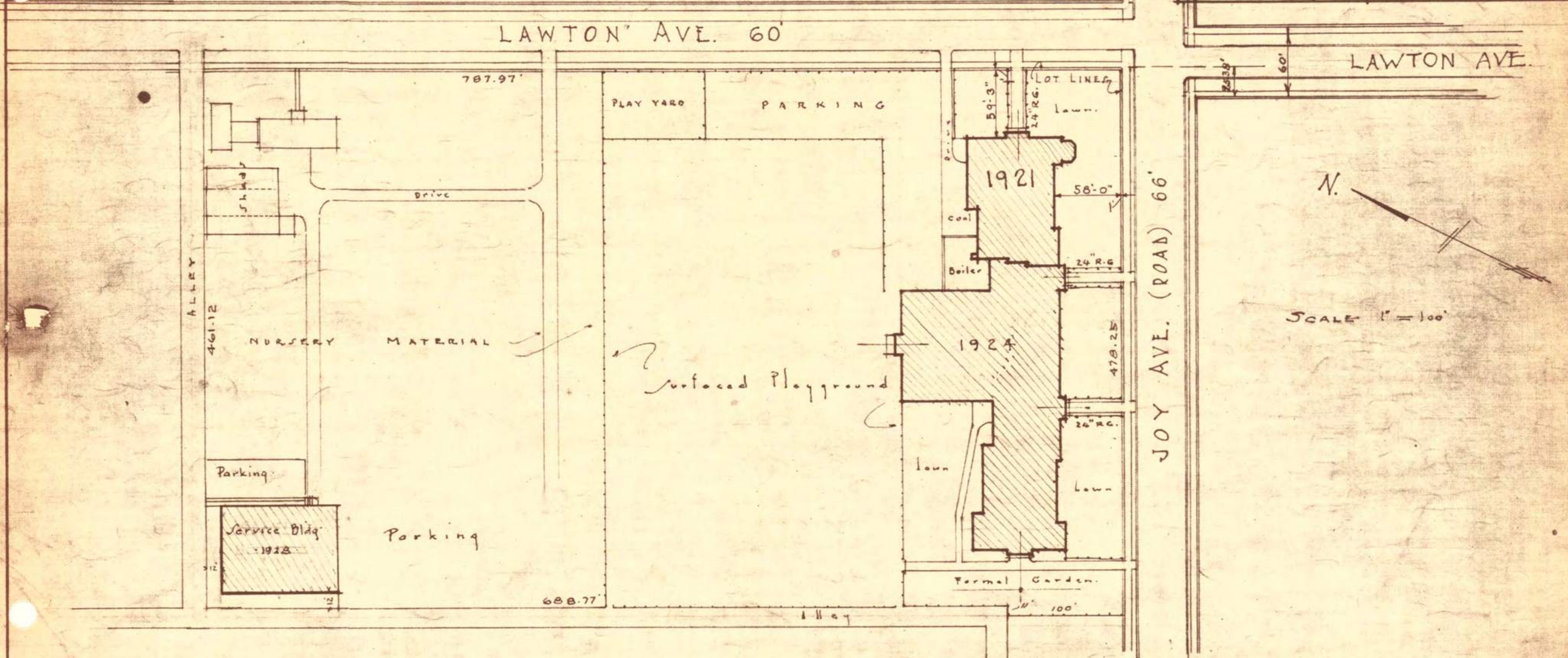
Roofing

The roofs could not be accessed during this assessment. The low slope roof at the west building wing was observed through an access hatch where missing counterflashings, base flashings that were pulled away from the wall, and deteriorated material at the penetrations and wall interfaces were observed. Indications of roofing deterioration were also visible from grade, particularly at the steep-slope roof areas. This includes damaged and missing shingles, missing ridge and valley flashings, and large holes in the roof that are visible from the interior at areas where flashings were removed or at the roofing interface with the gable end walls. Signs of interior water infiltration were also observed at locations of damaged roof drains and conductors, damaged or missing flashings, and missing and displaced rooftop mechanical units. Additionally, large holes in the roof were observed at locations of missing flashing and decayed wood decking. Vegetation growth, including trees, and water ponding is readily visible from aerial photographs. In general, the roof is in critical condition due to missing flashings and large holes that provide a direct avenue for water infiltration to the interior of the building. The roof damage and deterioration has caused accelerated distress to the adjacent masonry walls leading to localized masonry instability and potential life safety hazards. Rehabilitation of the building should include removal and replacement of the low-slope and steep-slope roof assemblies and drainage systems, following structural assessment and repairs of the roof framing.

BRADY SCHOOL
· DETAIL · OF · SITE ·

DEPT OF ARCHITECTURAL ENGINEERING.
~ BOARD OF EDUCATION ~
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED.	DATE.
L.K.M. S.J.H.	5/19/21				
BLDG. CONSTR	1921 1924	BRICK WALLS CONC. SLAB			



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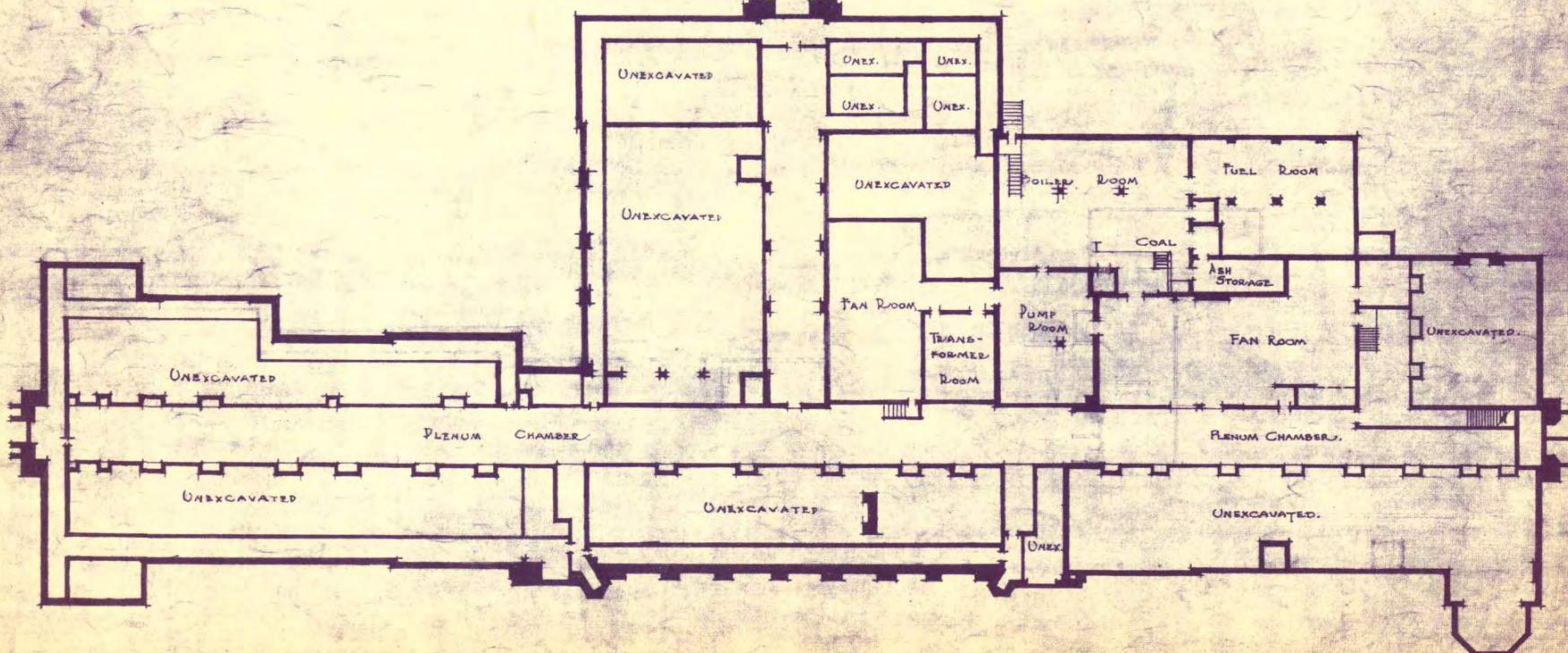
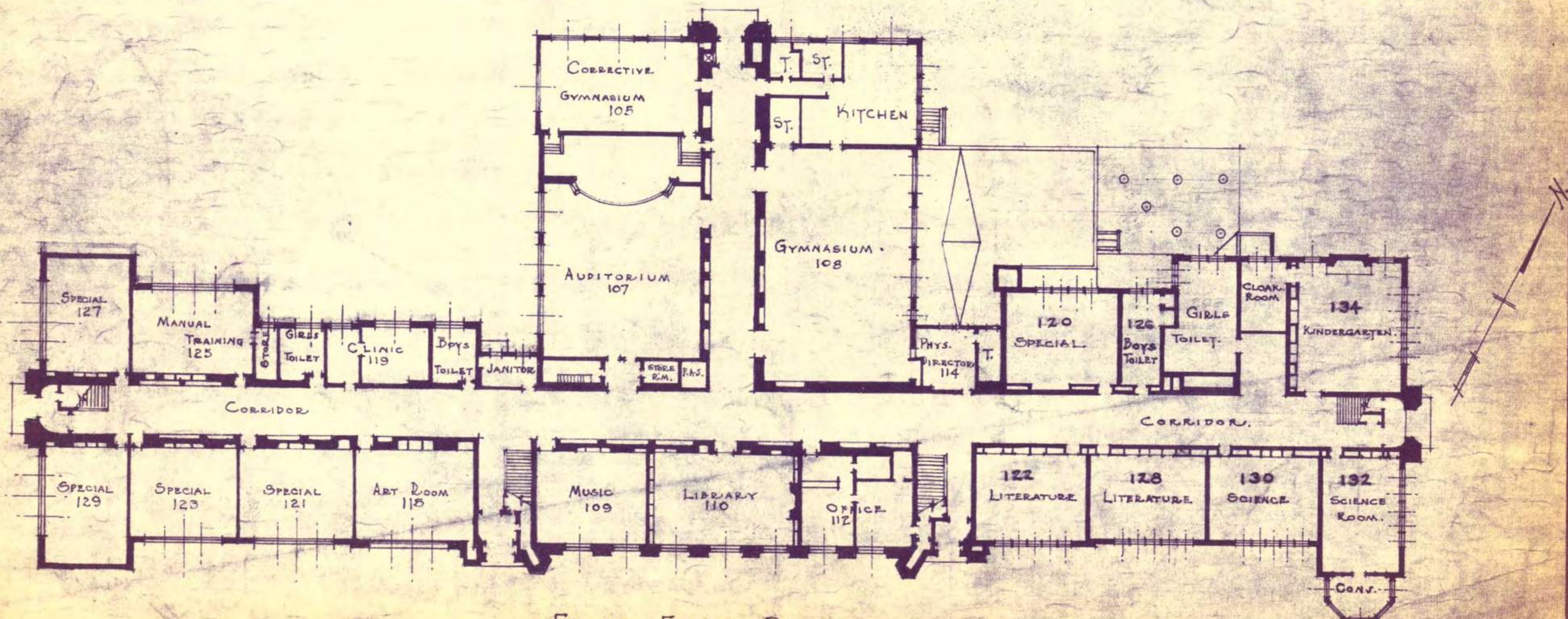
DEPT OF ARCHITECTURAL ENGINEERING BOARD · OF · EDUCATION · DETROIT · MICH ·					
DRAWN F.C.T.	DATE	CHECKED	DATE	APPROVED.	DATE.



BASEMENT PLAN
SCALE 1/32" = 1'-0"

· BRADY · SCHOOL ·					
· DEPT · OF · ARCHITECTURAL · ENGINEERING · · BOARD · OF · EDUCATION · · DETROIT · MICH ·					
DRAWN · F.C.T.	DATE	CHECKED	DATE	APPROVED	DATE
BLDG. CONSTR.		1921	BRICK WALLS - CONC. SLAB.		



FIRST · FLOOR · PLAN
SCALE 1/32" = 1'-0"

Brady School

Dept of Architectural Engineering
· Board · of · Education ·
· Detroit · Mich ·

Drawn ·	Date	Checked	Date	Approved	Date.
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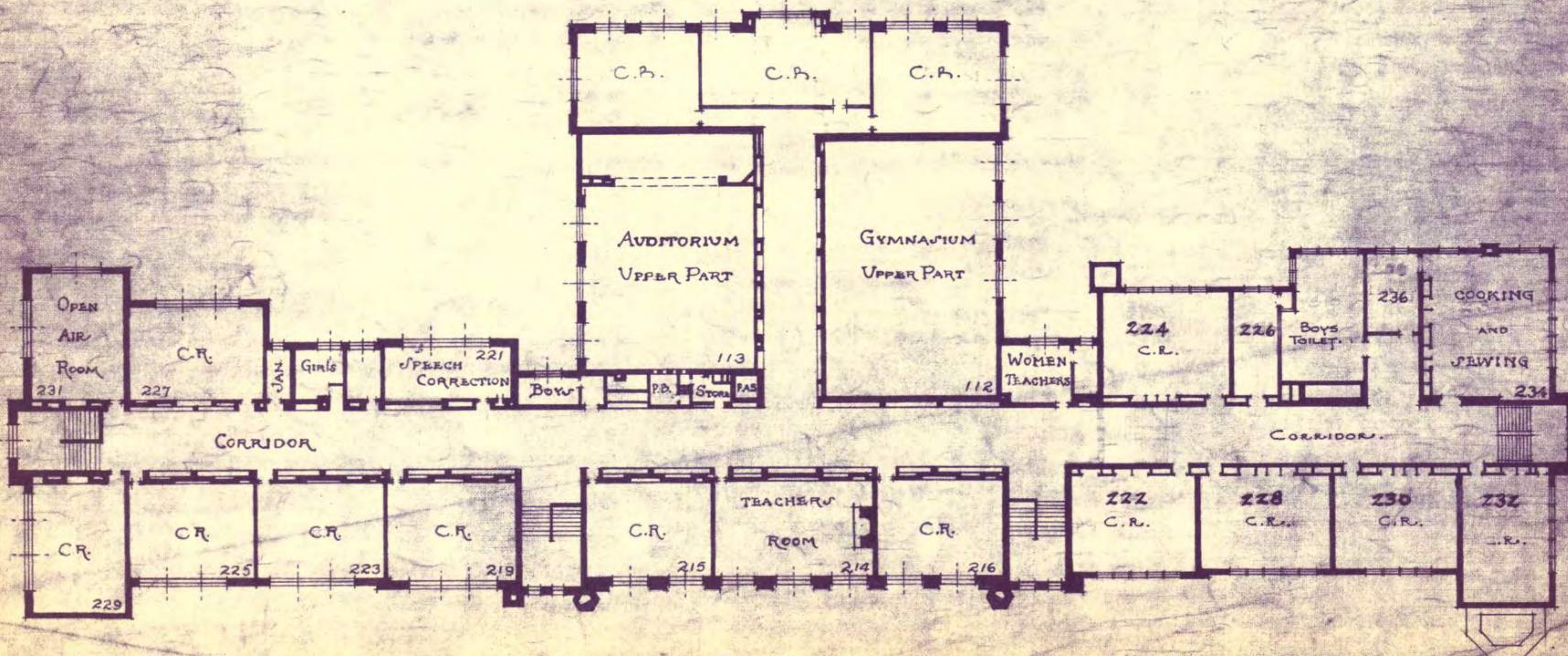


~ Second · Floor · Plan ~
Scale 1/32" = 1'-0"

District 6

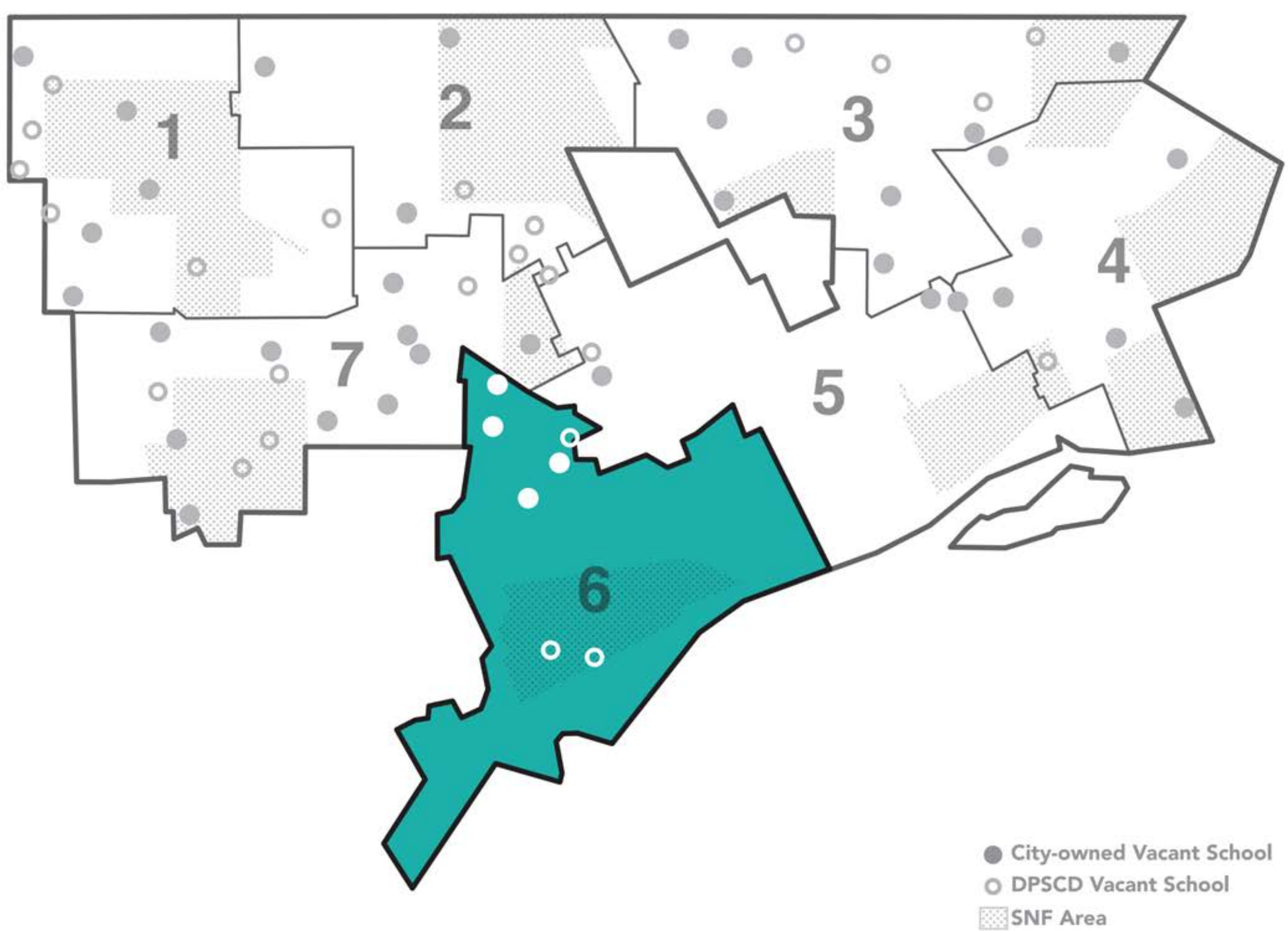
City of Detroit Schools:

Hanneman
Ruthruff
Sampson
Sherrill

DPSCD Schools:

Beard
Biddle
Phoenix

Detroit
City Council District 6



WJE

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Hanneman Elementary School

Basic Property Information: COD 6-Hanneman-6420 McGraw

Short Name:	Hanneman
Address:	6420 Mcgraw Street Detroit, Michigan 48210
Year Built:	1916
Additions Built:	None
Outbuildings:	None
Year Vacated:	2007
Building Footprint:	82 feet x 180 feet
Square Footage:	42,651 sq. ft.
Number of Stories:	3
Building Height:	38 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	6	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood Framed ▪ Aluminum Sashes
		Roofing System(s):	▪ Built-Up Roof ▪ Modified Bitumen Flashing ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	March 19, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 22, 2020
Building Risk Index:	**66.13**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,267,300
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,412,080
Sub-Total	$5,579,380
Contingency (25%):	$1,394,845
Sub-Total	$6,974,225
Overhead and Profit (15-18%):	$1,046,133
Sub-Total	$8,020,358
Escalation (6% for 2 years)	$481,221
Sub-Total	$8,501,580
Architectural and Engineering Design Services (20%):	$1,700,316
TOTAL COST ESTIMATE:	$10,201,896

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The interior finishes are in a state of deterioration, exposing the structural framing systems. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building is primarily rectangular in plan with a small, half-story projection northward at the center of the north facade which houses mechanical equipment in the basement level. A roof terrace is present over the half-story projection. The basement level is a garden level, where windows located at grade provide daylight into the basement spaces. The second-floor level stacks over the first-floor level, with nearly identical layouts.

The building facade consists of multi-wythe clay brick masonry in Flemish-bond with limestone accents at the entrances, window sills, and a belt course near the bottom of the facade. Aluminum replacement windows have been set in the original wood frames, and aluminum caps cover the wood frames on the exterior. The building entrances are typically steel doors surrounded by transoms and side-lites. An architectural sheet metal cornice wraps around the building perimeter near the top of the wall. The roofing consists of a bituminous built-up roof with a flood coat and granular cap sheet base flashing that slopes to internal drains along the central corridor. The roofing extends to the top of the exterior masonry walls with little to no freestanding parapet or exposed masonry on the roof side.

The sloped roof structure consists of wood framing spanning between the mass masonry perimeter walls and an interior beam and column system located within the corridor walls. The first and second floor structures are comprised of concrete tee joist-slabs with stay-in-place clay tile forms. The beams and columns, where exposed, are concrete, or steel encased in concrete. The roof structures of the mechanical rooms at the north side of the building are comprised of reinforced concrete slab and beam construction spanning between the mass masonry perimeter walls and interior concrete columns.

Although initial appearances of the existing conditions are concerning based on the magnitude of the failure of the interior finishes, the building is in a repairable state. Failed and missing roof drains along with missing mechanical rooftop units are permitting a significant amount of water to enter the building interior at the corridors. Water damage within the wood roof and ceiling framing was observed near the drains and mechanical unit roof penetrations. The concrete floor structures are generally in good condition with localized areas of spalled concrete revealing embedded corroded reinforcement. Replacement of the roofing, including roof drains and associated piping, is recommended to mitigate further damage to the interior finishes and structural elements. Many of the windows are missing or damaged and will require replacement, though repairs may be possible in select locations. The masonry is generally in good condition, except at poorly executed previous repairs at the half-story north terrace walls, where the repairs did not address the underlying causes of distress. Further detail of the observed distress is provided below.

Facade

The masonry is generally in good condition, though distress related to water penetration is present in localized areas.

At least two previous masonry repair projects have been completed at the building based on the observed brick unit replacement types and variations in the repair detailing. These past projects have included localized flashing repairs, rebuilding of localized brick areas, brick infill at a few wall openings, and localized repointing of mortar. One of the masonry repair projects included appropriate detailing and largely remain in good condition. Repairs performed during the other restoration effort exhibit continued deterioration. In regions of poor previous masonry repair efforts, including the lower level windows and the north entrance terrace walls, severe corrosion and deflection of the steel lintels is present which has resulted in significant cracking and displacement of the surrounding masonry. Locations containing significant masonry distress should be rebuilt with new steel lintels and appropriate flashing and lateral reinforcement detailing.

In general, the original mortar has a uniformly eroded appearance due to its age but is well bonded and sound. However, some very localized areas of mortar are significantly eroded and friable or are missing and should be pointed (filled) with an appropriate mortar material.

The architectural metal cornice near the top of the facade is displaced and bent in some regions on the south facade. Peeling paint was observed on the underside while the condition of the skyward surfaces is unknown. Displaced areas should be re-secured and/or replaced. All surfaces should be painted to mitigate further deterioration.

The majority of the windows are missing or damaged with missing sashes, missing and decayed wood frames, and/or broken glass. Many of the steel doors are dented or corroded and the transoms and side lites contain localized dents in the metal frames and/or broken glass. Rehabilitation of the building should include replacement of the window and door assemblies, though restoration of select window locations may be considered in lieu of replacement.

Roofing

The roofing is in poor condition largely due to failed internal drainage systems and missing rooftop mechanical units. The observed deterioration includes a large area of roofing that has become un-adhered near the drains and widespread cracking, seam failures, and organic growth. Due to the sloped roof structure towards the central drains, the majority of damage to the structural and interior finishes is concentrated near the corridor. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and replacement of the internal drains and drain pipe systems. In the near term, temporary measures should be considered to address the ongoing water management issues and stabilize the observed deterioration within the building interior.

The north terrace contains two internal drains that were clogged with organic growth at the time of our assessment, creating ponded water. The drain conductors were also missing, resulting in significant water infiltration into the mechanical space below. Waterproofing elements over the adjacent vaulted mechanical space were failed, resulting in water infiltration and deterioration of the concrete slab structure. Rehabilitation of the building should include replacement of these water management elements.

Structure

The deteriorated condition of the interior finishes at the center of the building has exposed the primary structural systems.

At the second-floor corridors, at the east wall of the west stair, and at the east wall of the auditorium, the wood roof decking, rafters and ceiling joists are decayed, and stained black and white fungal growth is present. Daylight is penetrating through the wood decking in isolated locations. The decayed areas of the roof require full rebuilding and is recommended to be coordinated with the roofing repairs.

Although the finishes in the central rooms of the building are fully deteriorated and the underside of the second-floor structure was visibly wet; no distress of the concrete structure was observed. Similarly, the underside of the first-floor structure was visibly wet in the same areas of the building. The water presence is related to failed interior roof drains and roof openings at the missing mechanical roof top units. The underside of the concrete tee-joists is corrosion stained with exposed reinforcement present along portions of the joists in the classroom ceilings at the east and west ends of the basement level. The embedded concrete reinforcing steel appears to have minimal concrete cover, seemingly an as-built condition of the original construction. The above noted water infiltration is recommended to be addressed with the envelope repairs and subsequent partial depth concrete repairs may be required of the concrete joists.

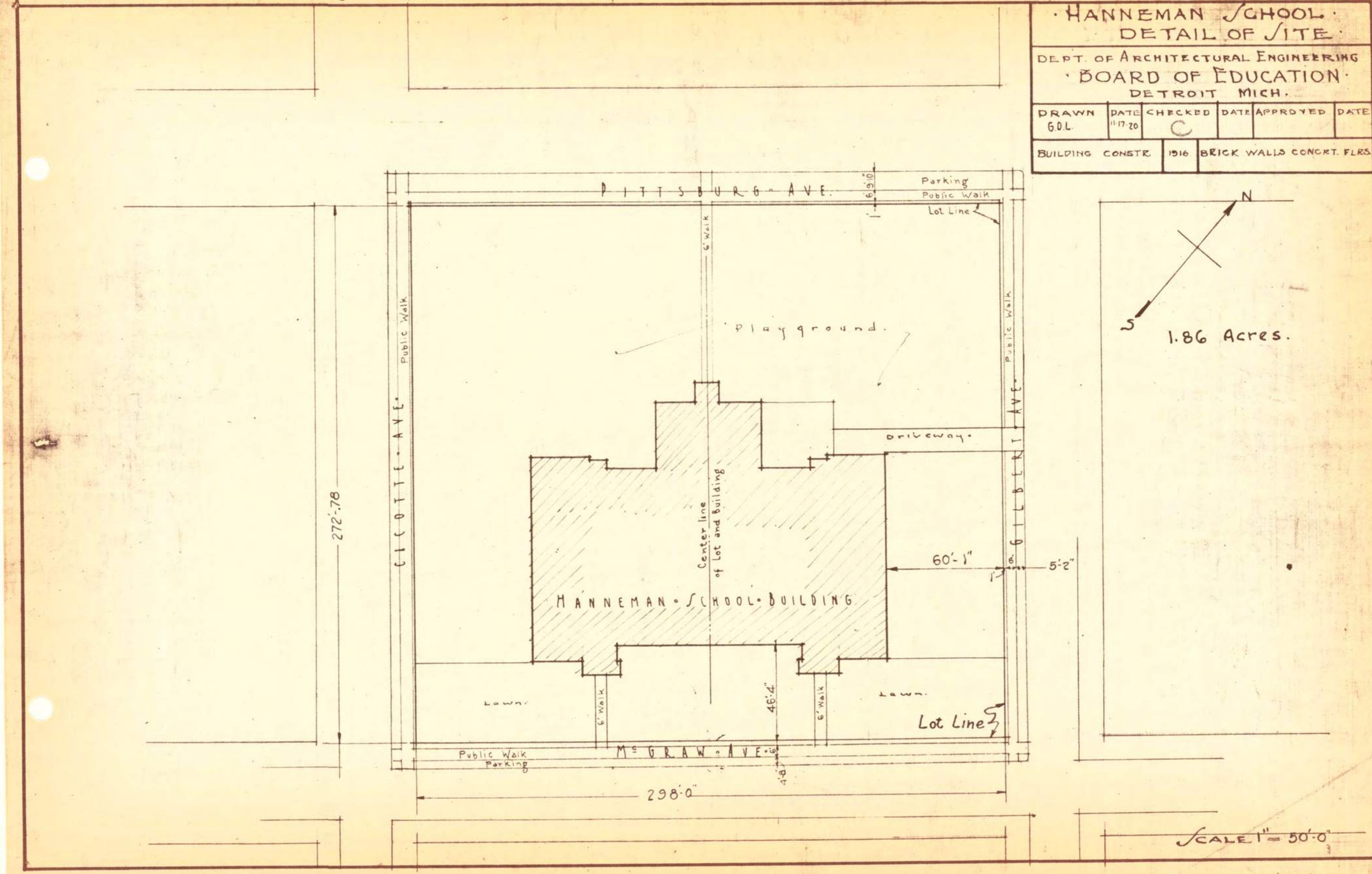
The embedded steel reinforcement of the vaulted concrete slab and beam system of the fuel room is exposed and corroded on the underside of the slabs and beams. Incipient spalls are present along the beams. Both the slab and beams can be repaired with partial depth concrete repairs.

The exposed surfaces of the steel lintels over door and window openings in the interior walls of the basement level are corroded with visible deflection occurring at the lintel spanning over the door to the fuel room. This lintel requires replacement along with localized brick removal and replacement. The other lintels are to be cleaned, assessed and re-coated with a rust inhibiting paint.

Miscellaneous

Many of the interior walls are cracked and partially collapsed. The distress is related to ongoing water infiltration and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior stairwell and classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. After the water infiltration is mitigated through the envelope repairs, the distressed interior walls can be repaired as required for the new building use. Plaster cracks can be repaired, and damaged or missing gypsum blocks can be replaced with lightweight CMU or similar material. Where cracking is related to the relative stiffness of the structural frame, the cracks may recur after rehabilitation and remain an ongoing maintenance item unless mitigated with appropriate detailing that can accommodate repeated movement.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.



· HANNEMAN SCHOOL ·
DETAIL OF SITE ·
DEPT. OF ARCHITECTURAL ENGINEERING
· BOARD OF EDUCATION ·
DETROIT MICH.
DRAWN G.D.L.
DATE 11-17-20
CHECKED C
DATE
APPROVED
DATE
BUILDING CONSTR. 1916
BRICK WALLS CONCRT. FLRS.
PITTSBURG AVE.
Parking
Public Walk
Lot Line
6'9.10
6' Walk
Playground.
Public Walk
CICOTTE AVE.
272'.78
Driveway.
GILBERT AVE.
Public Walk
Center line of Lot and Building
60'-1"
5'-2"
HANNEMAN SCHOOL BUILDING
Lawn.
6' Walk
46'4"
6' Walk
Lawn.
Lot Line
Public Walk
McGRAW AVE.
Parking
4'8"
298'0"
N
S
1.86 Acres.
SCALE 1" = 50'0"

HANNEMAN • SCHOOL
BASEMENT • FLOOR • PLAN

DEP'T. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

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G.D.L.	11-17-20	C			

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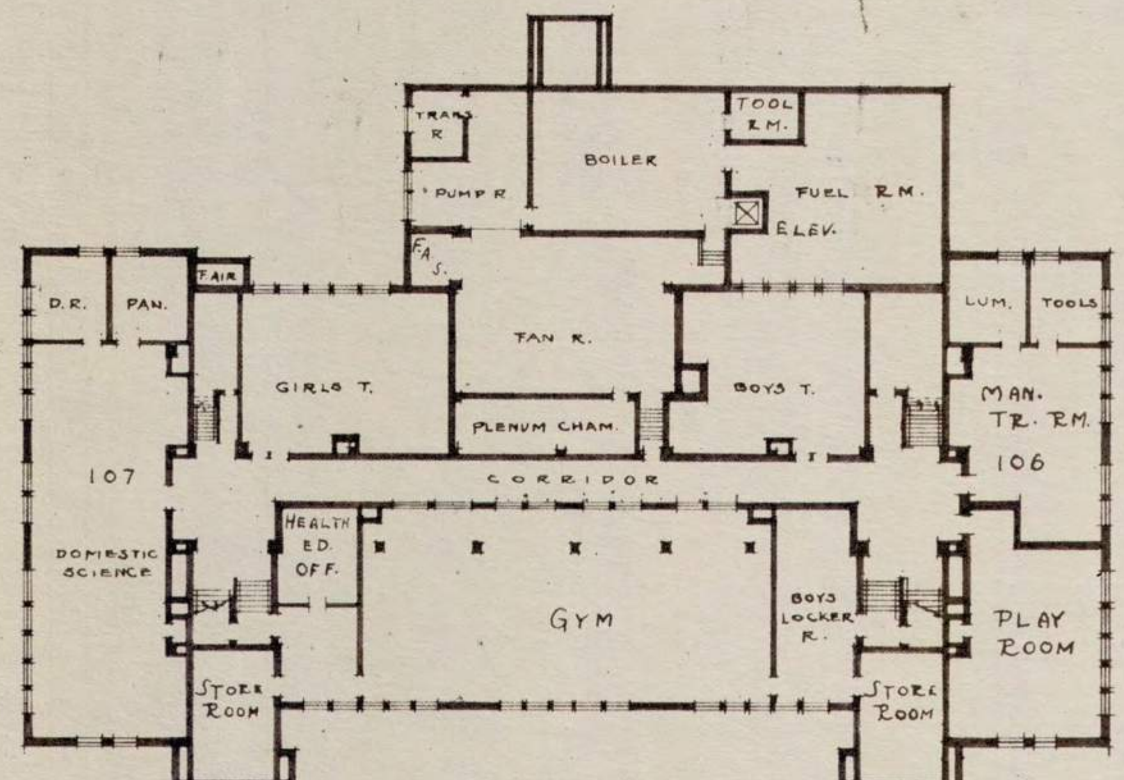


BASEMENT PLAN
scale $\frac{1}{32}$"=1'-0"

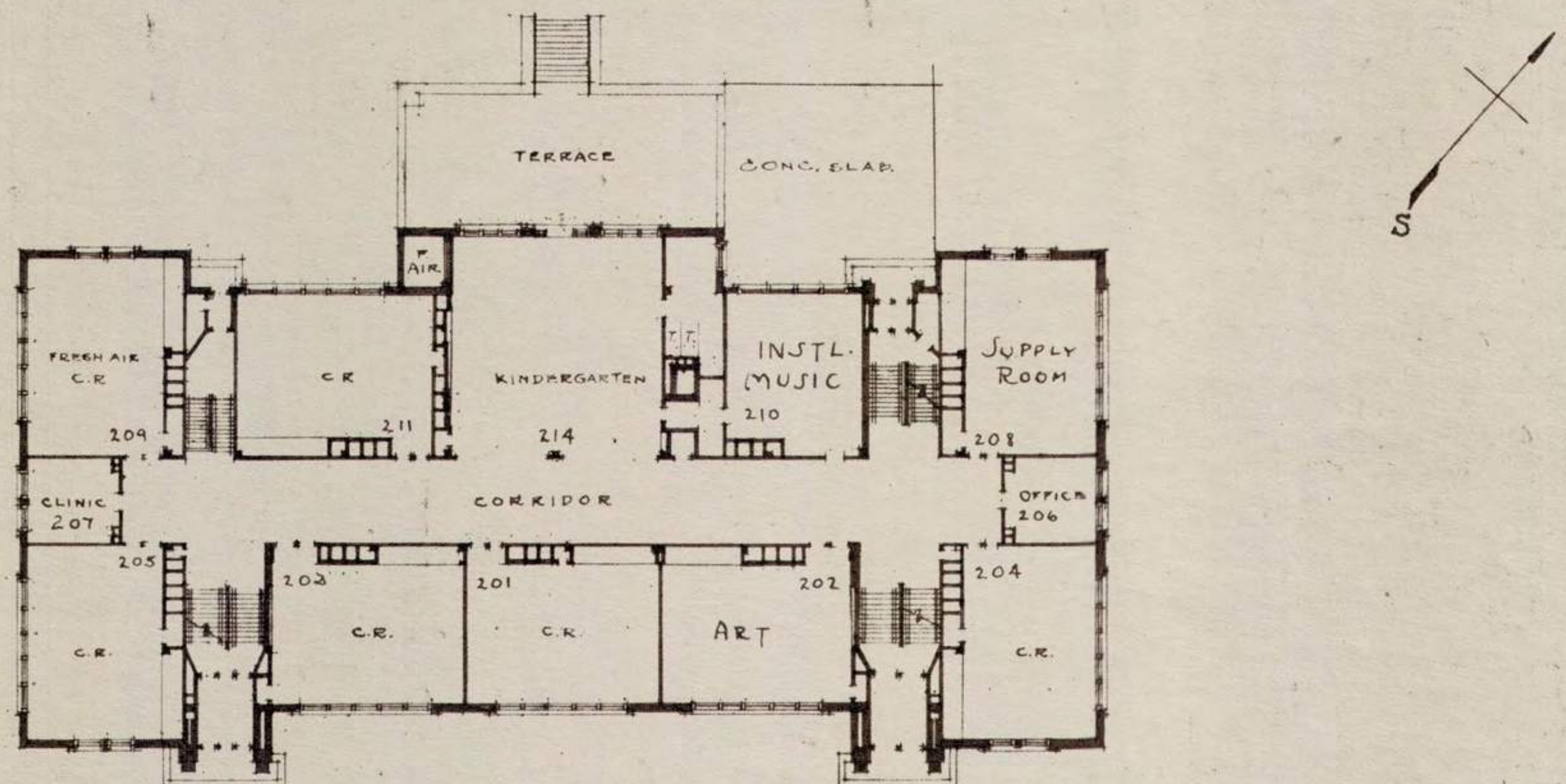
·HANNEMAN SCHOOL·
·FIRST FLOOR PLAN·

DEPT. OF ARCHITECTURAL ENGINEERING
·BOARD OF EDUCATION·
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE

BUILDING CONSTR.	1916	BRICK WALLS CONCRT FLOORS

REVISED. 7-15-46. R.D.



FIRST FLOOR PLAN

Scale $\frac{1}{32}$"=1'-0"

HANNEMAN · SCHOOL SECOND FLOOR PLAN					
DEPT. OF ARCHITECTURAL ENGINEERING BOARD OF EDUCATION DETROIT MICH.					
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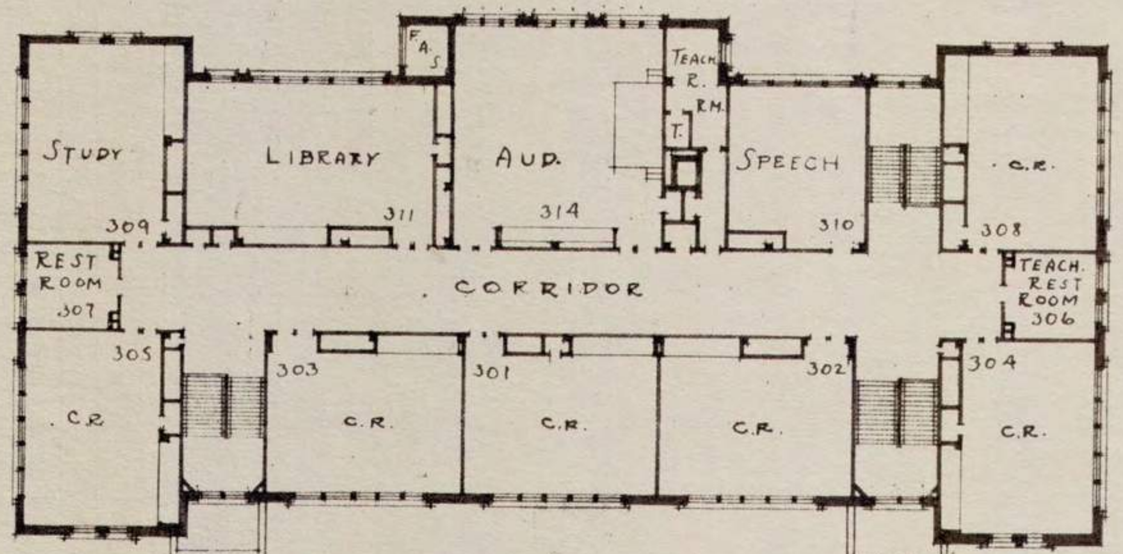


SECOND FLOOR PLAN

scale $\frac{1}{32}$"-1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Malcolm X Academy

Basic Property Information: COD 6-Malcom X-6311 W Chicago

Short Name:	Malcom X
Address:	6311 West Chicago Street Detroit, Michigan 48204
Year Built:	1925
Additions Built:	1930, later than1960
Outbuildings:	None
Year Vacated:	2006
Building Footprint:	200 feet x 108 feet
Square Footage:	31,995 sq. ft.
Number of Stories:	2
Building Height:	42 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick ▪ Structural Steel ▪ Wood
City Council District:	6	**Exterior Wall System:**	▪ Brick ▪ CMU ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Wood Framed ▪ Aluminum
		Roofing System(s):	▪ Asphalt Shingles ▪ Built-Up Roof (assumed) at low-sloped areas ▪ Gravel Surfaced (assumed) ▪ Internal Drains ▪ Gutters and Downspouts

Assessment Summary

Assessment Date:	March 17, 2020
WJE Inspector(s):	Cheryl Early; Justin Barden
Report Date:	November 22, 2020
Building Risk Index:	**70.95**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,330,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,559,600
Sub-Total	$4,789,600
Contingency (25%):	$1,197,400
Sub-Total	$5,987,000
Overhead and Profit (15-18%):	$898,050
Sub-Total	$6,885,050
Escalation (6% for 2 years)	$413,103
Sub-Total	$7,298,153
Architectural and Engineering Design Services (20%):	$1,459,630
TOTAL COST ESTIMATE:	$8,757,783

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facade from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns with the available ladder access. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the

public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)

- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior’s Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The building is comprised of three building areas with varying facade and structural assemblies. The original two-story building was constructed in 1925 and is relatively symmetrical in plan with gabled roofs at the perimeter and a low slope roof extending between gabled portions. A two-story addition was added to the south in 1930 of similar construction. A single-story addition with a low-slope roof extends west of the north end of the original building, creating the current “L” shaped building footprint. The date of construction of the last addition is unknown but, based upon building materials and design detailing, is suspected to be after 1960.

The original 1925 and 1930 building addition facades are similar and generally consist of Flemish bond clay brick masonry and intermittent klinker bricks with clay brick backup. Limestone units accent the entrances, window sills, copings, and buttresses. At the later building addition, wood sheathing with a textured, painted finish covers clay brick masonry and concrete masonry (CMU) on the north and east facades, while the other facades consist of painted single wythe CMU and multi-wythe clay brick masonry.

In the original 1925 building and 1930 addition, wood framed windows were present with aluminum covers and replacement aluminum inserts, though the aluminum components are now largely missing due to vandals. In the more recent northwest addition, original single-pane aluminum windows are present. The entrances consist of conventional steel doors. The gabled roof areas are covered with asphalt shingle roofing with external gutters and downspouts. The low-slope roof areas were not accessed due to ladder limitations, but are internally drained, and likely consists of a gravel surfaced, built-up roof based on a review of aerial photographs.

The roof structures of the 1925 and 1930 construction are of wood plank decking spanning to steel purlins which are supported by steel beams or trusses. The steel beams and trusses are supported on the mass masonry perimeter walls and steel columns located within the central corridor walls. The conservatory space at the south end of the building consists of metal decking over structural steel beams. The second-floor structures of the original and 1930 construction are of reinforced concrete tee joist-slab systems. The first-floor structure over the basement level mechanical spaces is of both concrete flat slab and tee joist-slab systems, depending upon location. The addition construction after 1960 is of CMU bearing wall construction supporting steel beams and dimensional lumber rafters with wood decking. Wood sleepers atop the support rafters create the slope in the roof structure.

In general, the building is in repairable condition. On the facade, many of the previously repaired masonry spandrels are significantly distressed, requiring replacement, though only localized maintenance repairs are needed within the remaining cladding. The sloped, asphalt roof appears new, but the flashing elements at the valleys have been removed resulting in direct water infiltration into the building and localized distress to the roofing assembly and interior. The low-slope roof and internal drains require replacement, as do the windows and doors. Beyond the water damaged areas, the structure is in good condition with finishes mainly intact. Further detail of the observed distress is provided below.

Facade

The masonry walls are in good condition beyond the distressed spandrel areas located between the first and second floor windows. Corrosion of the steel window lintels was observed on the west facade, with some areas containing minor masonry distress and lintel displacement due to the development of pack rust. Repair of deteriorated mortar joints is needed in localized areas. Repairs should include repair of the steel lintels with improved flashing details, localized replacement of cracked masonry, and grinding and pointing cracked or debonded mortar.

Significant distress was observed within a majority of the brick masonry spandrels, including relatively large sections of brick that were missing or outwardly displaced relative to the remainder of the facade surface, and exposed areas of wood decay and steel lintel corrosion. These regions appear to have been previously repaired based on the exposed wood framing type, galvanized metal brick ties, and sheet metal caps. The distressed conditions are attributed to water infiltration, failure of the lateral support for the veneer units, and areas missing metal flashing which may have been damaged when the aluminum windows were removed. Repairs should include rebuilding the masonry at the building spandrels with an appropriate repair detail.

Timber headers over the main north and south entrances appear to support the brick masonry above. The wood was probed with an awl during our assessment, and was found to be sound with no notable areas of decay. Repairs should include painting these elements to mitigate weather exposure and decay.

The wood cladding on the most recent northwest addition is significantly deteriorated and should be removed. The exposed CMU and clay brick masonry walls should then be inspected and repaired as needed. The masonry walls may be left exposed and painted with an elastomeric coating for improved durability or, if desired, a new cladding system can be installed over the existing masonry.

The windows and frames within the original 1925 and 1930 building addition are generally missing or are significantly distressed, warranting replacement. The single-pane aluminum windows within the later, northwest building addition are in fair condition with minor localized areas of damaged framing elements and missing glass. These windows can be restored in-place, though replacement may be considered for improved thermal performance. Most of the exterior metal doors are welded shut, missing hardware, and are dented or contain corrosion. Rehabilitation of the building should include replacement of the window and exterior door assemblies, though some windows within the northwest addition may be repaired if desired.

Roofing

The roofing assemblies are in fair-to-poor condition. The sloped roof areas consist of newer asphalt shingles, flashing, and drainage elements; however, missing flashings, shingles, and sheathing were visible at valleys from ground level and aerial imagery. Isolated regions of the sheet metal flashing are also missing and displaced at the transition to the low-slope roof areas, and downspouts are generally missing. These damaged conditions are attributed to vandalism. The low-slope roof was not accessed at the time of this assessment due to safety concerns with the roof access. It is expected that the low-sloped roof and flashing elements are in poor condition based on the extent of water-related distress observed within the building interior. Rehabilitation of the building should include removal and replacement of the missing and damaged roof assembly concentrated at the peaks and valleys of the sloped roof, and removal and replacement of the entire existing roof assembly at the low-sloped roof. Additionally, rehabilitation should include replacement of the drainage systems.

Structure

Except at the areas where water is entering the building due to missing roof deck boards and failed interior roof drains, the structure is in good condition. Fire damage in the boy's locker room on the second floor has affected only the finishes; no structural distress was observed.

The roofing damage has led to locations of missing roof decking at the transition edges of the gabled roof areas. The water infiltration has deteriorated the finishes below and the roof decking is decayed in areas adjacent to the missing decking. The supporting steel structure generally contains only surface corrosion. At one accessible location, at a valley of the gable roof structure, multiple steel beams and trusses are bearing on brick masonry that is displaced, cracked and wet. This area of the masonry is recommended to be repointed and displaced brick units reset. Assessment of the embedded structural steel elements is recommended during the masonry repair work. The structural steel is recommended to be cleaned and re-coated with a rust inhibiting paint and the wood roof planking is recommended to be replaced in the missing or decayed regions, in coordination with the roofing repairs.

The concrete floor tee joist-slab structures are generally in good condition. The slabs are cracked at localized areas and small stalactites are forming on the underside of the structure in isolated locations. At the bottom of the joists, primarily in the first floor corridor areas, minor corrosion staining and portions of corroded reinforcing steel are present. Cleaning of the stalactites, partial depth repairs of the concrete joists where the concrete has spalled, and full-depth concrete repairs or crack repair of the slabs are recommended. On the underside of the vaulted concrete slab of the basement level coal room at the west side of the building, corrosion staining is present and portions of the reinforcing steel are exposed. Partial depth concrete repairs are recommended for this area. A waterproofing membrane on the top surface may also mitigate additional water infiltration into the vaulted slab structure.

In the gymnasium, at the doorway to the western addition, the inner wythe of brick is significantly bulged on the south side of the opening. The steel lintel supporting this inner wythe of brick could collapse if the brick movement progresses. Temporary shoring of the lintel is recommended. As part of the building rehabilitation, rebuilding the brick with adequate ties to the other wythes of brick of the wall assembly is recommended. Exposing, cleaning, assessing and recoating the steel lintel during this work is also recommended.

At the conservatory at the south end of the building, the underside of the metal roof deck is corroded, most notably at the area of the roof drain. Replacement of this small area of roof deck may be the most economical solution. The supporting steel beams should be cleaned and coated with a corrosion inhibiting paint.

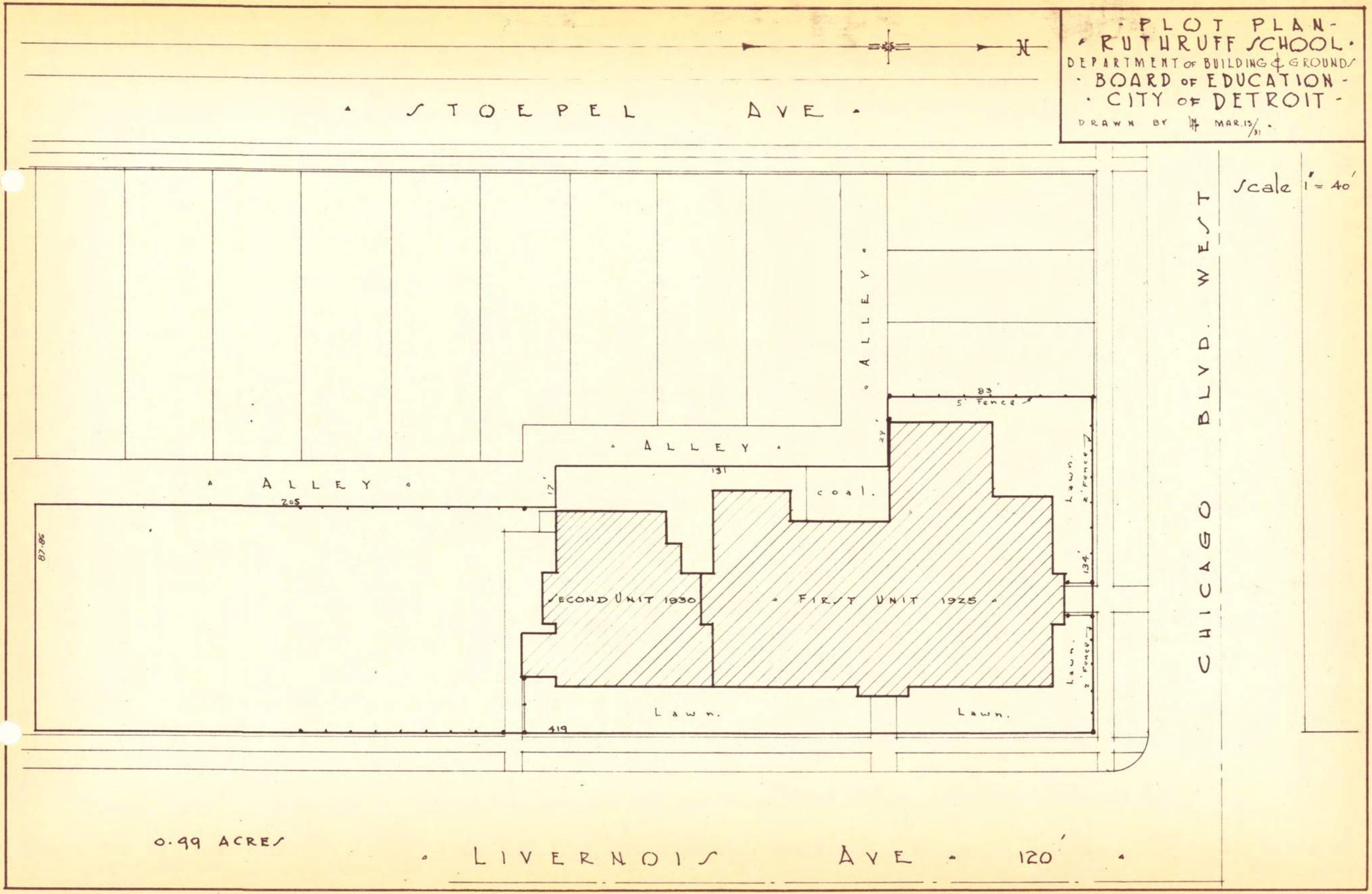
No structural distress was observed in the western addition.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Many of the interior wall surfaces are cracked, especially at the north end of the original building. The cracking appears to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as stairwell and interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repairing of the plaster is recommended at minimum. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

The attic catwalk above the second-floor corridor consists of wood planks that are decayed and the supporting steel members are corroded. Consideration of replacing this catwalk with a new system to meet current code requirements is recommended.


PLOT PLAN
RUTHRUFF SCHOOL
DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
CITY OF DETROIT
DRAWN BY MAR. 13/31
N
STOEPEL AVE
Scale 1" = 40'
ALLEY
ALLEY
ALLEY
CHICAGO BLVD. WEST
83
5' Fence
27'
131
17'
205
coal.
87.86
SECOND UNIT 1930
FIRST UNIT 1925
Lawn.
2' Fence
134'
Lawn.
Lawn.
419
0.99 ACRES
LIVERNOIS AVE
120'

RUTHRUFF SCHOOL

DEPT OF ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT MICHIGAN

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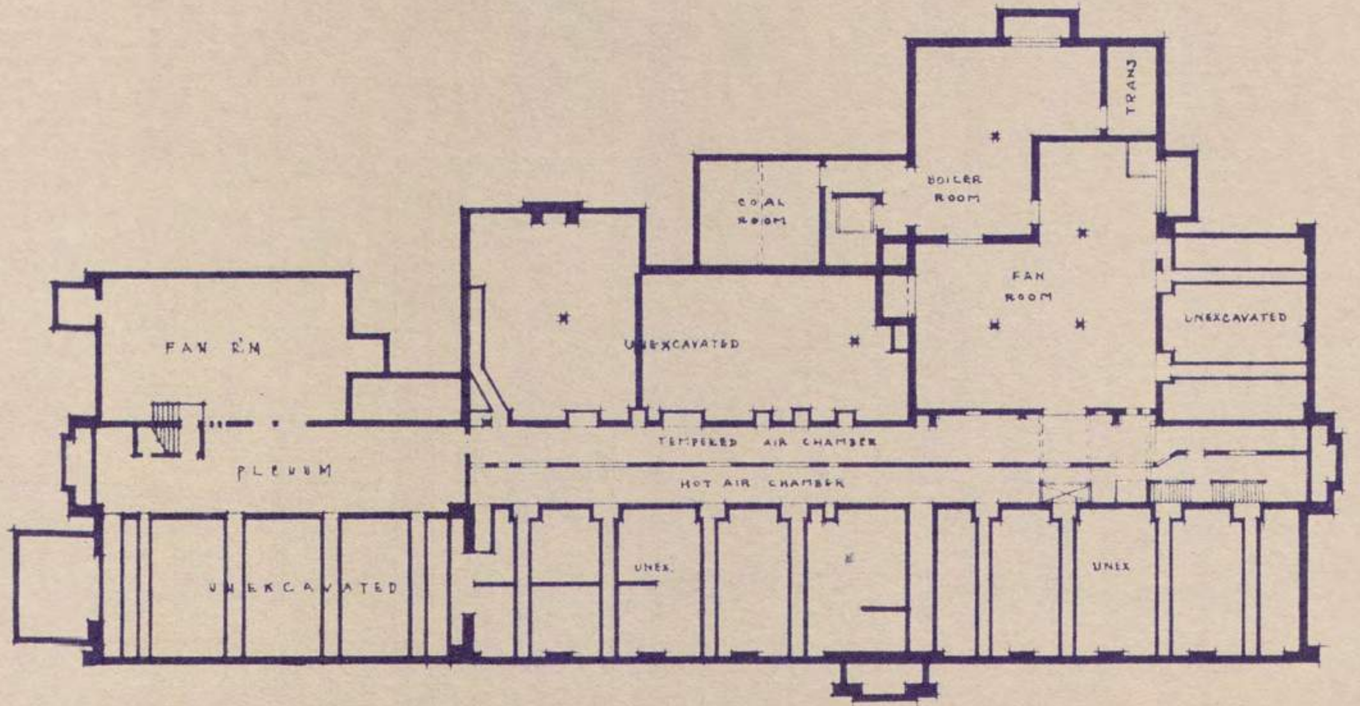
RHC	3-9-25	G. L. S.	4/16/25	G. L. S.	4/17/25

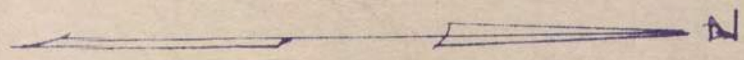


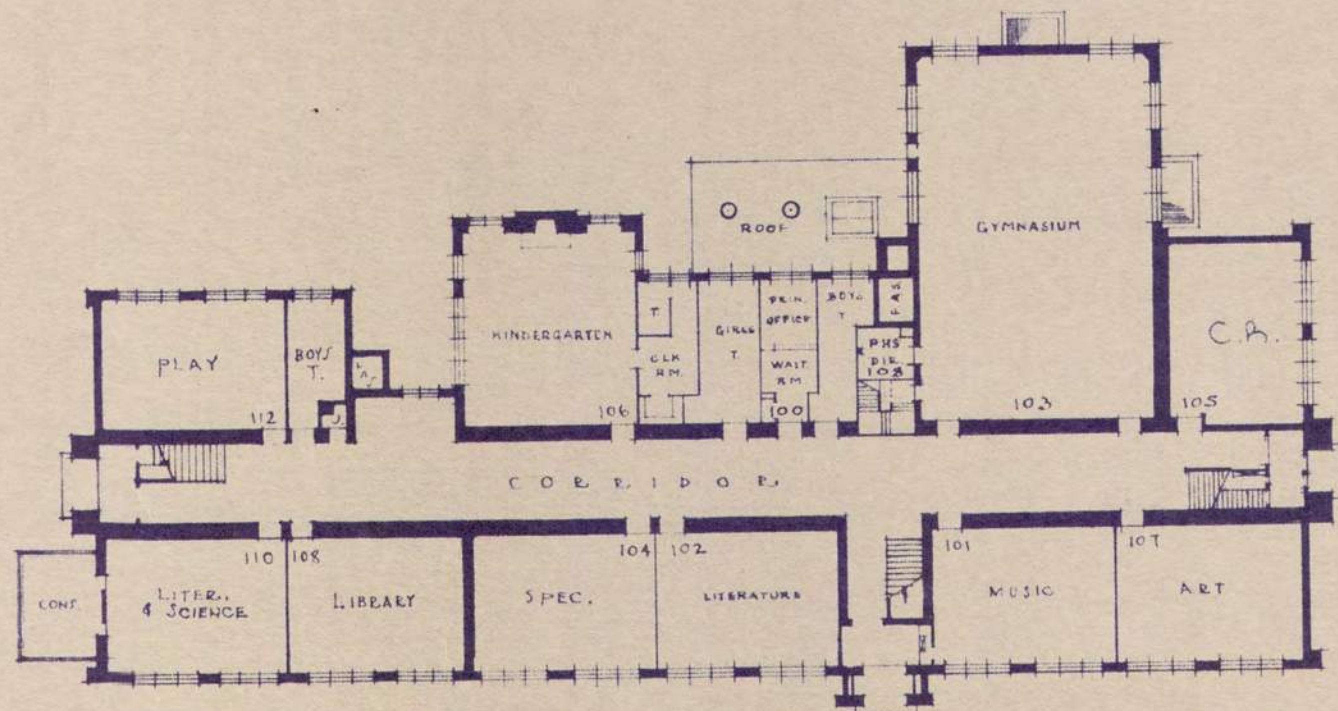
BASEMENT PLAN
SCALE 1/32" = 1'-0"

RUTHRUFF SCHOOL

DEPT OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
RHC	3-10-25	G. L. S. L.	4/16/25	G. L. S.	4/17/25





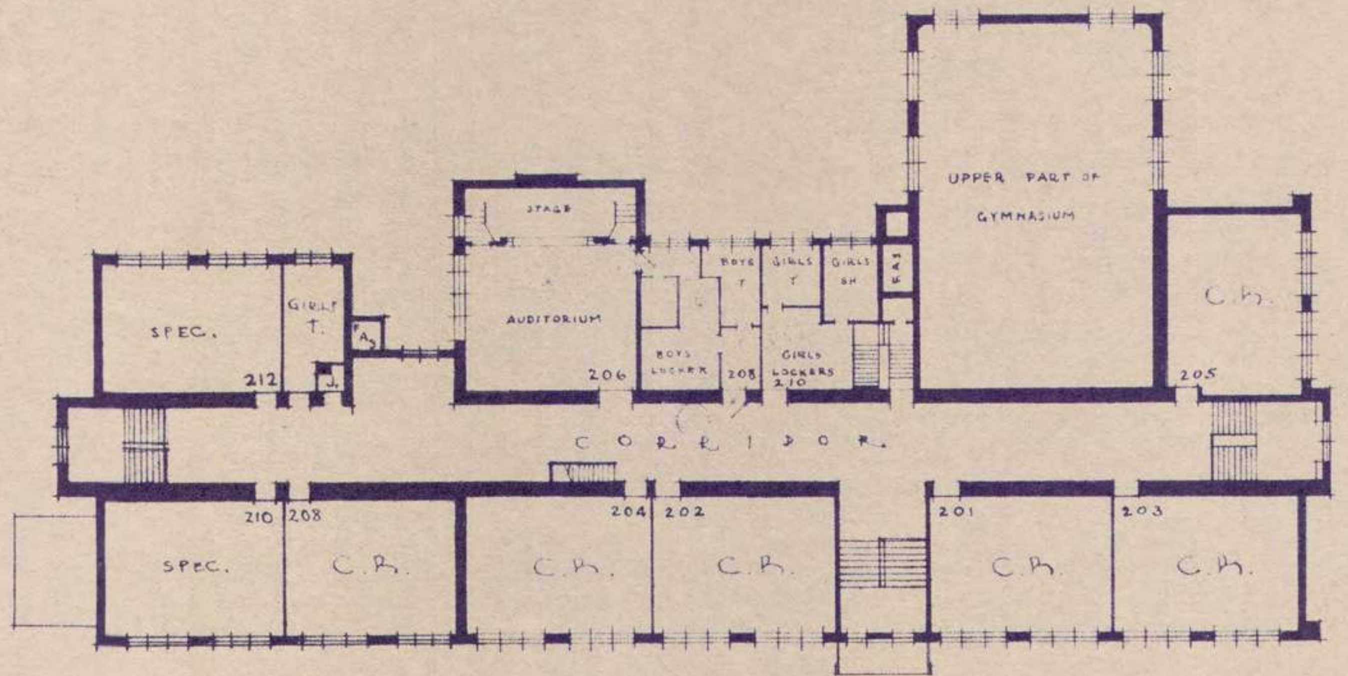
FIRST FLOOR PLAN

SCALE 1/32" = 1'-0"

RUTHRUFF SCHOOL

DEPT OF ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	3-12-25	G. L. S.	4/16/25	G. L. S.	4/17/25



SECOND FLOOR PLAN
SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Sampson Elementary School

Basic Property Information: COD 6-Sampson-6075 Begole

Short Name:	Sampson
Address:	6075 Begole Street Detroit, Michigan 48210
Year Built:	1911
Additions Built:	1920, 1921
Outbuildings:	None
Year Vacated:	2007
Building Footprint:	210 feet x 240 feet
Square Footage:	76,851 sq. ft.
Number of Stories:	3
Building Height:	40 ft.
Current Ownership:	City of Detroit
City Council District:	6
SNF District:	NA

Structural Framing System:	▪ Cast-in-Place Concrete ▪ Precast Concrete ▪ Brick Masonry ▪ Wood
Exterior Wall System:	▪ Brick ▪ Limestone
Window System(s):	▪ Wood ▪ Aluminum
Roofing System(s):	▪ Modified Bitumen (assumed) ▪ Internal Roof Drains ▪ Scuppers ▪ Stone Ballast

Assessment Summary	
Assessment Date:	March 19, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 22, 2020
Building Risk Index:	**91.48**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$2,470,500
Preparation for Rehabilitation Work:	$900,00
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$6,148,080
Sub-Total	$9,518,580
Contingency (25%):	$2,379,645
Sub-Total	$11,898,225
Overhead and Profit (15-18%):	$1,189,822
Sub-Total	$13,088,047
Escalation (6% for 2 years)	$785,282
Sub-Total	$13,873,330
Architectural and Engineering Design Services (20%):	$2,774,666
TOTAL COST ESTIMATE:	$16,647,996

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facade from grade, using binoculars as needed. Roof levels were inaccessible due to a lack of roof ladder access. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

Overall

The original portion of the building was constructed in 1912, with additions constructed in both 1920 and 1921 projecting to the west and north of the original building, respectively resulting in a 'J'-shaped structure. The roofs of each section of the building are low-slope surfaces. Punched wood framed windows are present at each floor, including windows located directly at grade which allow daylight into basement rooms. The first and second floor levels have nearly identical layouts.

The facade primarily consists of multi-wythe clay brick masonry laid in running-bond with no header courses visible within the exterior wythe in the field of the wall. Limestone accents are present throughout the facade at the entrances, window sills, coping, and the belt course. A limestone cornice wraps around the building perimeter, located at the head of the second story windows, with a brick masonry parapet above. Windows are wood framed with aluminum caps while the doors are metal framed.

The roofing could not be assessed in the field, but based on available aerial images, the original portion of the building appears to consist of modified bitumen roofing with an aluminum coating while the building additions are likely a gravel surfaced, bituminous built-up roof. All roof areas are internally drained, though scuppers and downspouts are also present at the north wing addition.

The original 1912 structure consists of wood joist and rafter construction spanning between mass masonry exterior walls with structural steel beams and columns located within the central corridor walls. The structural floor and roof systems of the additions consist of concrete tee joist-slab construction with stay-in-place clay tile forms. The auditorium roof is framed with gypsum planks supported on structural steel beams. The vaulted flat slab and supporting beams at the fuel room are comprised of conventionally reinforced concrete.

Although initial appearances of the existing conditions are concerning based on the magnitude of the failure of the finishes, the building is in a repairable state. Despite the lack of roof level access, the roof drains were visibly failing from the interior and several mechanical units were missing, both of which provide openings for direct water infiltration into the building interior. Given the damages observed on the interior due to failures in the roof system, it would be reasonable to consider replacement of the roofing, including roof drains and associated conductors, to mitigate further damage to the interior finishes and structural elements. Localized roof repairs may be possible in some roof areas to extend the service life of the existing assemblies. The windows and doors are largely missing or damaged and require replacement. The facade is generally in fair condition with the observed distress largely resulting from water infiltration and subsequent corrosion of embedded steel elements. The wood structural systems of the original building are significantly deteriorated near roof drain locations at the exterior walls, but the structure is in good condition. The steel reinforcing of the vaulted slab and beam structure of the fuel room is exposed and significantly corroded, warranting concrete repairs. Further detail of the observed distress is provided below.

Facade

The masonry is generally in serviceable condition, though distress related to water penetration is present in localized areas. At least two previous masonry repair projects have been completed at the building based on the observed brick unit replacement types and variations in the repair detailing. These past projects included localized flashing repairs, rebuilding of localized brick areas, and localized repointing of mortar. One of the masonry repair projects included appropriate detailing and largely remains in good condition. Repairs performed during the other, possibly older, effort show indications of continued deterioration. Severe corrosion of the steel lintels was noted at some locations, which has resulted in significant cracking and outward displacement within the brick masonry and limestone accent bands adjacent to the lintels. Locations containing significant masonry distress should be rebuilt with new steel lintels and appropriate flashing details; some replacement limestone units will be required. Lintels with only minor corrosion and limited masonry distress may require only maintenance repairs to extend the life of the associated elements, such as cleaning and painting the exposed steel surfaces. Isolated cracked brick units should be replaced and deteriorated mortar should be grinded and pointed. These repairs are recommended to mitigate further distress within the wall assembly.

A majority of the mortar within the joints at the brick parapets is deteriorated, which likely relate to deficiencies in the roof terminations and flashings. Where downspouts are present, some sections are missing, resulting in water-related deterioration of the brick and mortar below. Some previous repointing repairs in these regions are visibly distressed. Repairs should include grinding and pointing of distressed mortar to mitigate further water penetration within the wall assembly. Similar pointing repairs are recommended at the projected limestone entrance surrounds and cornice, where widespread mortar deterioration is present.

Common brick is present at the base of the facades with unsound patch materials and debonded membrane flashing materials at some locations. Where the common brick is exposed, the masonry was generally sound with localized areas of mortar deterioration. Rehabilitation of the building should include removal of the unsound patch and membrane materials, repointing of unsound mortar, and installation of an appropriate surface-applied repair material and waterproofing detailing to mitigate water penetration into the wall assembly and further masonry distress.

The brick masonry chimney contains localized step cracks and areas of visibly displaced masonry, indicating that the chimney as a whole may have experienced lateral or torsional stresses, and the lateral support system between the individual brick wythes may be compromised in some areas. Close-up investigation should be performed to verify the extent of distress and determine appropriate repairs, as the roof level was inaccessible during our assessment. Anticipated repairs include repointing localized step cracks and monitoring to determine if the distress progresses. If the distress recurs, repairs are anticipated to include crack repairs with supplemental reinforcing and possible reconstruction or pinning of displaced masonry. A deteriorated metal strap is also present near the limestone chimney cap; repairs should include removal of the strap and improved detailing at the cap to mitigate water penetration.

The majority of the windows are missing or damaged with missing sashes, missing and decayed frames, missing and displaced aluminum covers, and/or broken glass. Plywood covers the windows and should be maintained to mitigate further water infiltration-related distress and deter vandalism. Many of the metal doors are dented or corroded. Rehabilitation of the building should include replacement of window and door assemblies.

Roofing

The roof areas were not accessed at the time of this assessment due to a lack of roof ladder access. Where visible from grade, vertical roofing terminations are failed, including open and displaced flashings with base flashings that were no longer adhered to the masonry substrates. The observed masonry deterioration within the parapet further suggests that water is penetrating into the wall assembly, potentially due to failed base flashings or joints between the coping units. A majority of the water infiltration within the building interior was observed to be a result of failed drains, drain conductors, and missing rooftop mechanical equipment, though several classrooms on the upper floors remained dry. Rehabilitation of the building should consider removal and replacement of the existing roof assemblies and replacement of the internal drains and conductors, and external downspouts. However, repairs may be possible in some regions to extend the service life of the existing roof assembly.

Structure

Overall, the structure is in good condition, but the amount of water infiltrating the building, primarily at the roof drain locations, is causing localized deterioration and decay of the structural systems.

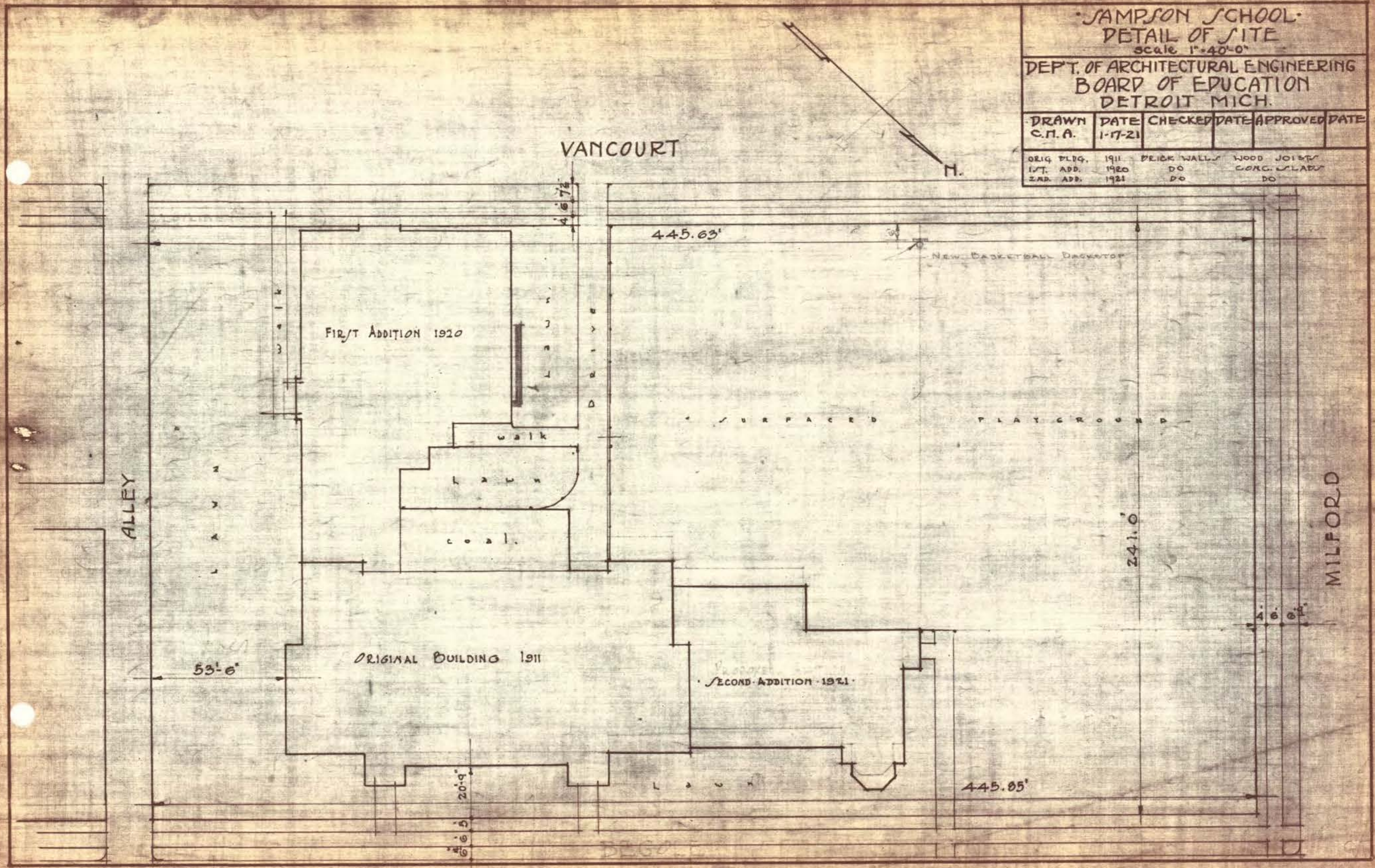
In particular, the wood floor systems at the exterior walls of the original portion of the building are fully deteriorated creating unsafe conditions in these areas. The floor does not require temporary repair provided access is prohibited until full replacement of the structural floor members and decking can be implemented as part of the rehabilitation of the building.

The concrete tee joist-slab floor and roof systems of the building additions are exposed in select areas and were wet at the time of the assessment. The vaulted slab and beam system over the fuel room at the basement level is in poor condition with corroded steel reinforcement exposed for extended lengths of the slab and beam spans. Previous concrete repairs of the beams have failed. Stalactites are extending down at the crack locations in the flat slab structure. Partial depth concrete repairs are required at the majority of this slab and beam system, although alternative solutions to replace the structure or infill the basement space could be considered.

Water infiltration has caused corrosion of isolated gypsum roof planks located over the auditorium, steel lintels throughout the building, and deterioration of clay brick masonry most notably at the roof drain locations. Each of these areas require appropriate repairs for the respective material, but none are of significant structural concern due to their limited occurrences within the building.

Miscellaneous

The interior walls of the north addition are cracked at mid-length of the walls. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within these walls may be related to the relative stiffness of the walls within the structural building frame system. Repair of the plaster finishes is recommended if the walls and finishes are to remain with the new building use. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.



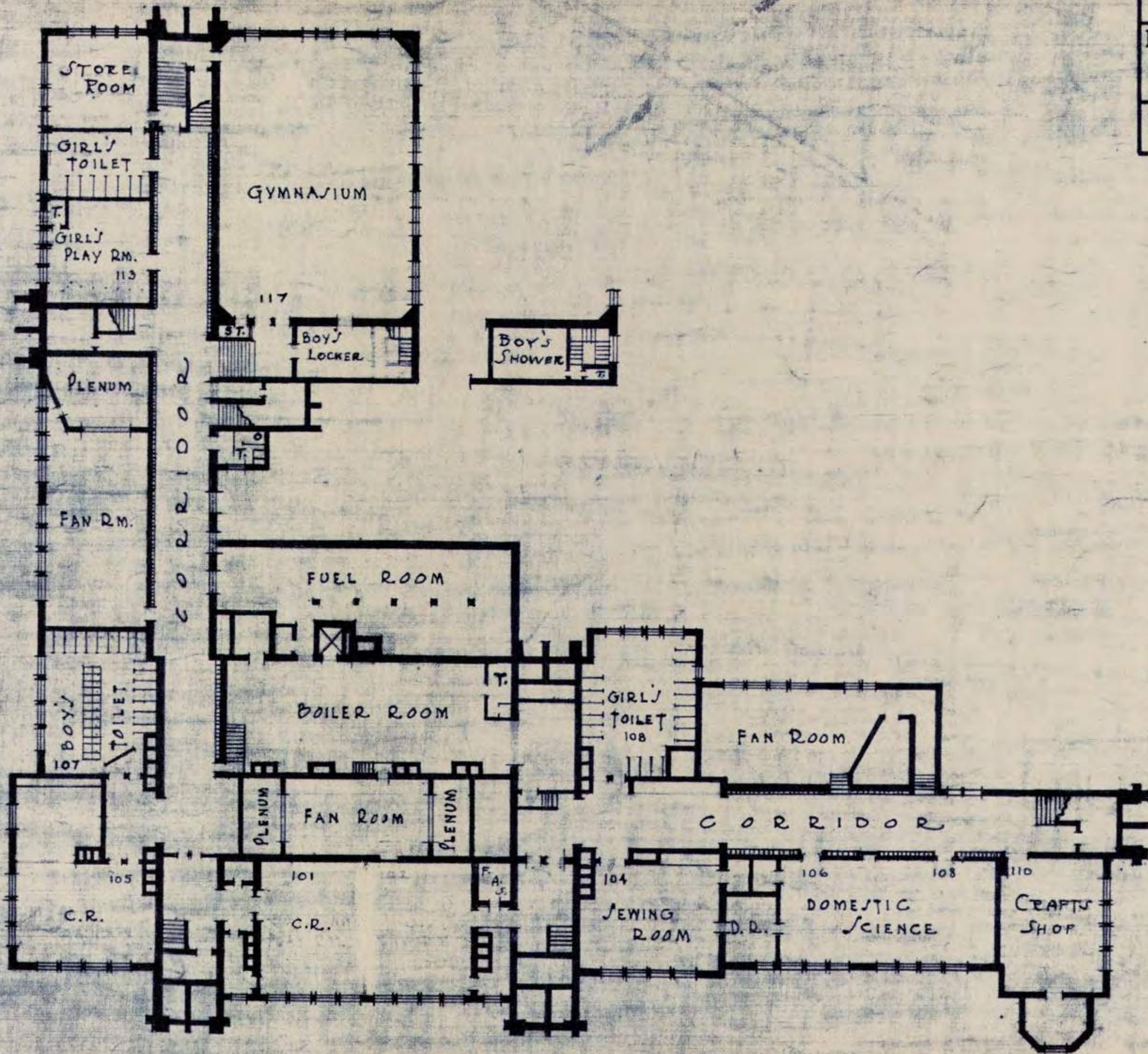
·SAMPSON SCHOOL·
DETAIL OF SITE
scale 1"=40'-0"
DEP'T. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.
DRAWN C.M.A.
DATE 1-17-21
CHECKED
DATE
APPROVED
DATE
ORIG BLDG. 1911 BRICK WALLS WOOD JOISTS
1ST. ADD. 1920 DO CONC. SLABS
2ND. ADD. 1921 DO DO
N.
VANCOURT
ALLEY
MILFORD
445.63'
445.85'
241.0'
53'-6"
20'-9"
4'6'7½"
4'6'6½"
New Basketball Backstop
FIRST ADDITION 1920
ORIGINAL BUILDING 1911
·SECOND·ADDITION·1921·
SURFACED PLAYGROUND
walk
lawn
coal
Drive

•SAMPSON SCHOOL•
BASEMENT FLOOR
Scale 1" 32'-0"

DEPT OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
C.N.A.	1-17-21				

REVISED. 7-11-46. R.D.



BASEMENT PLAN
SCALE- 1/32" = 1'-0"

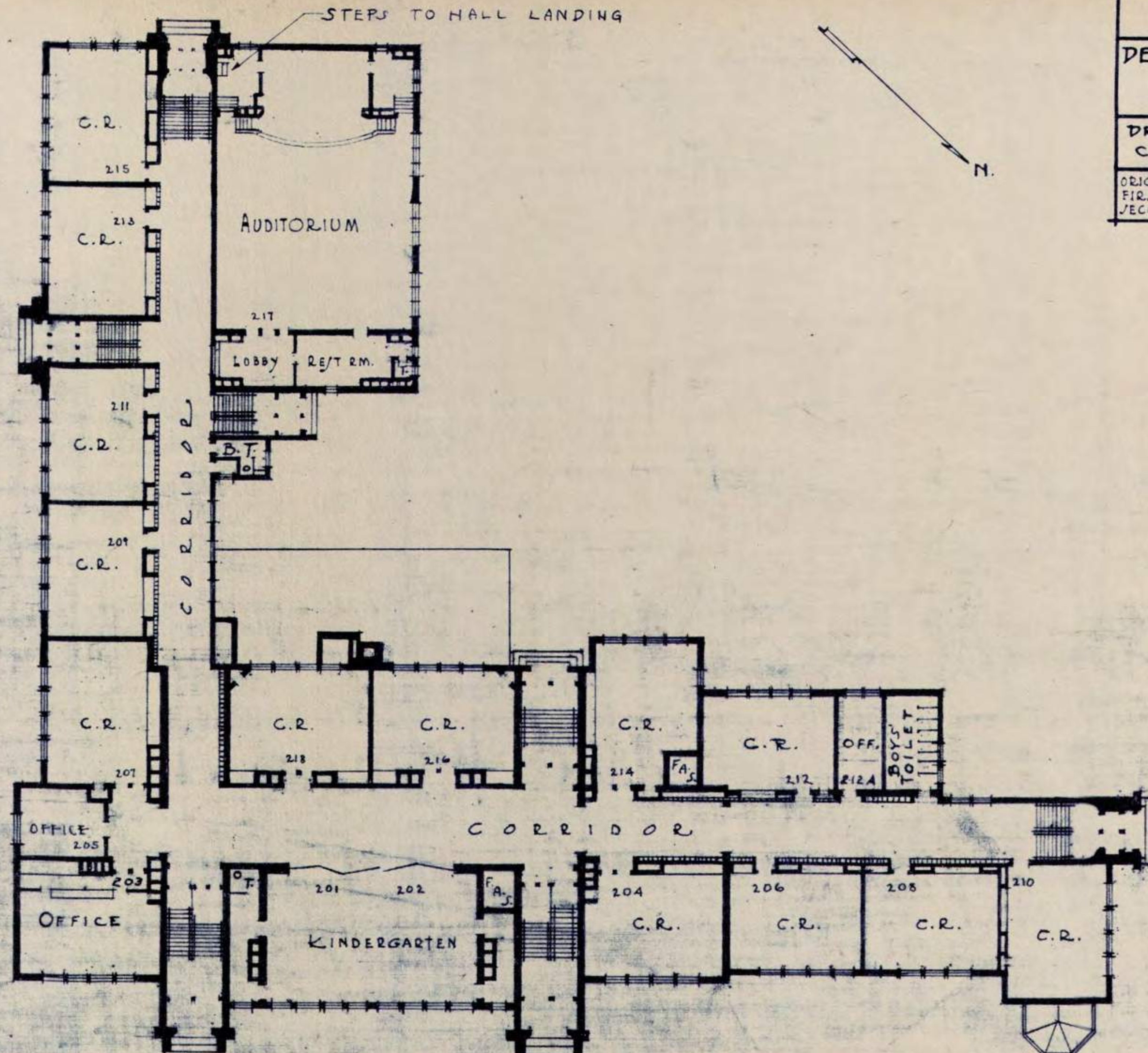
•SAMPSON SCHOOL•
FIRST FLOOR PLAN
Scale 1"=32'-0"

DEP'T OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVE	DATE
C.N.A.	1-17-21				

ORIG. BLDG.	1911	BRICK WALLS	WOOD JOIST
FIRST ADD.	1920	DO.	CONC. SLABS
SECOND ADD.	1921	DO.	DO.

REVISED. 7-11-46. R.D.



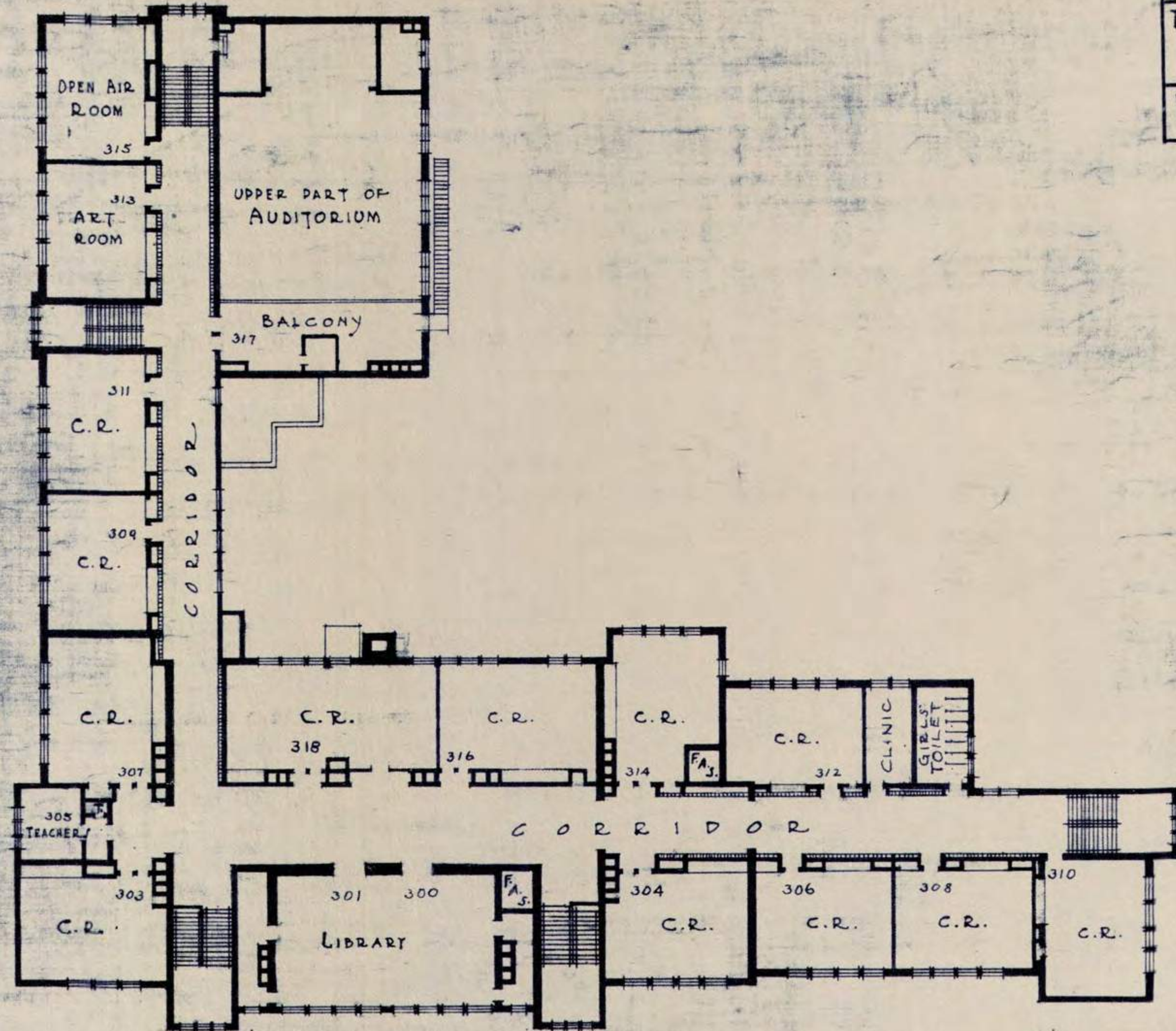
FIRST FLOOR PLAN
SCALE-1/32" = 1'-0"

·SAMPSON SCHOOL·
SECOND FLOOR PLAN
Scale 1" = 32'-0"

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
C.H.A.	1-17-21				

REVISED. 7-11-46. R.D.



SECOND FLOOR PLAN
SCALE - 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Sherrill Elementary School

Basic Property Information: COD 6-Sherrill-7300 Garden

Short Name:	Sherrill
Address:	7300 Garden Street, Detroit, Michigan 48204
Year Built:	1924
Additions Built:	1925, 1930
Outbuildings:	None
Year Vacated:	2011
Building Footprint:	355 feet x 170 feet
Square Footage:	64,942 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete (or Concrete Encased Structural Steel) ▪ Brick Masonry ▪ CMU ▪ Structural Steel
City Council District:	6	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Cast Stone
SNF District:	NA	**Window System(s):**	▪ Aluminum Replacements ▪ Wood
		Roofing System(s):	▪ Built-up roof with gravel surface and modified bitumen flashing ▪ Modified bitumen with aluminum coating ▪ Internal Roof Drains ▪ Asphalt Shingles ▪ Gutters

Assessment Summary	
Assessment Date:	May 19, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 29, 2020
Building Risk Index:	**68.35**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,207,200
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,195,360
Sub-Total	$7,302,560
Contingency (25%)	$1,825,640
Sub-Total	$9,128,200
Overhead and Profit (15-18%):	$1,369,230
Sub-Total	$10,497,430
Escalation (6% for 2 years)	$629,845
Sub-Total	$11,127,275
Architectural and Engineering Design Services (20%):	$2,225,455
TOTAL COST ESTIMATE:	$13,352,730

ASSESSMENT METHODS

Visual Survey

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WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Minimal access to the attic level was obtained near the roof access. The basement level is partially flooded, and thus, was only partially accessed. The interior finishes are intact excepting localized areas where the structural framing systems are exposed. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

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- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

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Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original 1924 portion and the 1925 addition that make up the main two-story, masonry building is symmetrical in footprint about an axis centered between two hipped roof towers which accentuate the front entrances into the building. The 1930, two-story addition extends from the east end of the north facade.

The facade is primarily of brick masonry construction with painted cast stone accents in the 1920s building areas and painted and non-painted limestone accents in the 1930s addition. The windows consist of replacement aluminum systems. The majority of the low-slope roofing consists of an internally drained, bituminous built-up roof assembly with gravel surfacing and modified bitumen perimeter flashing. The low-slope roofing over the auditorium and gymnasium consists of internally drained, granulated modified bitumen with an aluminum coating. Sloped asphalt shingled roofs are present on the east and west sides of the north central wing and at the two south towers, which drain to external gutters and downspouts. An elevated structural slab is located at grade over the fuel room within the courtyard.

The primary structural system consists of concrete, or steel encased in concrete, beams, and columns supporting reinforced concrete tee joist-slab floor and roof systems. The roof over the north central wing which houses the gymnasium and auditorium is framed with steel trusses and wood plank roof decking. The exterior walls are of mass masonry construction, a compilation of clay, and concrete bricks. The interior bearing lines generally align with the double-loaded corridors with columns spaced between the classroom doors and locker blocks. The majority of the finishes are intact, with structural elements exposed only at locations where water is infiltrating the building.

Overall, the building is in good condition. Minimal distress of the structural elements was noted. Localized areas of the facade are recommended for repair to mitigate further deterioration of the masonry, fall hazards, and more costly repairs. Previous masonry facade repairs generally appear to be in serviceable condition with select areas of continued distress and one region of collapsed veneer. The windows are missing and require replacement. The low-slope roofing requires only minor maintenance repair work, except at the lower roof located over the boiler room which requires replacement. The asphalt shingle roofing over the auditorium and gymnasium require significant repairs, especially at the south valleys. The waterproofing assembly over the fuel room at grade also requires replacement.

Facade

The facade is generally in serviceable condition, though distress is present at the steel window lintels, reinforced cast stone units, and within some previous repairs. The observed distress included cracked, spalled, and displaced cast stone and brick masonry elements, which is primarily attributed to water infiltration and corrosion of the embedded steel support elements. Where previous lintel repairs have not been completed, or where repairs did not address the cause of distress and corrosion was permitted to continue, build-up of corrosion products (pack rust) is apparent and deflection of the steel lintels is visible. These regions required masonry repairs with improved flashing details and potential replacement of the steel elements to mitigate further distress to the masonry elements and building interior.

Where water infiltration into the wall assembly has resulted in corrosion- and freeze-thaw related damage to the cast stone elements, these units should be replaced in-kind. This includes the ornate cast stone units, such as those cladding the conservatory walls, which contain significant freeze-thaw damage. Alternative repair materials may also be considered. In the near term, loose stone material that has cracked or debonded but has not yet separated from the rest of the unit should be removed to mitigate falling object hazards. Similarly, displaced stone header and sill units should be stabilized, removed or reset. Patch repairs are not recommended for these units as a durable repair solution. The limestone masonry is generally in serviceable condition, except in localized areas where corroded pins and wall mounted elements are present. Paint should be removed from the limestone units to mitigate deterioration.

One region of collapsed veneer is located on the west elevation of the 1920s building portion. Previous repairs were performed at this location, which included new bolted connections to attach the existing lintel to the structural frame. The exposed steel lintel within the area of collapse was visibly corroded and displaced, and indications of previously existing lateral brick ties were not observed. Repairs may require installation of a new lintel with improved flashing detailed and new brick masonry with sufficient lateral brick ties. Anchorage of a new lintel will need to consider if the spandrel beam is reinforced concrete or a concrete encased steel beam. Further investigation is recommended at other previously repaired areas to determine the condition of the steel lintel and lateral brick ties, and to determine if additional repairs are required. Supplemental lateral anchorage may be needed, which may consist of externally installed helical or epoxy anchors.

The majority of windows are significantly deteriorated, damaged, or missing. Rehabilitation of the building should include replacement of the window and door assemblies. Ornate wood soffits and louvers at the roof level should be repaired as needed and repainted.

Roofing

The low-slope roofing assembly is generally in serviceable condition and requires only minor maintenance repair work, including repair of localized areas of open seams, replacement of missing drain strainers and failed drain pipes, and replacement of the cracked and open building expansion joint. However, the low-slope roofing over the boiler room contains significant distress and requires replacement. The asphalt shingles over the south towers appear to have been recently replaced and are in serviceable condition. The most significant roof-related distress is located within the asphalt shingled region over gymnasium and auditorium. Portions of the sheet metal flashing are missing and displaced resulting in localized failure of the roofing assembly, especially at the south valleys where portions of the roofing are missing and water infiltration, debris, and organic growth are present. These areas should be repaired including removal and replacement of localized areas of the roofing and wood roof sheathing, and repair of the existing gutter and downspout elements as needed.

A portion of the waterproofing assembly over the fuel room is significantly deteriorated. Water infiltration and localized concrete deterioration is visible from below. If this region is to remain, the waterproofing assembly should be replaced and the concrete slab should be repaired. Alternatively, if the region is not required for the new building use, this area may be infilled and a slab-on-grade may be installed.

Structure

The majority of the floor, wall and ceiling finishes are intact, revealing the structural system in only isolated locations. Generally, the condition of finishes is indicative of the condition of the structural elements behind. No significant distress of the tee joist-slab floors and roofs, nor concrete, or concrete-encased steel, beams and columns were observed. The masonry walls are cracked in two locations that may be related to overall structural movement of the building elements.

Specifically, a vertical crack in the south wall of the gymnasium has occurred. There is no paint within the crack indicating the crack occurred, or widened, after the graffiti coated the wall. The crack is relatively large, measured to be 1/8 inches in width near the bottom of the wall, and narrows as the crack extends towards the upper portion of the wall. In reviewing the floor plans provided, the crack appears to align with a transition between a foundation wall and a presumed first floor beam spanning between the foundation wall and columns. The basement was partially flooded preventing access to this area of the first-floor structure to verify the condition of the wall support at this juncture. The basement should be dewatered to allow access and assess the condition of the support. Conservatively, the addition of a new foundation and bearing wall may be required to reinforce the existing support system, although other alternative reinforcing methods may be available once the condition is better understood.

Another vertical crack is located at the south end of the western most exterior wall, directly below a dropped beam bearing. The crack is more pronounced than the typical plaster cracks observed throughout the unconditioned building and may extend upwards to the underside of the second-floor window corner. This crack may be related to a vertical crack observed on the north end of the west exterior wall in the exterior brick masonry. Further investigation into the cause of these cracks is recommended.

The interior finishes are significantly deteriorated in the north central wing, where portions of the roofing assembly are missing or significantly deteriorated as previously discussed. Daylight and fungal growth were observed between and on roof deck boards near the southwest corner of the auditorium. Similar conditions are assumed to be occurring elsewhere in this north central wing roof.

The exterior masonry of the south entrance towers is in sound condition with minimal distress noted. However, on the interior of the towers above the roof level, the composite clay and concrete brick masonry walls are cracked on the southern edges of the masonry openings in the east and west walls for the full height of the tower interior. The masonry south of the cracks has displaced inward approximately one inch relative to the masonry north of the cracks. The cracking may be a result of differential movements of the supports of the east and west walls of the towers; the walls are partially supported on a foundation on the southern portion and on the roof structure on the northern portion. Water infiltration into the cracks may have undergone freeze-thaw action resulting in the masonry displacement. The hipped, wood-framed roof structure above also induces a roof thrust on the masonry walls that may be contributing to the distress. Further investigation is recommended in these regions to determine the extent of distress and appropriate repair recommendations. For budgetary purposes, localized repointing and rebuilding of the displaced brick masonry should be assumed with periodic monitoring to determine if the distress is ongoing.

Approximately three feet of ponded water was observed in portions of the basement level preventing access to all of the basement spaces. The portions of the basement walls and underside of the first-floor structure visible from the points of access are in good condition with no distress observed. The basement should be dewatered allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

Miscellaneous

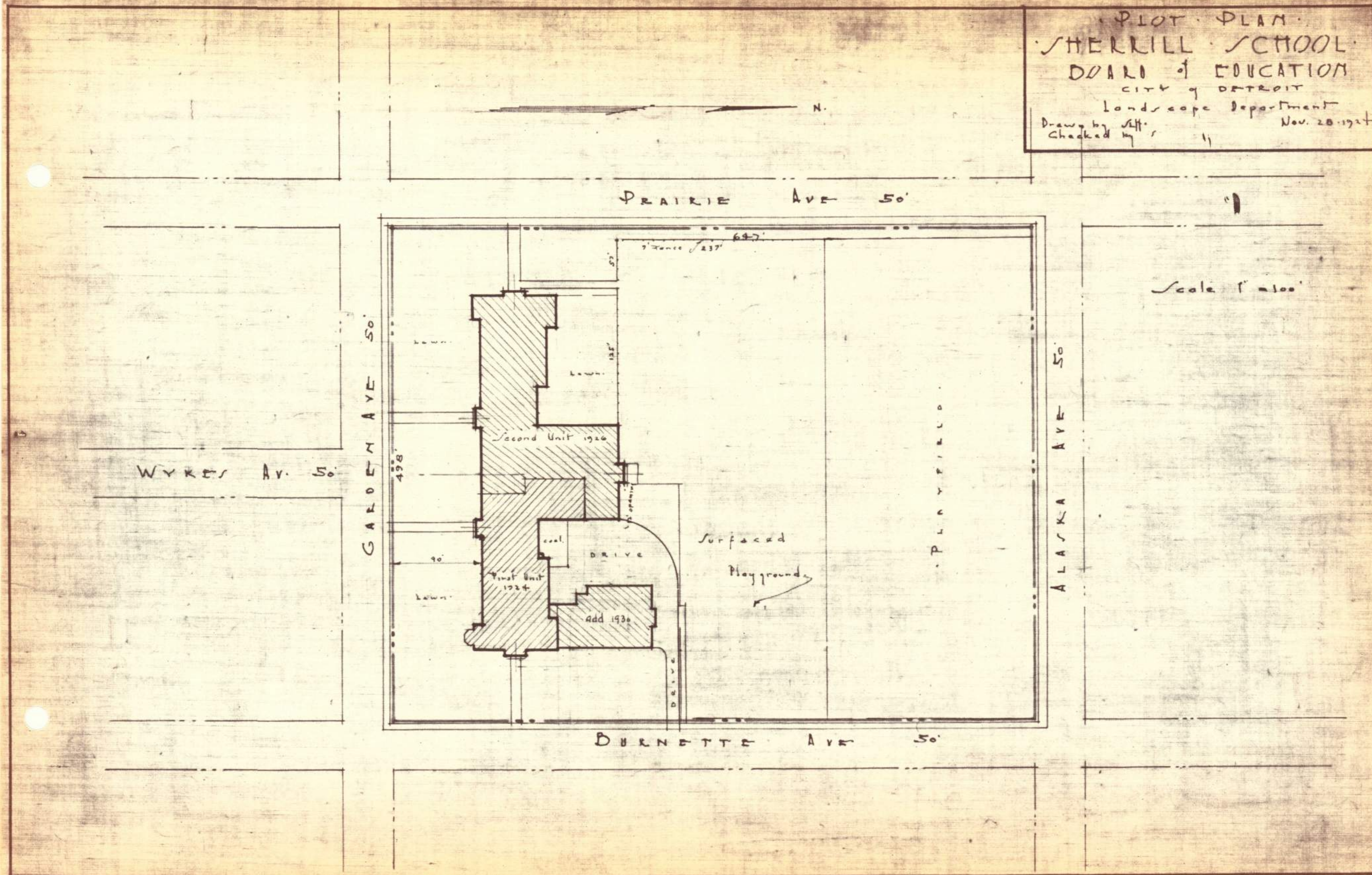
Due to the unconditioned state of the building, the interior finishes are primarily intact, but are exhibiting signs of distress with cracking of the plaster, buckled wood floor boards, loose or missing floor tiles, and fallen ceiling tiles. The distress is greatest in areas where water is infiltrating the building near interior roof drain locations.

Repairs had been attempted at some of the plaster crack locations. The cracking may be related to thermal or volumetric changes in the gypsum block wall materials or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Isolated areas of concrete deterioration and steel corrosion were discovered in the non-flooded areas of the basement level. The concrete deterioration has exposed a severely corroded steel reinforcing bar, but the area of the deterioration is small; it appears to be related to a localized pipe failure. The steel corrosion was noted where the ceiling had failed along the length of the exposed steel plate or bottom flange of the steel beam.

Portion of the chalkboard has fallen from the south clay and concrete brick composite exterior wall of Classroom 222, located over the beam between the science room and conservatory below, exposing a crack in the masonry wall. This cracking, located at midspan of the beam below, may be indicating a structural concern with the beam, but there is no distress observed of the beam from the first-floor level. The cracking is most likely related to the original construction of the wall, the furring inset into the masonry wall to support the chalkboard, or thermal and volumetric changes in the masonry in the unconditioned building. Further monitor the condition of the beam below and the low roof area of the conservatory.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.



· PLOT · PLAN ·
· SHERRILL · SCHOOL ·
BOARD of EDUCATION
CITY of DETROIT
Landscape Department
Drawn by S.H.
Checked by
Nov. 28·1924
N.
PRAIRIE AVE 50'
BURNETTE AVE 50'
GARDEN AVE 50'
ALASKA AVE 50'
WYKES AV. 50'
Scale 1" = 100'
647'
7' Fence 237'
498'
125'
90'
Lawn
Lawn
Lawn
Second Unit 1926
First Unit 1924
Add 1930
coal
DRIVE
DRIVE
Surfaced
Playground
PLAYFIELD

SHERRILL ▵ ELEMENTARY

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DETROIT, MICH

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
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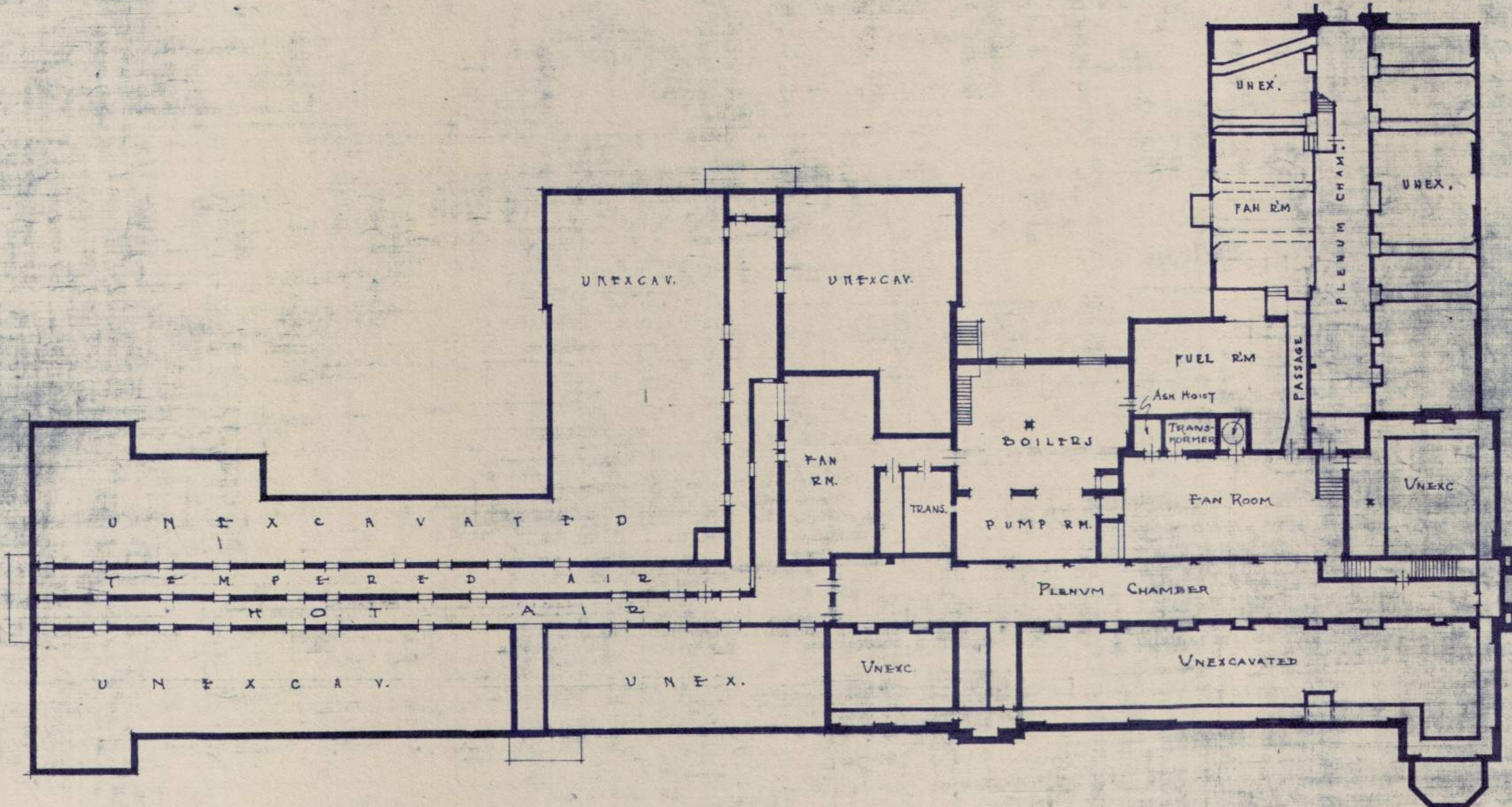

▵ BASEMENT PLAN ▵

SCALE: 1'-0" = 32'0"

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DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
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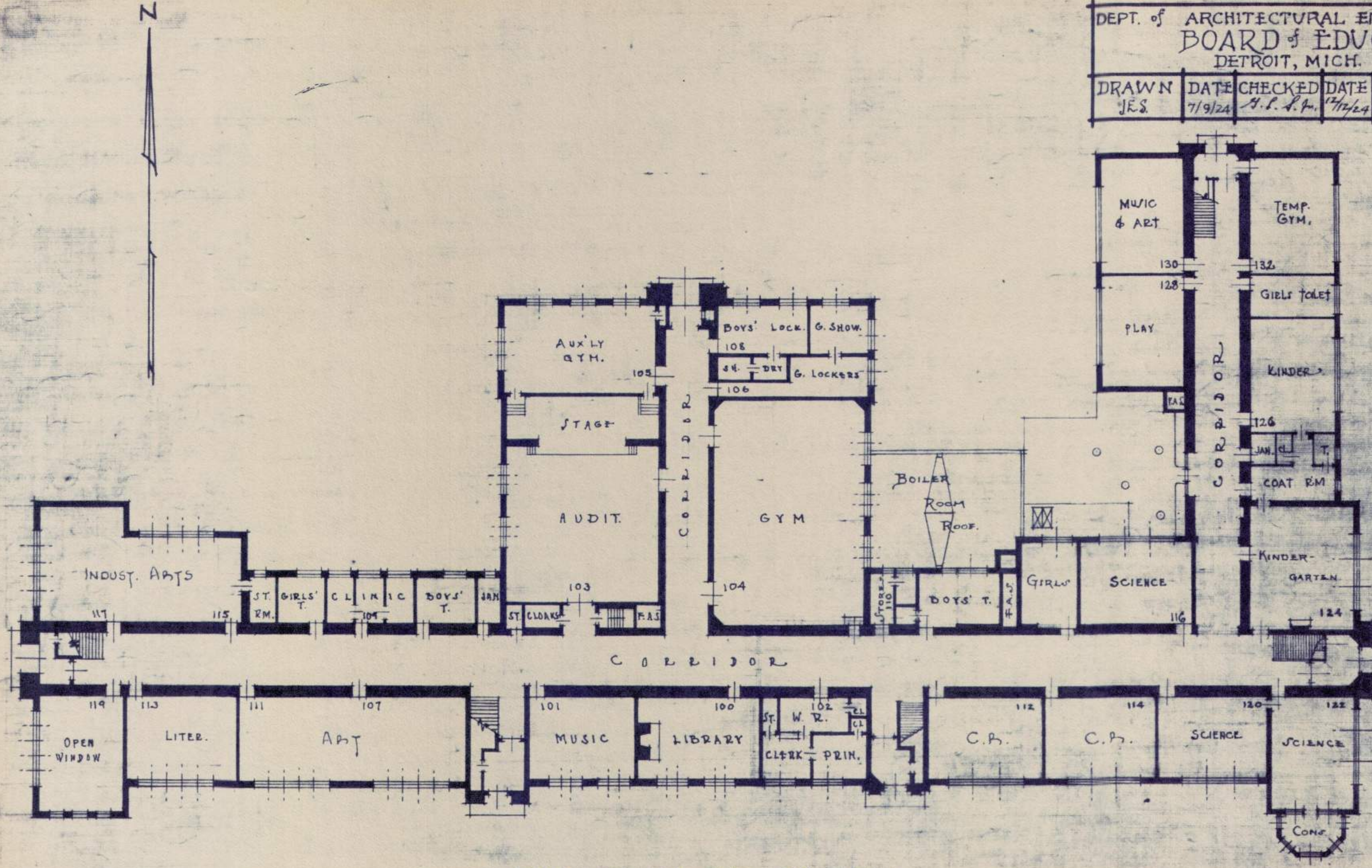

FIRST FLOOR PLAN

SCALE: 1'-0" = 32'-0"

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DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
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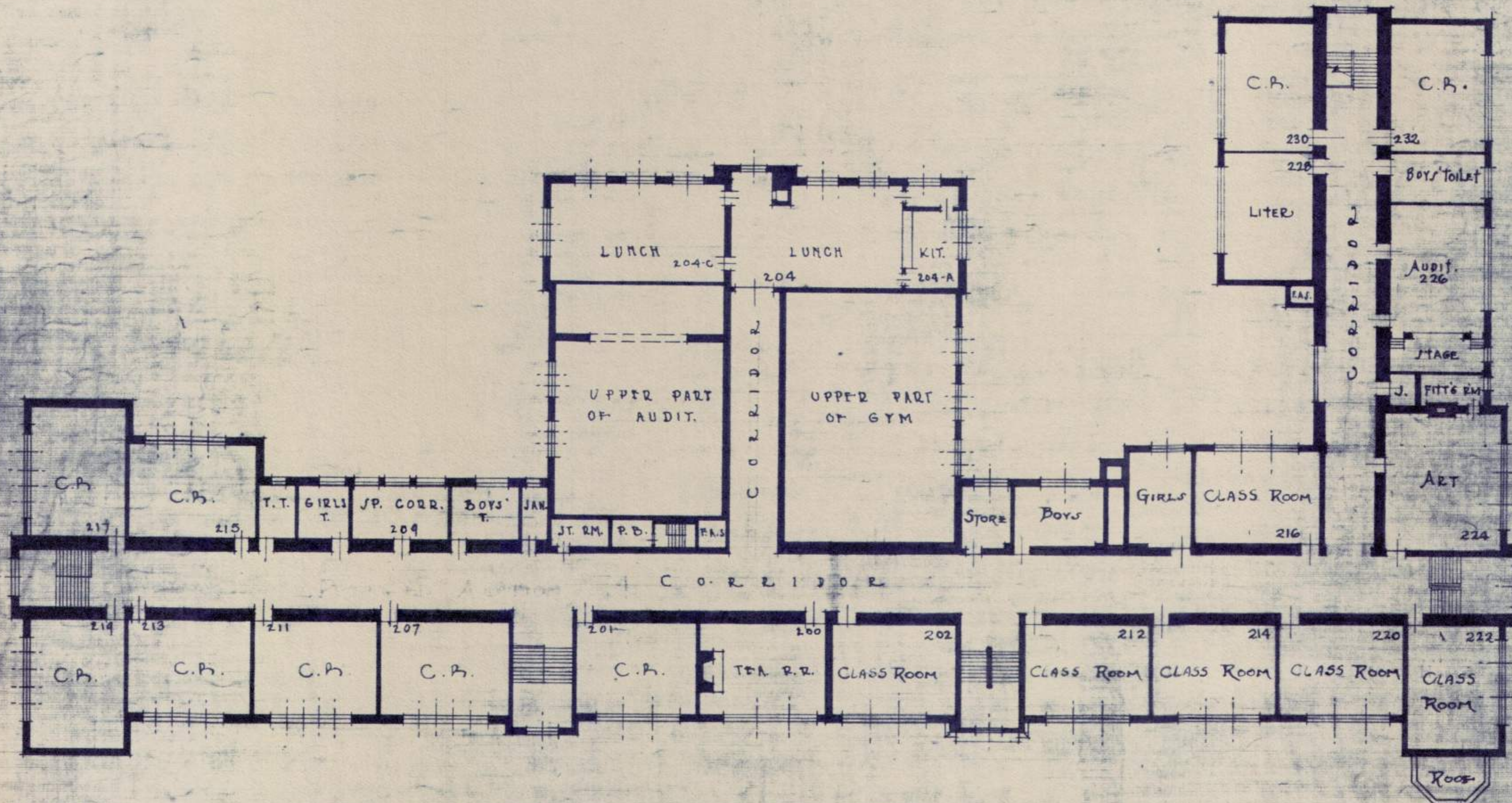

SECOND FLOOR PLAN

SCALE: 1'-0" = 32'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Beard Early Childhood Center

Basic Property Information: DPS 6-Beard-840 Waterman

Short Name:	Beard
Address:	840 Waterman Street Detroit, Michigan 48209
Year Built:	1896
Additions Built:	1900
Outbuildings:	None
Year Vacated:	2014
Building Footprint:	130 feet x 130 feet
Square Footage:	34,555 sq. ft.
Number of Stories:	3
Building Height:	53 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Wood ▪ Brick Masonry
City Council District:	6	**Exterior Wall System:**	▪ Brick Masonry (painted common brick) ▪ Limestone
SNF District:	SWV	**Window System(s):**	▪ Aluminum ▪ Wood
		Roofing System(s):	▪ Asphalt Shingle ▪ Built-up Roof ▪ Gutters ▪ Internal Drains

Assessment Summary

Assessment Date:	July 30, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 22, 2020
Building Risk Index:	**54.19**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,311,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,764,400
Sub-Total	$4,975,900
Contingency (25%)	$1,243,975
Sub-Total	$6,219,875
Overhead and Profit (15-18%):	$932,981
Sub-Total	$7,152,856
Escalation (6% for 2 years)	$429,171
Sub-Total	$7,582,027
Architectural and Engineering Design Services (20%):	$1,516,405
TOTAL COST ESTIMATE:	$9,098,433

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners. Mr. Wald gathered information pertinent to the general building site and layout of the building Representatives of the City of Detroit Planning and Development Department were not present at the time of WJE's assessment.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition, including the attic, the bell tower roof, and the north corridor of the basement. The basement level was flooded at the time of our assessment from an active water source, and thus, was only partially accessed. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

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Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
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The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

One of the oldest existing schools in the City of Detroit, the Frank H. Beard School, also known as the James A. Garfield School, is on the National Register of Historic Places and was designated a Michigan State Historic Site in 1984. The primary west facade faces Waterman Street and is divided into five bays with a central bell tower extending over the main entrance. A small, one-story attached structure on the east side of the building houses the boiler room and fuel room.

The facade generally consists of common clay brick masonry units in a running bond with rusticated limestone accent units at the belt courses and window sills, including a horizontal band located at the base of the wall. The exterior surface of both the common brick and limestone is painted. Aluminum replacement windows have been set in the original wood frames, and aluminum caps cover the wood frames on the exterior. Steep-slope hip roofs are covered with asphalt shingles, which slope to gutters and downspouts at the eaves. The hipped roofs overhang the exterior walls with exposed decorative wood soffits. Ornate metal accents surround the built-in gutter and cornice above the main west entrance. Sections of low-slope roofing are present over the building stairwells and the lower east roof level, which are covered with built-up roofing assemblies. The structural system consists of wood roof and floor framing, which bears on the mass masonry walls. Four brick masonry chimneys extend above the roof level, while a large fifth chimney is present on the exterior of the east facade of the main building.

Overall, the building is in serviceable condition. Both the asphalt shingle and built-up roofing assemblies show indications of significant deterioration and are recommended for replacement, though the interior spaces largely remain dry and intact. Localized regions of water staining were observed from the attic space and further investigation is recommended to determine if repairs to the wood roof deck or structure are required in conjunction with replacement of the roofing. The majority of the observed facade distress is a result of missing and damaged downspouts and gutters, which should be addressed as soon as possible to mitigate further masonry distress. Significant repairs to the brick masonry facade, steel window lintels, and wood soffit are recommended, including complete removal of the exterior masonry coating. The windows are generally in serviceable condition and may be repaired in-place. Further detail of the observed distress is provided below.

Facade

The existing coating over the brick and limestone masonry exterior walls is peeled and blistered in isolated locations, particularly at wall areas near missing or damaged gutters and downspouts and below severely deteriorated roofing or flashing elements. The actual composition of the coating is unknown. Severe face spalling of the brick masonry units and mortar erosion were typically present in the wall areas exhibiting failed coating. Evidence of several different vintages of paint applications are apparent, which reduces the vapor permeability of the wall system and can entrap moisture between the coating and the underlying masonry units, resulting in accelerated masonry distress. The coating is likely concealing masonry distress, such as cracked and spalled brick units and cracked, debonded, and eroded mortar. Complete removal of the coating is recommended to fully understand the extent of masonry distress and for improved long-term durability of the exterior masonry walls; however, the masonry repairs may be phased in the near-term as needed. Removal of the coating should be performed without the use of harsh chemicals or abrasive material, as to not further damage the existing masonry. Based on the poor condition of the mortar in areas of failed coating, it is likely that complete grinding and pointing at all exterior masonry walls will be required upon full removal of the coating. In addition, localized regions of cracked and spalled brick units should be replaced. Installation of a new coating is not recommended unless the coating was present historically, in which case an appropriate vapor permeable masonry coating that is compatible with historic masonry should be selected.

Similar masonry distress to the main building was observed at the one-story boiler room and fuel room walls at the rear east end of the building, including coating failure, spalled brick masonry units, and severely deteriorated mortar. In lieu of the repairs outlined above for the main building, demolition of this small building portion and erection of a new structure may be a viable alternative.

Widespread brick masonry cracking, spalling, and displacement was observed at window heads due to corrosion of the steel lintel caused by prolonged water infiltration. At many of the window heads, severe corrosion and deflection of the steel lintels was noted with some lintels exhibiting rust scale and significant section loss. Repairs should include removal and replacement of the masonry in order to expose the distressed lintels and repair the surrounding masonry distress, and replacement of the loose-laid lintels with new coated or galvanized steel lintels, and installation of through-wall flashing. Localized spalled brick units were also observed near some of the window jambs, attributed to corrosion or removal of previously installed window barricades. Replacement of localized spalled brick units is recommended as part of a facade restoration.

The ornate metal elements at the built-in gutter and at the cornice above the main entrances exhibit corrosion, section loss, and displacement in isolated locations, as well as peeled and flaked paint throughout. Restoration of these elements is recommended to mitigate water penetration and further distress, and to maintain the original aesthetic.

The painted wood soffits exhibit evidence of moisture intrusion through the roofing and subsequent decay. Some of the soffit elements are missing. Replacement of the decayed wood soffit elements and cleaning and coating of all of the exposed wood surfaces for improved durability is recommended. Repairs to some soffit framing elements are anticipated.

The main chimney at the east elevation of the main building is in poor condition. Cracking and displacement of the brick masonry were observed near the top of the chimney on multiple sides. Based on the observed level of distress at the top of the chimney, we recommend dismantling and rebuilding the upper four feet of the masonry, which should also include removal and resetting or replacement of the stone copings with new through-wall flashing. The distress observed on the smaller chimneys includes eroded and debonded mortar, and one of the chimneys is missing a cap. We recommend grinding and repointing the deteriorated mortar joints and the installation of new through-wall flashing at the chimney with a missing cap.

The aluminum replacement windows are set within the existing original wood window frames, which are covered with tan-colored aluminum caps on the exterior. The caps are missing or displaced at isolated locations, exposing minor wood decay of the framing. Plexiglass protective enclosures have been fastened into many of the caps, puncturing the window frames, while the glass lites and window sash are generally intact. The sealant at the window perimeter joints exhibits widespread weathering and bond failure.

Restoration of the existing aluminum replacement window assemblies and aluminum cap flashing is recommended. The original wood exterior doors are generally intact with minor distress observed, including weathered and missing sealant, missing glass lites, and localized wood decay near the threshold. The doors may be restored or replaced in-kind or with alternate materials as desired. The conventional exterior steel door at the boiler room is dented and corroded and should be replaced.

Roofing

The roofing assembly exhibits deterioration within the asphalt shingle roofing and low slope built-up roofing. The observed deterioration, which includes displaced and missing flashings, weathered roofing membrane, and missing shingles, was generally concentrated near valleys, roof penetrations, chimneys, dormers, and soffits. The built-in gutters and downspouts are damaged or missing, resulting in deterioration of the masonry and wood soffit below. Water staining and wood decay was observed within the wood-framed attic; however, the interior spaces were largely dry and intact. Removal and replacement of the roofing assemblies, replacement of the missing downspouts, and repair of the built-in gutters, to mitigate future distress to the structural assembly and interior finishes, is recommended. Further investigation of wood roof framing is recommended in conjunction with roof replacement and repair effort, as localized repairs to the structural wood roof deck are anticipated.

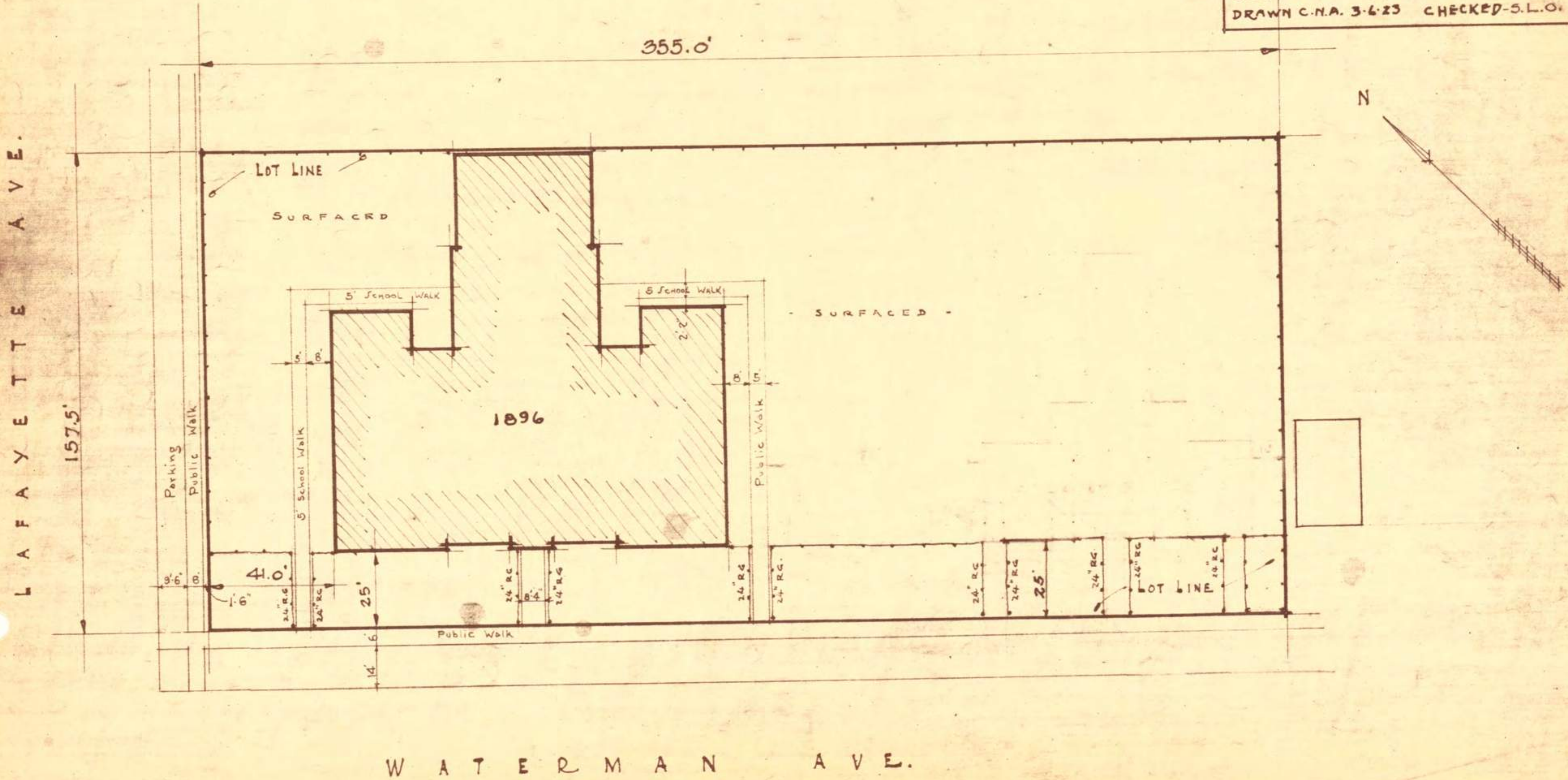
BEARD SCHOOL
DETAIL OF SITE
SCALE 1" = 40'

DEPARTMENT OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
·b·	1-26-21				

BUILDING CONST. 1896 BRICK WALLS WOOD JOIST

OPEN AIR SCHOOL
BULD'G CONST. 1923 STUCCO-BRICK WALLS-W. JOIST
DRAWN C.N.A. 3-6-23 CHECKED-S.L.O. 3-14-23

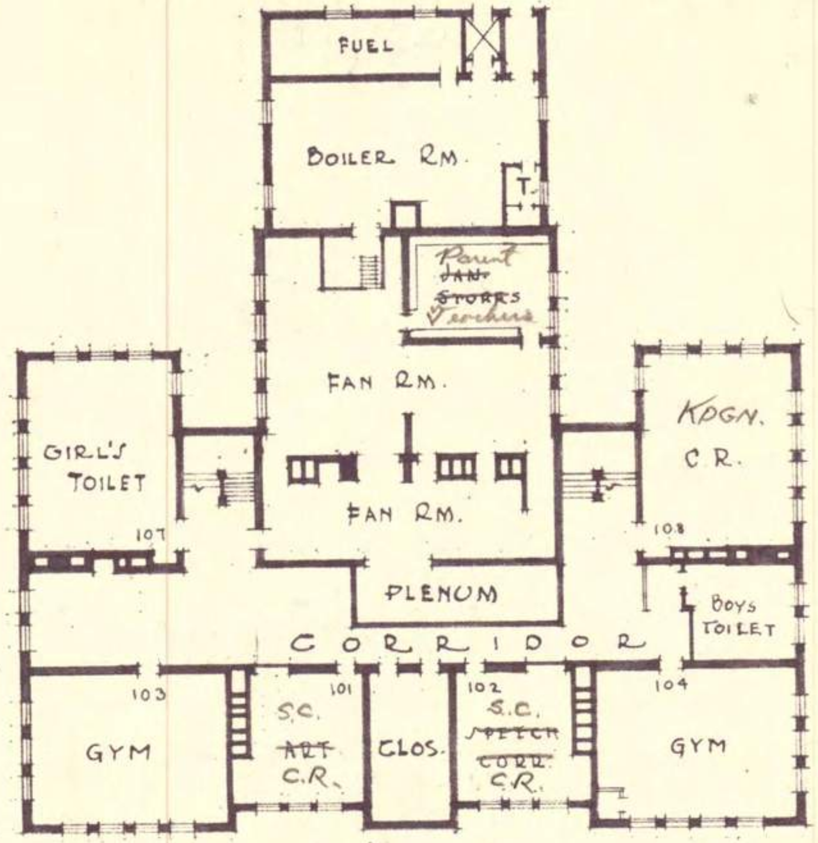


BEARD · SCHOOL
BASEMENT FLOOR PLAN

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.D.L.	12-6-20	C			

REVISED. 7-3-46. R.D.



BASEMENT PLAN
SCALE – 1/32" = 1'-0"

735 Students.

Scale $\frac{1}{32}$" = 1'-0"

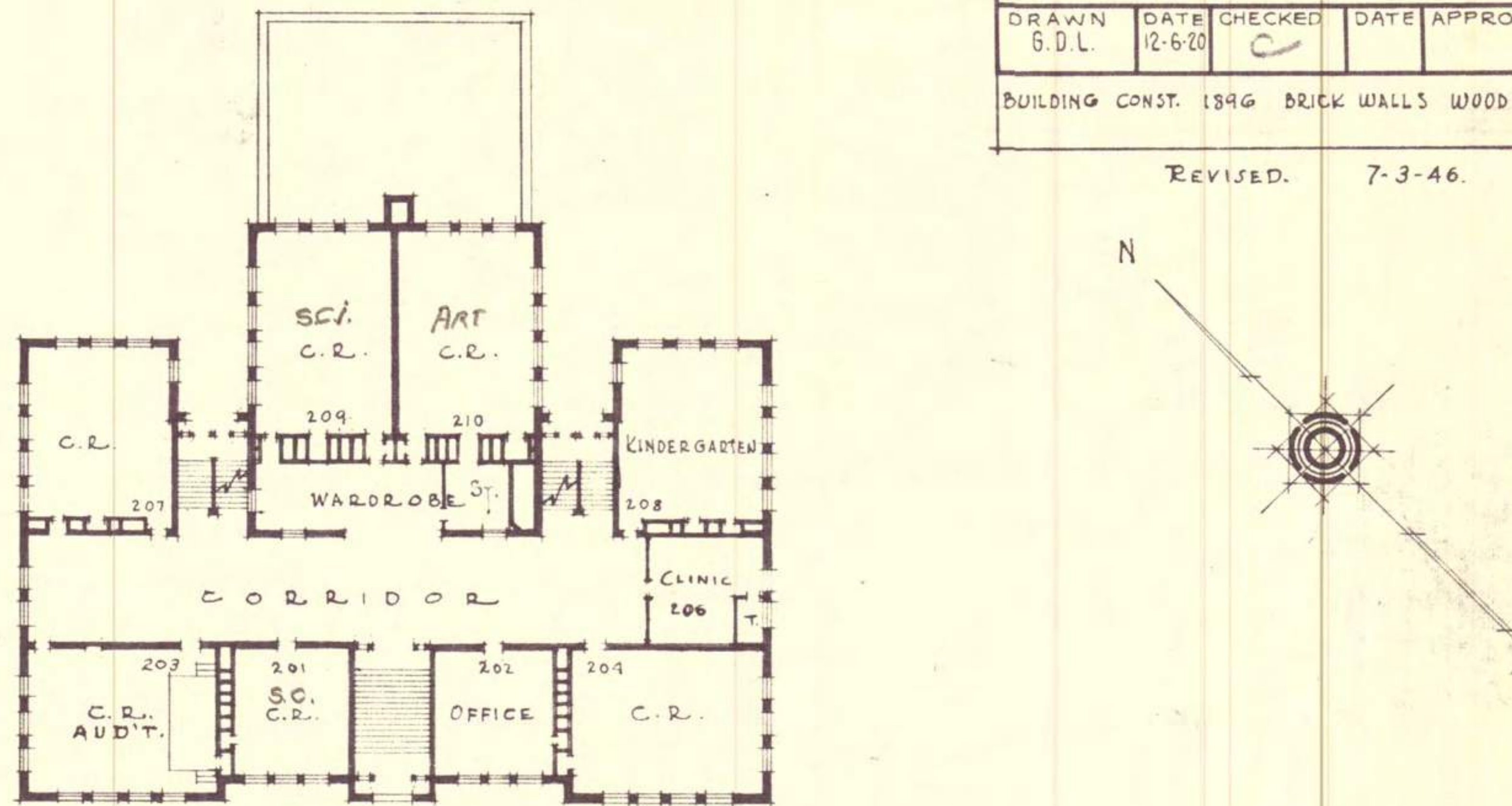
BEARD • SCHOOL
FIRST • FLOOR • PLAN

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.D.L.	12-6-20	C			

BUILDING CONST. 1896 BRICK WALLS WOOD JOIST

REVISED. 7-3-46. R.D.



FIRST FLOOR PLAN
SCALE - 1/32" = 1'-0"

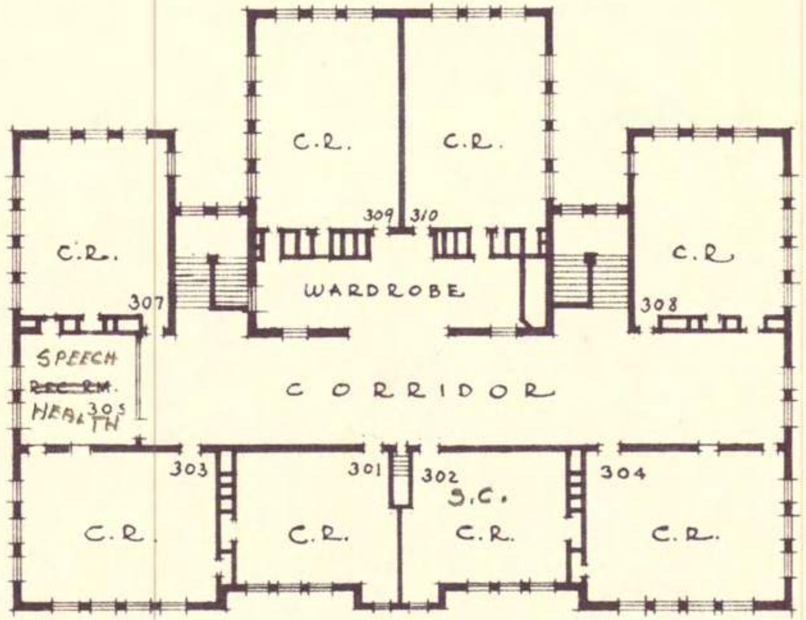
Scale 1/32" = 1'-0"

BEARD · SCHOOL
SECOND · FLOOR · PLAN

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.D.L.	12-6-20	C			

REVISED. 7-3-46. R.D.



SECOND FLOOR PLAN
SCALE - 1/32" = 1'-0"

Scale $\frac{1}{32}$" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Biddle Primary

Basic Property Information: DPS 6-Biddle-4601 Seebaldt

Short Name:	Biddle
Address:	4601 Seebaldt Street Detroit, Michigan 48204
Year Built:	1963
Additions Built:	None
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	225 feet x 170 feet
Square Footage:	30,180 sq. ft.
Number of Stories:	1
Building Height:	12 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Structural Steel
City Council District:	6	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roofing (assumed) ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 21, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**19.56**

Cost Estimate		
Base Rehabilitation Cost Estimate:		$518,800
Preparation for Rehabilitation Work:		$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):		$2,414,400
	Sub-Total	$3,833,200
Contingency (25%)		$958,300
	Sub-Total	$4,791,500
Overhead and Profit (15-18%):		$862,470
	Sub-Total	$5,653,970
Escalation (6% for 2 years)		$339,238
	Sub-Total	$5,993,208
Architectural and Engineering Design Services (20%):		$1,198,641
TOTAL COST ESTIMATE:		$7,191,849

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. The roof level could not be accessed during WJE's assessment. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

Overall

The one-story building, constructed in 1963, is rectangular in plan with a central courtyard. The central courtyard was not accessed during this assessment because the courtyard doors were locked. The building facade generally consists of clay brick masonry with concrete masonry unit (CMU) backup. The brick units are typically oriented in a running bond with a header course every six courses vertically. Limestone units are located at windowsills throughout all facades. Metal fascia panels wrap the top of the exterior walls at all facades. Aluminum framed windows and steel framed doors are located within punched openings in the exterior walls. The low-slope roofing was not reviewed, because the access door was locked, but appears to consist of an internally drained, gravel-surfaced, bituminous built-up roofing system based on review of aerial photographs.

The building is generally in good, serviceable condition. Localized repairs are recommended at the brick masonry. The aluminum single pane windows may be restored in place if desired but are recommended for replacement for improved thermal performance. Further investigation of the roof and the courtyard facade is also recommended since these areas were inaccessible during this assessment.

Facade

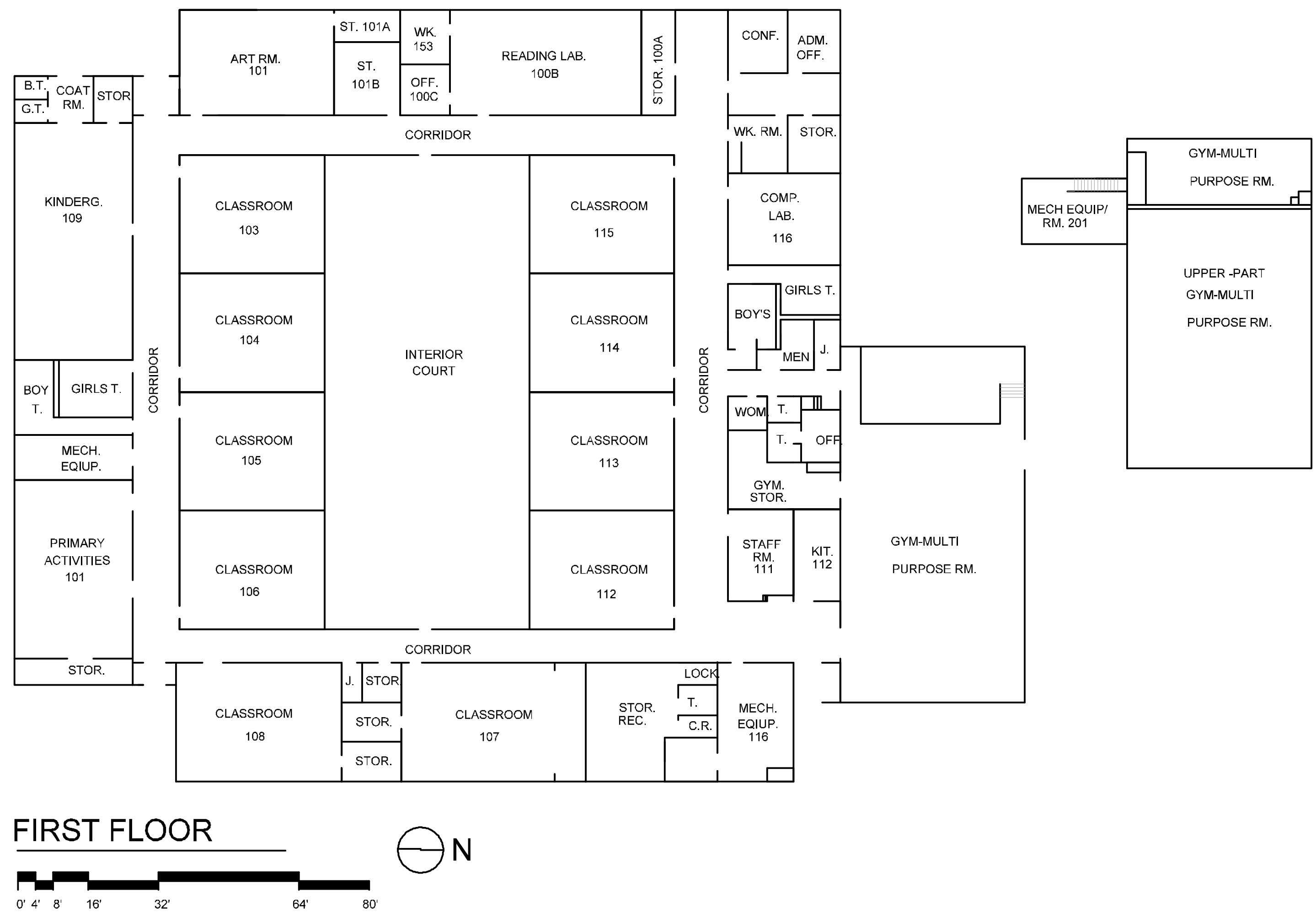
Cracking and spalling of brick masonry units at the lintel bearings was observed at the gymnasium exterior entrance, likely due to corrosion of the steel lintels caused by prolonged water infiltration and failure of the existing flashing, if present. Vertical cracking of the brick masonry was observed at one of the corner piers, which appears to be caused by corrosion of an embedded steel column; one of the metal fascia panels had been removed, or failed, above the area of the vertical cracking, resulting in an avenue for water infiltration into the wall assembly below. Step cracks were observed in isolated locations, which appears to be related to long-term differential settlement. Erosion and bond separation of the mortar was observed at isolated brick masonry areas and between limestone sill units. A limestone unit at the northwest entrance approach is cracked and spalled due to differential settlement and loss of support below the center of the stone unit. Replacement of the localized, cracked, and spalled brick units, as well as the installation of flashing with a durable repair detail at the corroded lintel, is recommended. Masonry repairs including repointing and the replacement of the limestone unit at the entrance approach is also recommended.

Holes in the metal fascia panels were observed at isolated locations, which are attributed to damage from impact likely from vandal activity. Weathering, severe degradation, and, cohesive failure of the sealant was observed at most of the masonry expansion joints. The damaged fascia panels should be replaced in kind or with alternative materials, and new sealant with backer rod should be installed at the masonry expansion joints.

The single-pane aluminum framed windows are generally intact and in fair condition but are currently covered with temporary protective enclosures. Cracked and broken glass lites were observed and the sealant at window and door perimeters exhibited weathering and failure. Corrosion was observed on the surface of the exterior metal doors and the doors were barred shut, and the bars penetrate the doors, creating holes and warranting replacement. The windows may be restored, including replacement of cracked and broken lites and the installation of new sealant around the window perimeters, though replacement of the existing window assemblies may prove to be a more cost-effective alternative and provide improved thermal performance.

Roofing

The roof level could not be accessed during WJE's assessment. However, indications of localized water infiltration were visible from the building interior that appeared to be related to the roof drains. Based on a lack of water intrusion below the field of the low-slope roofing, the roof appears to be performing well and likely requires only localized maintenance related repairs to extend the service life of the existing roof assembly in conjunction to the more significant repair work to the drainage systems.



FIRST FLOOR

SCHOOL CODE : 24

BIDDLE ELEMENTARY

WJE

Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Phoenix Academy

Basic Property Information: DPS 6-Phoenix-7735 Lane

Short Name:	Phoenix
Address:	7735 Lane Street Detroit, Michigan 48209
Year Built:	1917
Additions Built:	1928, 1963
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	320 feet x 395 feet
Square Footage:	109,344 sq. ft.
Number of Stories:	3
Building Height:	49 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Gypsum and Tectum Roof Decks (south addition)
City Council District:	6	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Precast Concrete
SNF District:	SWV	**Window System(s):**	▪ Aluminum replacements
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains ▪ Slag Surfaced

Assessment Summary	
Assessment Date:	July 30, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 18, 2020
Building Risk Index:	**65.64**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$3,508,700
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$8,747,520
Sub-Total	$13,156,220
Contingency (25%)	$3,289,055
Sub-Total	$16,445,275
Overhead and Profit (15-18%):	$1,644,527
Sub-Total	$18,089,802
Escalation (6% for 2 years)	$1,085,388
Sub-Total	$19,175,190
Architectural and Engineering Design Services (20%):	$3,835,038
TOTAL COST ESTIMATE:	$23,010,228

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and main roof level of the original building, using binoculars as needed. Roof levels over the south 1960s addition could not be accessed due to a missing ladder at the roof hatch. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original school building was constructed in 1917. The garden level basement has windows at grade level allowing daylight into the basement rooms. A two-story addition was constructed to the southwest in 1928. In 1963, a large addition was constructed on the south end of the site and is connected to the first addition by an enclosed pedestrian tunnel at the first-floor level. A small one-story addition which houses the boiler room and a screen wall that encloses a service courtyard were added south of the original building at an unknown date.

The original building facade consists of mass masonry exterior walls with decorative sheet metal accents and limestone sills. The structural system generally consists of concrete joist tee-slabs that span to an interior concrete frame and the exterior masonry walls. Aluminum replacement windows have been installed in the punched wall openings. Conventional steel doors are present at the building entrances. The low-slope roof levels consist of an internally drained, built-up roof (BUR) assembly with slag surfacing. The 1928 facade is of similar construction to the original except limestone accents are present in lieu of sheet metal panels. Cementitious panels are present at some window heads or spandrels, which may have been added during the window restoration.

The large, one-story 1960s addition on the south end of the site is clad in a painted brick masonry veneer with concrete masonry (CMU) backup. Painted precast concrete elements are present at the top of the walls and below the windows. Aluminum windows and storefronts are present. The structural system is generally steel-framed with a gypsum concrete roof deck. The roof level over this addition was not accessed due to a missing ladder at the roof hatch but appears to have a similar roofing assembly to the rest of the building. A sheet metal coping is present at the building perimeter. Painted CMU walls clad the enclosed pedestrian walkway.

Overall the building is in serviceable condition. The majority of observed distress is due to deterioration of the roofing assembly, internal drains, and isolated fire damage. Water management of the roof drainage systems should be stabilized as soon as possible to mitigate additional distress; the roofing assemblies and drainage systems will require removal and replacement. The facade is generally in good condition with minor maintenance-type repairs required. The windows are also generally in good condition and may be restored in-place. Isolated structural repairs are anticipated and further investigation is required. Further detail is provided below.

Facade

At the base of the original building on the eastern facade, significant brick masonry deterioration is present, which is attributed to moisture penetration, chloride exposure from deicing salts used at the nearby parking area, and freeze-thaw damage. Deterioration was also observed in brick masonry near the top of the walls, including efflorescence, mortar deterioration, and spalled brick masonry. The distress at the top of the walls correlates with regions of missing sheet metal flashing and failed base flashings at the roof level, which permits water penetration into the wall assembly. Similar conditions are also present near the north entrances where the ornate sheet metal has failed above. These distressed areas of brick masonry should be rebuilt.

Isolated spalled brick units are also present throughout the original building cladding and are attributed to variations in the historic brick materials. These regions should be monitored for continued distress; repairs are not anticipated at this time. Areas of rebuilt masonry, repairs to the steel window lintels, and repointed mortar joints are present at the original building. These repairs are largely in good, serviceable condition. The limestone caps at the masonry chimney are slightly displaced and should be reset with improved flashing.

An ornate painted sheet metal cornice extends around the perimeter of the original building. Similar ornamentation is present above the north building entrances, window spandrels, near the top of the second story windows, and at medallions near the top of the wall. Several ornate spandrel panels have been replaced with panels containing less ornamentation, possibly as part of the window replacement effort. Paint on the sheet metal surfaces has generally failed. Some panels above the entrances and cornice are displaced and corroded with localized areas of complete section loss. These elements should be restored to retain the original historical aesthetic and to mitigate further water penetration and distress.

Corrosion of the steel window lintels was generally observed within the 1928 building addition, with some areas containing significant masonry distress and lintel displacement due to the development of pack rust. These regions require masonry repairs with improved flashing details and potential replacement of the steel elements to mitigate further distress to the masonry. The cementitious panels at the 1928 addition include localized cracking, spalls, and paint failure, and should be repaired or replaced, potentially with alternative materials.

Some limestone coping units above the 1928 addition have been removed and are damaged (not salvageable). At these locations, the roofing base flashing is generally pulled away from the masonry substrate, exposing the wall assembly and building interior to water penetration. The brick masonry below the missing coping units is typically deteriorated with water staining, efflorescence, cracking, and spalled brick units. Isolated limestone units are spalled at corroded anchors, which should be repaired.

The exposed concrete surfaces at the 1960s building contain localized deterioration including paint failure, freeze-thaw damage, cracking and spalled concrete, and exposed corroded reinforcing bars. Partial depth concrete repairs are recommended and all concrete surfaces should be cleaned and repainted with an appropriate coating material for improved durability. Sealant between the precast panels is typically deteriorated and should be replaced. Mortar deterioration is present at the CMU walls of the enclosed walkway, which should be repointed. Graffiti covers the painted brick, CMU, and concrete surfaces.

Overall, the thermally broken aluminum windows and storefront assemblies throughout the building are generally in good condition. Isolated operable window sashes are missing or damaged from vandalism, and a few windows contain extensive fire damage and will require replacement. Some windows contain cracked glass. The windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate the window framing, creating holes. The windows may be restored in-place, including replacement of cracked and broken lights, replacement of isolated sashes or fire damaged units, and installation of new sealant within the holes in the frame created by the fasteners where/if the protective covering is removed. Some wood louvers at roof level are damaged or decayed, warranting replacement. The exterior conventional steel doors are generally corroded or damaged, and temporary protective enclosure bars penetrate the doors, creating holes. The exterior doors should be replaced.

Roofing

The roofing assemblies are generally in poor condition. Cracking and seam failures were observed throughout the roof surface. Some areas of the perimeter sheet metal flashing have been removed or displaced, resulting in damage to the roof base flashings. Similarly, gutters at some of the lower roof levels have been removed, damaging the roofing terminations and exposing the edge of the roofing to water infiltration. A test cut appears to have been made in the roof surface over the original building, though repairs were not completed, exposing the concrete roof deck to the elements. Vegetative growth was observed at some failed drains and lower roof levels. Similar conditions were observed at the 1960s building addition from afar.

Evidence of water infiltration was observed from the interior at drains and missing mechanical units throughout the original building and additions. In these regions, the interior finishes are significantly damaged, and in isolated regions of the building the roof structural members are deteriorated. Interior spaces away from the drains largely remain dry, likely due to the sloped condition of the roof structures.

Rehabilitation of the building should include removal and replacement of the existing roofing assemblies, drains, and drain conductors. Water management of the roof drainage systems should be stabilized in the near term to mitigate additional distress.

Structure

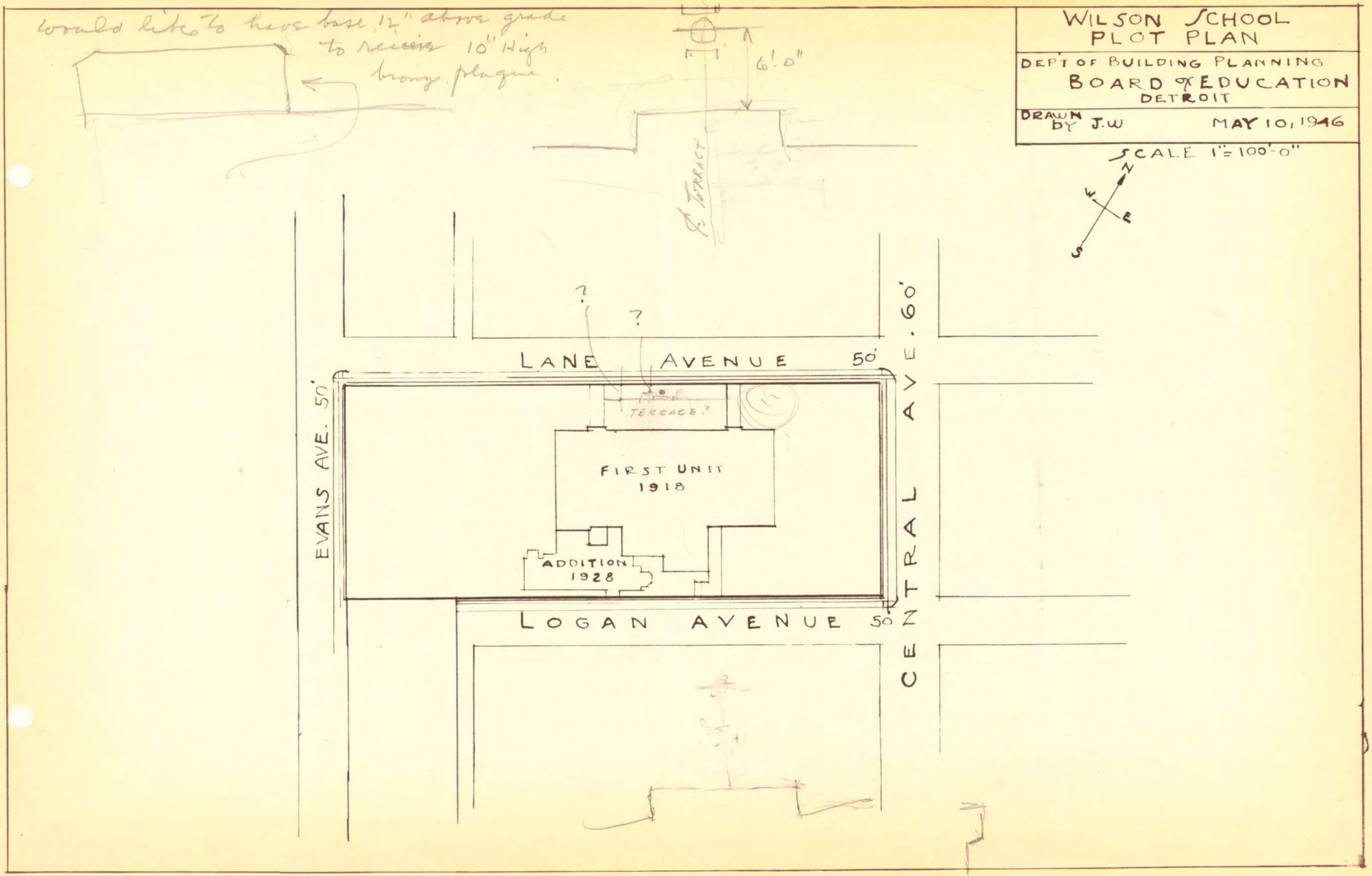
WJE's assessment was limited to the building envelope; however, WJE made the following additional observations of structural conditions in the course of assessing the building enclosure elements.

In the roof structure over the second-floor level rooms adjacent to the auditorium, steel reinforcing bars are exposed for an extended length on the underside of the concrete tee joists, which is attributed to fire damage. Repair of the tee joist stems is recommended.

Deterioration of the concrete roof structure was also observed above the second-floor corridor of the original building due to failure of isolated roof drains. Partial depth repairs of the tee joists are recommended.

Localized deterioration of the 1960s gypsum concrete roof structure was readily observed near some drains and rooftop mechanical units. Several gypsum deck panels have been previously replaced or overlaid with plywood sheathing. Assessment of the roof structure is recommended.

Ponded water was observed in some regions of the basement level. The basement should be dewatered allowing for assessment of the basement level.


WILSON SCHOOL
PLOT PLAN
DEPT OF BUILDING PLANNING
BOARD OF EDUCATION
DETROIT
DRAWN BY J.W
MAY 10, 1946
SCALE 1" = 100'-0"
N
E
S
W
would like to have base 12" above grade
to receive 10" High
bronze plaque
6'.0"
TERRACE
LANE AVENUE 50'
LOGAN AVENUE 50'
EVANS AVE. 50'
CENTRAL AVE. 60'
TERRACE ?
FIRST UNIT
1918
ADDITION
1928

JR HIGH

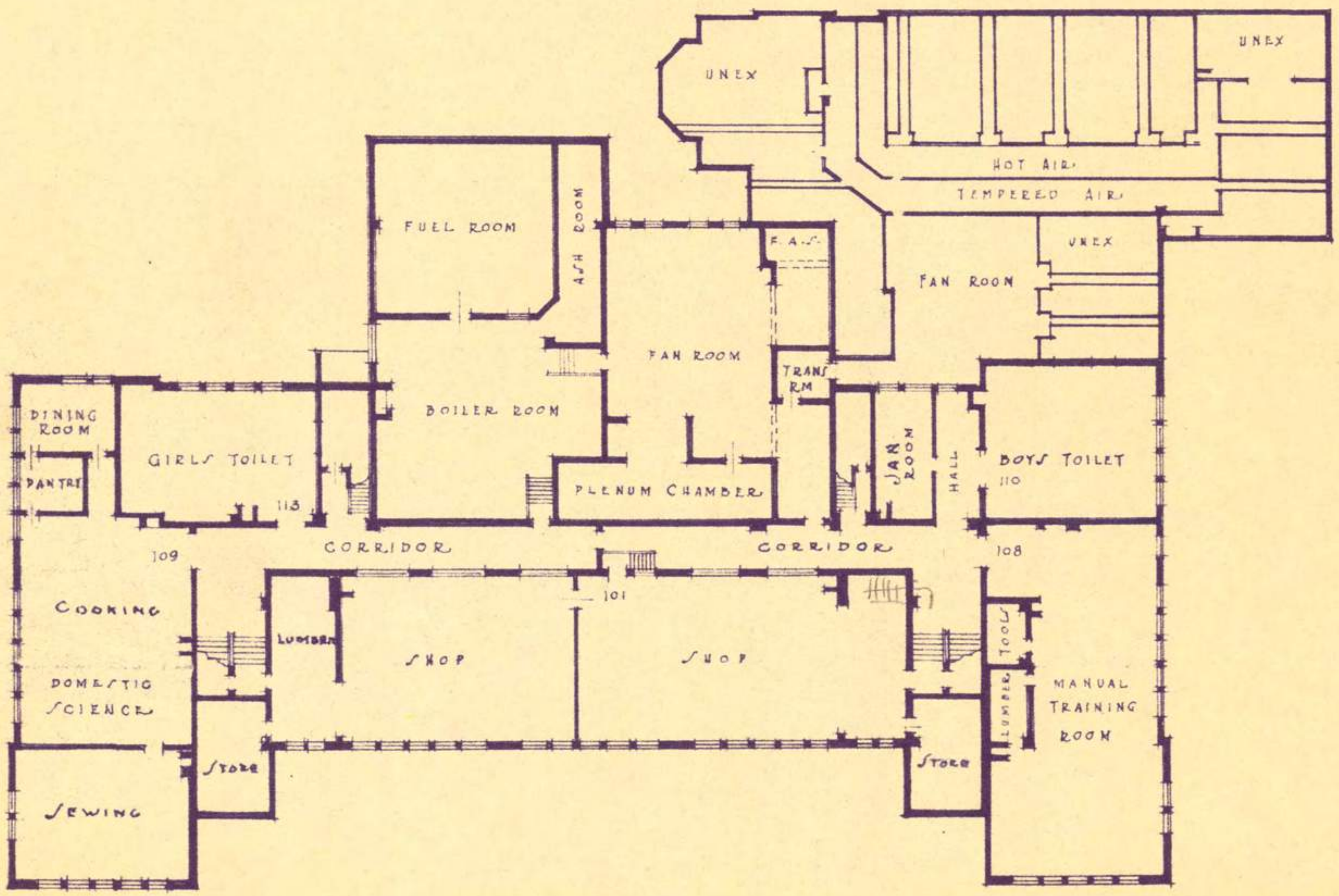
WILSON SCHOOL

BASEMENT FLOOR PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT MICH.

	DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
1ST UNIT	G. D. L.	10 25 20				
2ND "	R. H. C.	8 27 27				
COMBINED	A. W. B.	3 21 39				

SCALE $\frac{1}{32}"$ = 1'-0"

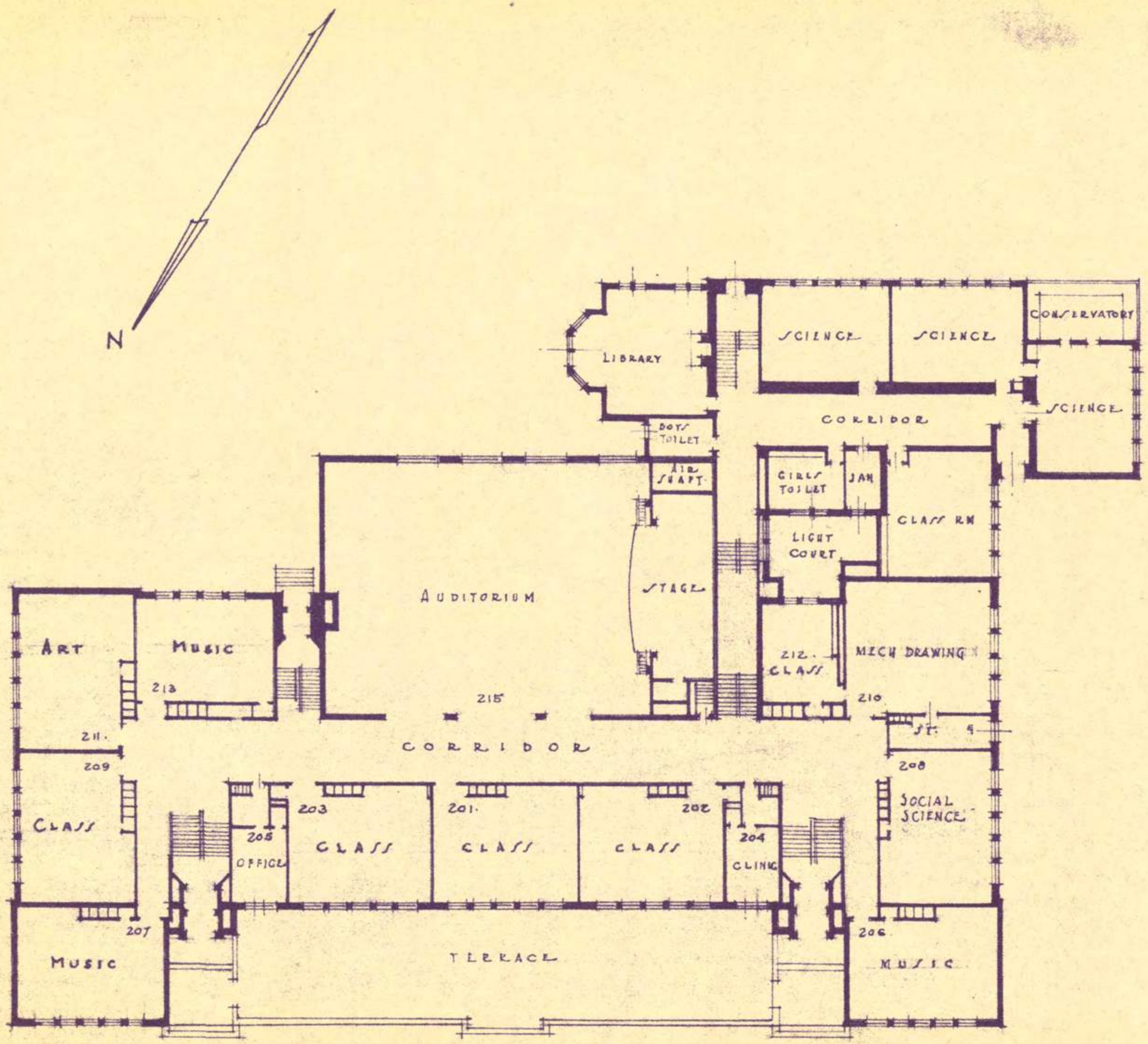


WILSON SCHOOL
FIRST FLOOR PLAN

DEPARTMENT OF BUILDING & GROUNDS
BOARD OF EDUCATION
DETROIT MICH.

	DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
1ST UNIT	G. D. L.	10 25 20				
2ND "	R. H. C.	8 27 27				
COMBINED "	A. W. B.	3 21 39				

SCALE $\frac{1}{32}$" = 1'-0"



WILSON SCHOOL

SECOND FLOOR PLAN

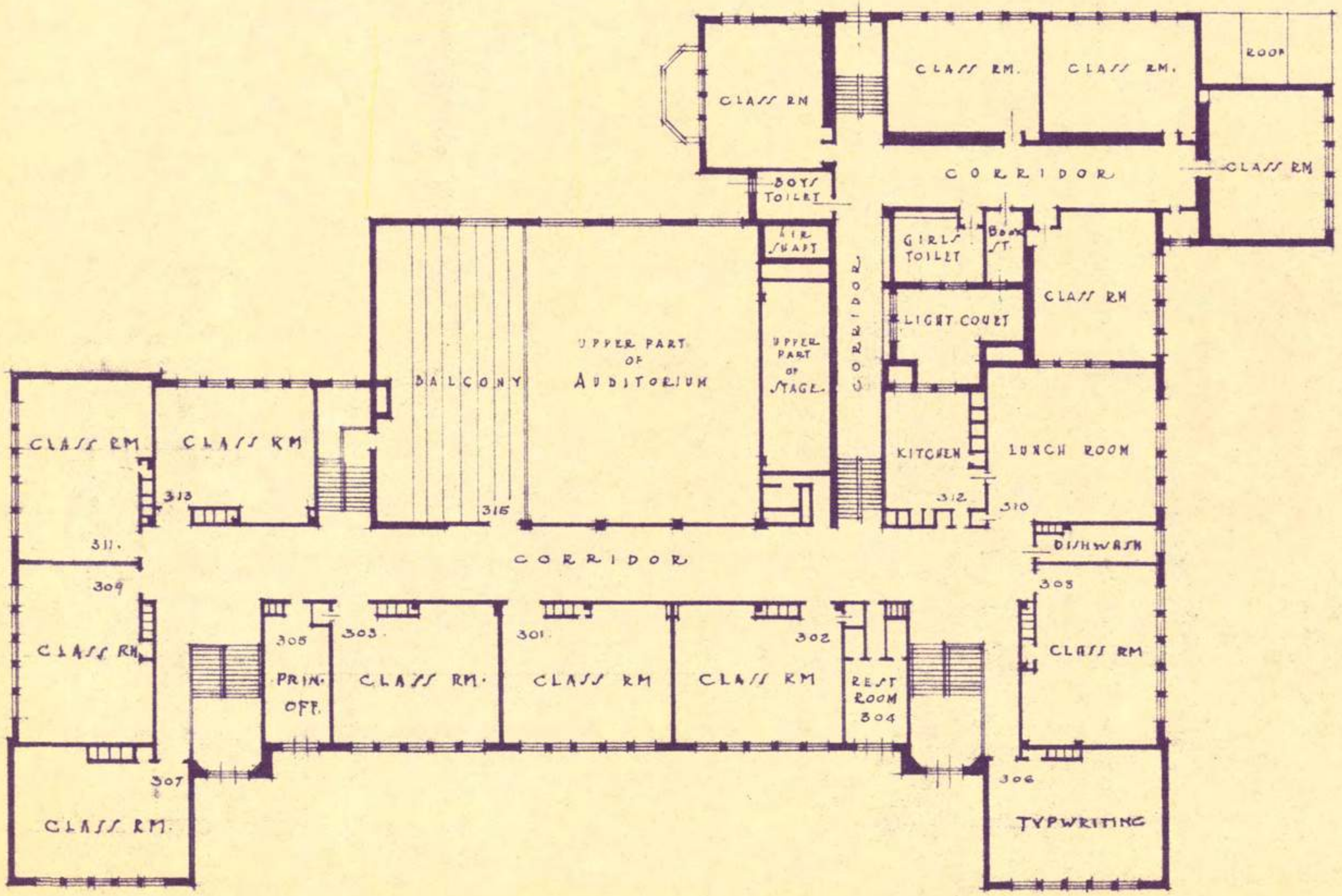
DEPARTMENT OF BUILDING & GROUNDS

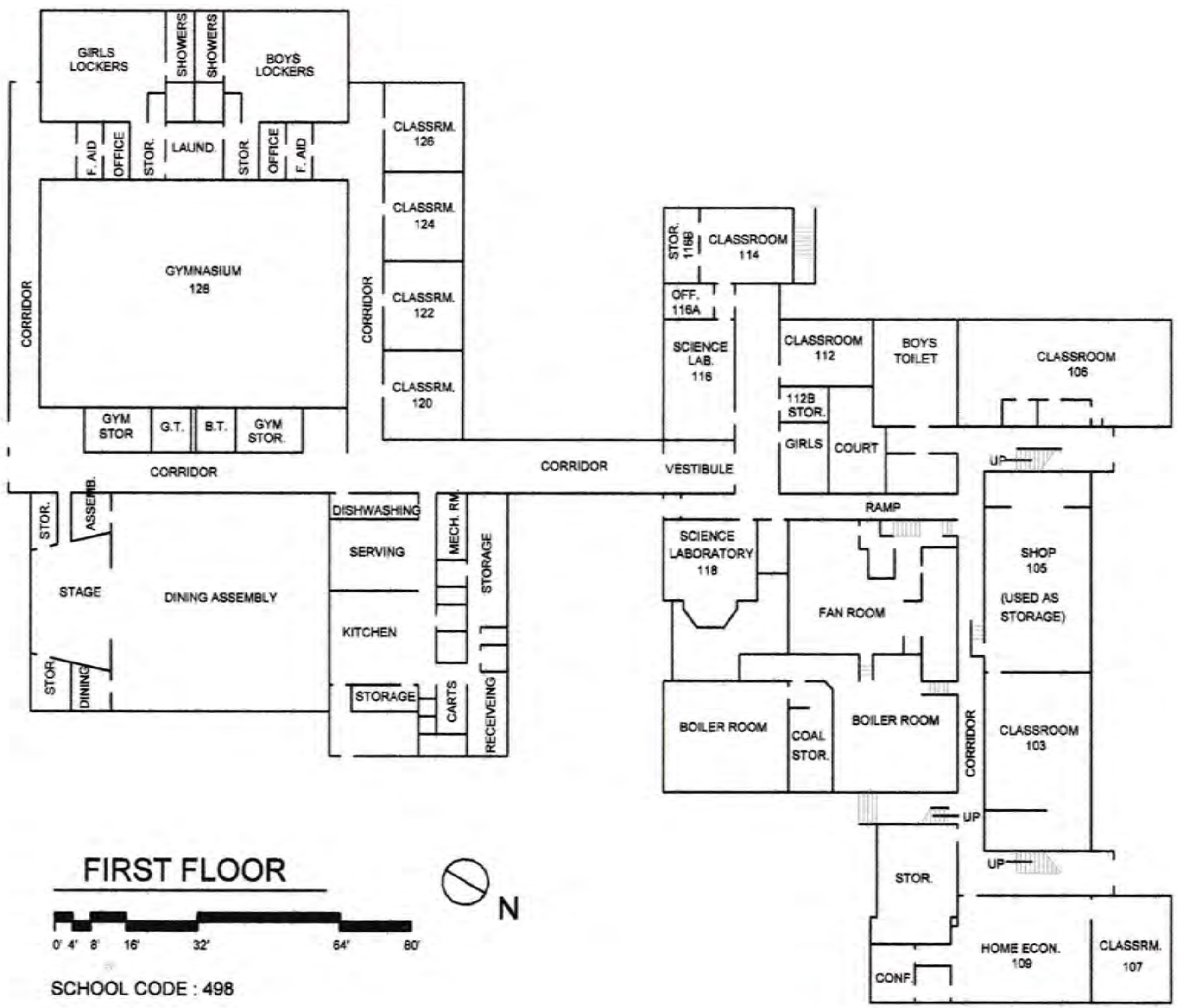
BOARD OF EDUCATION

DETROIT MICH.

	DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
1ST UNIT	G. D. L.	10·25·20				
2ND "	R. H. C.	8·27·27				
COMBINED "	A. W. B.	3·21·32				

SCALE $\frac{1}{32}$" = 1'-0"





Phoenix Academy (formerly Woodrow Wilson)

Phoenix Academy (formerly Woodrow Wilson)

Phoenix Academy (formerly Woodrow Wilson)

District 7

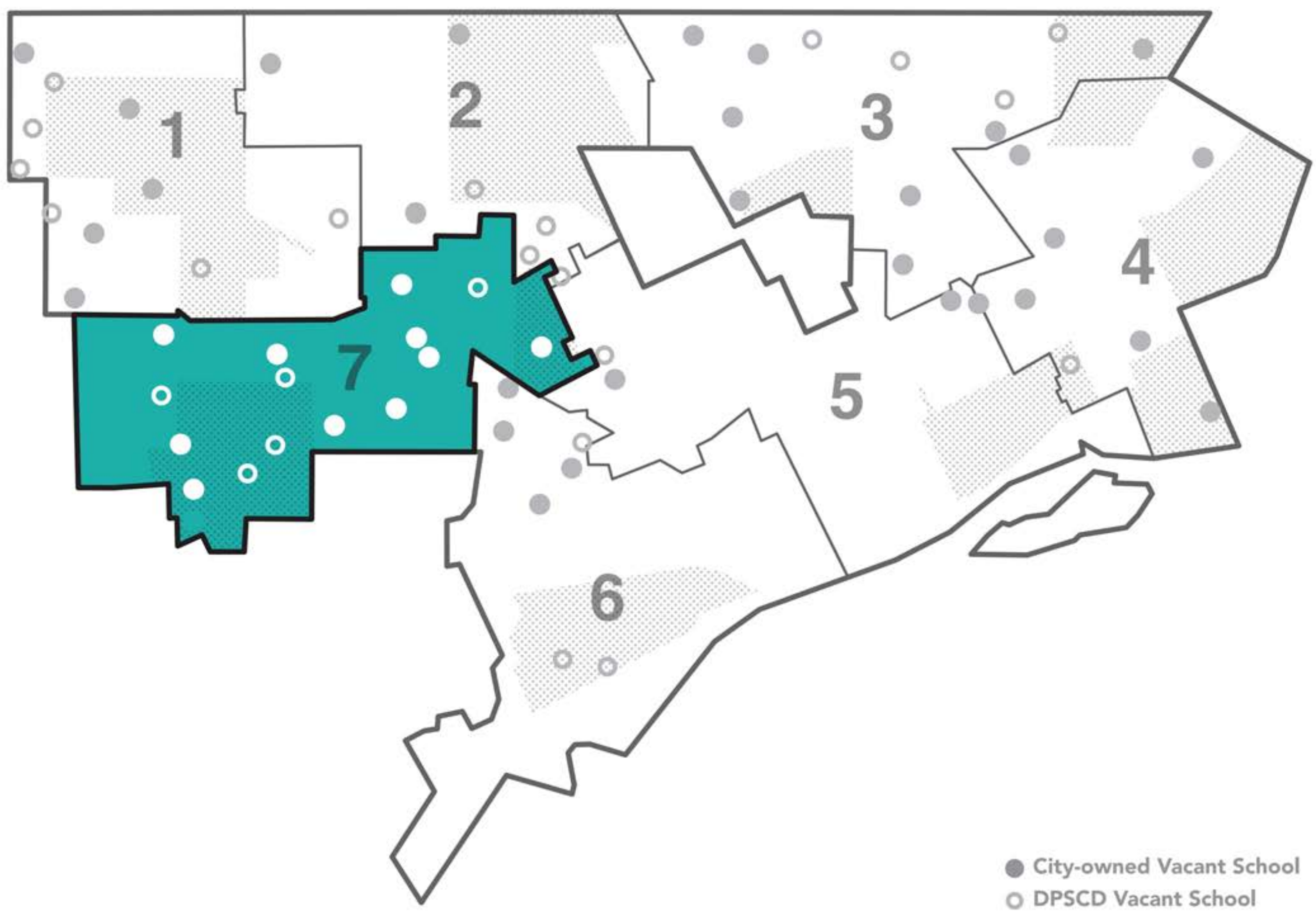
City of Detroit Schools:

Coolidge
Jemison
Kosciusko
McFarlane
McKerrow
Monnier
Oakman
Parker
Parkman
Weatherby

DPSCD Schools:

Courtis
Henderson
Herman
McColl
Ruddiman

Detroit
City Council District 7



Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Coolidge Elementary School

Basic Property Information: COD 7-Coolidge-16501 Elmira

Short Name:	Coolidge
Address:	16501 Elmira Street, Detroit, Michigan 48227
Year Built:	1925
Additions Built:	1928, 1941, 1951
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	240 feet x 200 feet
Square Footage:	54,598 sq. ft.
Number of Stories:	2
Building Height:	32 ft.
Current Ownership:	City of Detroit
City Council District:	7
SNF District:	NA

Structural Framing System:	Cast-in-Place Concrete; Brick Masonry; CMU; Structural Steel
Exterior Wall System:	Brick; Limestone; Cast stone
Window System(s):	Wood; Steel
Roofing System(s):	Built-up Roof; Internal Roof Drains; Gravel Surfaced

Assessment Summary

Assessment Date:	February 20, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 27, 2020
Building Risk Index:	**114.35**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,919,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,367,840
Sub-Total	$7,187,340
Contingency (25%):	$1,796,835
Sub-Total	$8,984,175
Overhead and Profit (15-18%):	$1,347,626
Sub-Total	$10,331,801
Escalation (6% for 2 years)	$619,908
Sub-Total	$10,951,709
Architectural and Engineering Design Services (20%):	$2,190,341
TOTAL COST ESTIMATE:	$13,142,051

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the main building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including areas of the basement that were not flooded. Limited access to the attic was obtained near the roof hatch. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
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The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The current U-shaped building footprint is comprised of four building areas with varying facade and structural assemblies. The original, two-story building is located in the center of the building. The first addition, constructed in 1928, extends from the east facade to the south. A small, second addition was constructed to the west of the original building in 1940, and a 1950 addition extended south of the 1940 addition creating the existing "U" shaped footprint.

The building facades generally consist of clay brick masonry with concrete masonry (CMU) or clay brick backup. Mass brick masonry is present at the building stairwells. At the original 1925 portion of the building, cast stone units accent the entrances, window sills, copings, and form horizontal bands on the walls. At the later building additions, limestone accent pieces are present at similar locations. In the original 1925 construction and the east 1928 addition, wood framed windows are present. In the more recent west additions (circa 1940 and 1950), steel-framed windows are present. The exterior doors are wood. The low-slope roofing consists of internally drained, gravel-surfaced, bituminous built-up roof (BUR) with granulated cap sheet base flashing.

The structures of the original 1925 building and 1928 addition are concrete tee joist-slab construction spanning to concrete beams and columns along the corridor walls. The 1940 and 1950 additions are constructed of presumed concrete-encased structural steel framing and with concrete tee joist-slab roof and floor construction. The beam and column systems are located at both the interior corridors and exterior walls in the 1940 and 1950 addition. CMU partition walls infill the beam and column system. The roof of the auditorium (1950) is of open web steel joists spanning to rolled and shop painted structural steel girders that bear on the CMU walls of the auditorium.

Although the appearance of the building's interior initially elicits concern based on the magnitude of the distress and damage to finishes, the building enclosure and structure is in fact in a repairable state. The roof and windows require replacement. Failed and missing roof drains and missing mechanical rooftop units are allowing a significant amount of water to collect on the top of the second floor over much of the area within the original 1925 construction and east 1928 addition. The roof drains are positioned within the exterior walls and are typically failed. Water infiltration within the wall assemblies due to the failed drains, missing flashings, and other roof deficiencies has resulted in significant masonry distress and corrosion of embedded steel support elements within the facade. The extent of ponded water within the 1925 and 1928 portions of the building is leading to material degradation of the second-floor structure, as well as deterioration of the interior finishes. The limestone copings above the west 1940 and 1950 additions have been removed and set on the roof, causing damage to the roofing and allowing water infiltration into the top of the wall assembly and interior of the building. Cracking in the CMU walls of the auditorium may be related to the water infiltration caused by damage to the wall parapets. Further detail of the observed distress is provided below.

Facade

The facade is generally in fair-to-poor condition. Corrosion of the steel lintels was generally observed, with some areas containing significant masonry distress and lintel displacement due to the development of pack rust. The observed masonry distress includes cracked, spalled, and displaced brick, cast stone, and limestone elements. Below the second floor, roof drain pipes within the original 1925 construction and east 1928 addition are positioned within the exterior walls. These failed drain pipes have resulted in significant water staining, effloresce, and mortar deterioration in the corresponding regions of the facade. The cast stone accent pieces within the original 1925 construction are reinforced. Corrosion of these embedded steel reinforcing (rebar) elements has caused additional distress, including cracked and spalled units, with the most significant distress observed on the south facade. Localized limestone and cast stone units at the windows and entrances are spalled due to corrosion of the embedded steel anchors and lintels. Ornate square pendants within the west 1950 addition are missing. Restoration of the building should include repair of the distressed masonry and steel support elements to mitigate further distress within the wall assembly and building interior.

The limestone copings above the west 1940 and 1950 additions have been removed and generally set on top of the roofing. Removal of these units may be attributable to vandalism to access the copper flashing elements previously located below the coping stones. In some areas where the copper flashing has been removed, the roofing membrane is pulled away from the masonry substrate, exposing the wall cavity and building interior to water infiltration. The corresponding masonry facades below these regions (within the west facade) are currently showing only early signs of deterioration, though these conditions are anticipated to progress relatively rapidly and necessitate more significant repairs if the coping conditions are not addressed in the near term. Rehabilitation of the building should include installation of new flashings and resetting the existing coping stones. In the near term, temporary repairs could be considered to address ongoing water management issues and mitigate the progression of deterioration.

Significant distress was observed within the brick masonry chimney, including relatively large sections of brick that were cracked and outwardly displaced relative to the remainder of the chimney surface. The observed distress is largely located within the upper half of the chimney and is concentrated at the corners. These conditions are attributed to water penetration, subsequent freeze-thaw damage, and failure of the lateral support for the veneer units. Rehabilitation of the building should include rebuilding the displaced areas of masonry, though supplemental ties may be utilized in some regions in lieu of rebuilding the outer brick wythe. The vertical mortar joints at the chimney corners should be modified to include a sealant joint and the cap should be repaired with improved flashing to mitigate further water penetration and masonry distress.

The original wood windows and frames within the original 1925 construction and the east 1928 addition are generally missing or significantly distressed. The steel-framed windows within the west 1940 and 1950 additions are in fair condition with minor corrosion, paint failure, and localized areas of damaged framing elements and missing glass. At two entrances, the exterior wood door leafs are missing; decay is present near the base of the remaining wood doors. The temporary barricades at the southeast exterior door had been previously removed prior to our arrival on site, allowing open access to the interior of the building. Rehabilitation of the building should include replacement of the window and door assemblies. Temporary enclosure to limit access to the interior of the building is recommended for the interim.

An original conservatory is located on the west wing of the 1928 addition. The cast iron frame elements are largely intact with minor corrosion of the connectors at the partial height, brick masonry walls. Glass is missing in the lites of the steel window frames located over the structural frame. The steel window frame is deformed and no longer secured to the masonry walls. The outer wythe of the brick masonry walls is damaged and displaced on one corner. The doorway to the conservatory has been infilled with CMU. Significant vegetation has taken root on the interior of the space and is extending through the roof and walls. The partial height masonry walls and glass system would require replacement after the vegetation is removed. However, the structural frame can be salvaged and repaired if desired.

Roofing

The roofing assemblies are in poor condition, largely due to the missing rooftop mechanical units, failure of the internal drains, and deferred maintenance. Cracking, seam failures, ponded water and organic growth were observed on the roof surface. Above a building shaft on the east end of the building, the roofing materials are displaced or missing. At a missing rooftop mechanical unit, raised curbs are not present, allowing water on the roof level to drain directly into the building. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and replacement of the internal drains and drain pipe systems.

Structure

The wood floors, vinyl composite tile, and most of the plaster finish and trim are deteriorated due to water infiltration, but sufficient, intact remnants of these systems are present such that the interior finishes could be replicated during rehabilitation if desired. The deteriorated state of the finishes allowed visual access to the structural systems of the building. Although areas of repair are recommended, the overall structure is in serviceable condition.

The roof structure of the 1925 construction is a combination of board-formed concrete slab and stay-in-place clay tile formed tee joist-slab construction. The second-floor concrete tee joist-slab construction was constructed with ribbed metal forms, which are corroded but in place. Localized areas of concrete distress are present where water is entering the building. The concrete distress includes corrosion and water staining, stalactites, localized exposed reinforcement, and scaling of the vertical sides of the exposed concrete joists. Partial depth concrete repairs of the deeper structural elements and full depth concrete repair of the slabs is recommended. Specifically, the areas of concern are generally of the roof and second floor structures of the north entry, classrooms on either side of the north entry, and the second-floor corridor structure.

The 1928 addition roof deck is constructed with a series of gypsum or concrete planks spanning over small steel channel beams, as was observed where water infiltration at a roof top unit location has deteriorated the suspended ceiling finishes. The roof planks in the 1928 addition are recommended to be further assessed based on cracking and spalling observed at the edges of the planks.

Forms are not present in the eastern 1928 addition second floor concrete tee joist-slab structure, and similar distress to that observed in the northern portion of the original building was recorded, including corrosion and water staining, stalactites, localized exposed reinforcement, and scaling of the vertical sides of the exposed concrete joists. Partial depth concrete repairs may be feasible after further assessment of approximately half of the corridor joists in the east wing, but full replacement may be warranted of the structure over the gymnasium space for at least half of the gymnasium area, subject to further investigation.

The 1940 and 1950 additions are constructed of concrete, potentially concrete encased structural steel framing, and concrete tee joist-slab roof and floor construction. Although much of the masonry infill has been damaged by vandalism, minimal distress was observed of the structure in this area of the building.

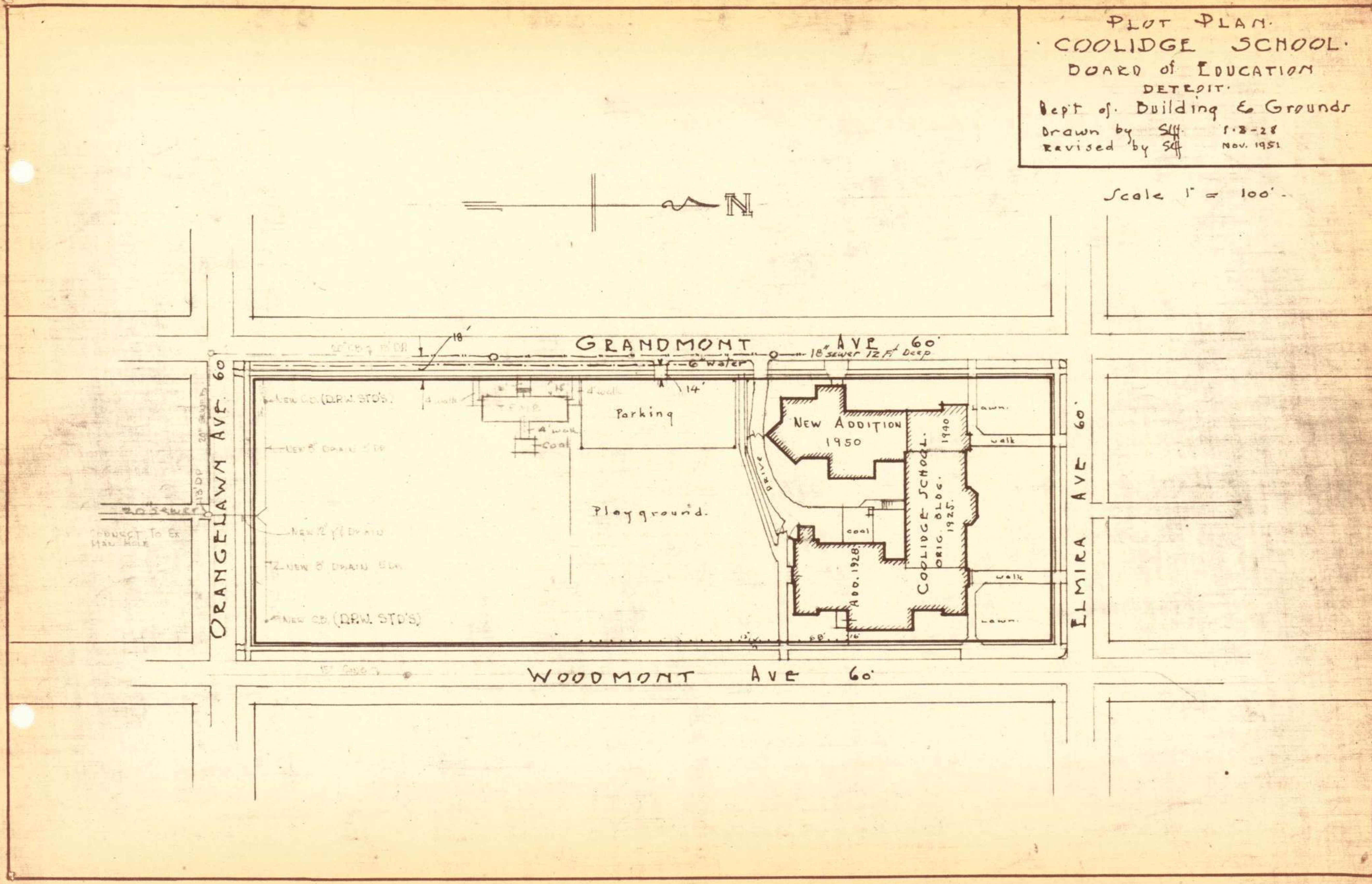
Access was limited to a plenum space in the basement level, as the other lower elevation rooms were flooded. The concrete wall and first floor structures visible from the basement stairwells of the flooded rooms and of the accessible plenum are in good condition with no significant distress noted. The original 1925 northwest foundation corner is exposed in the plenum space.

Miscellaneous

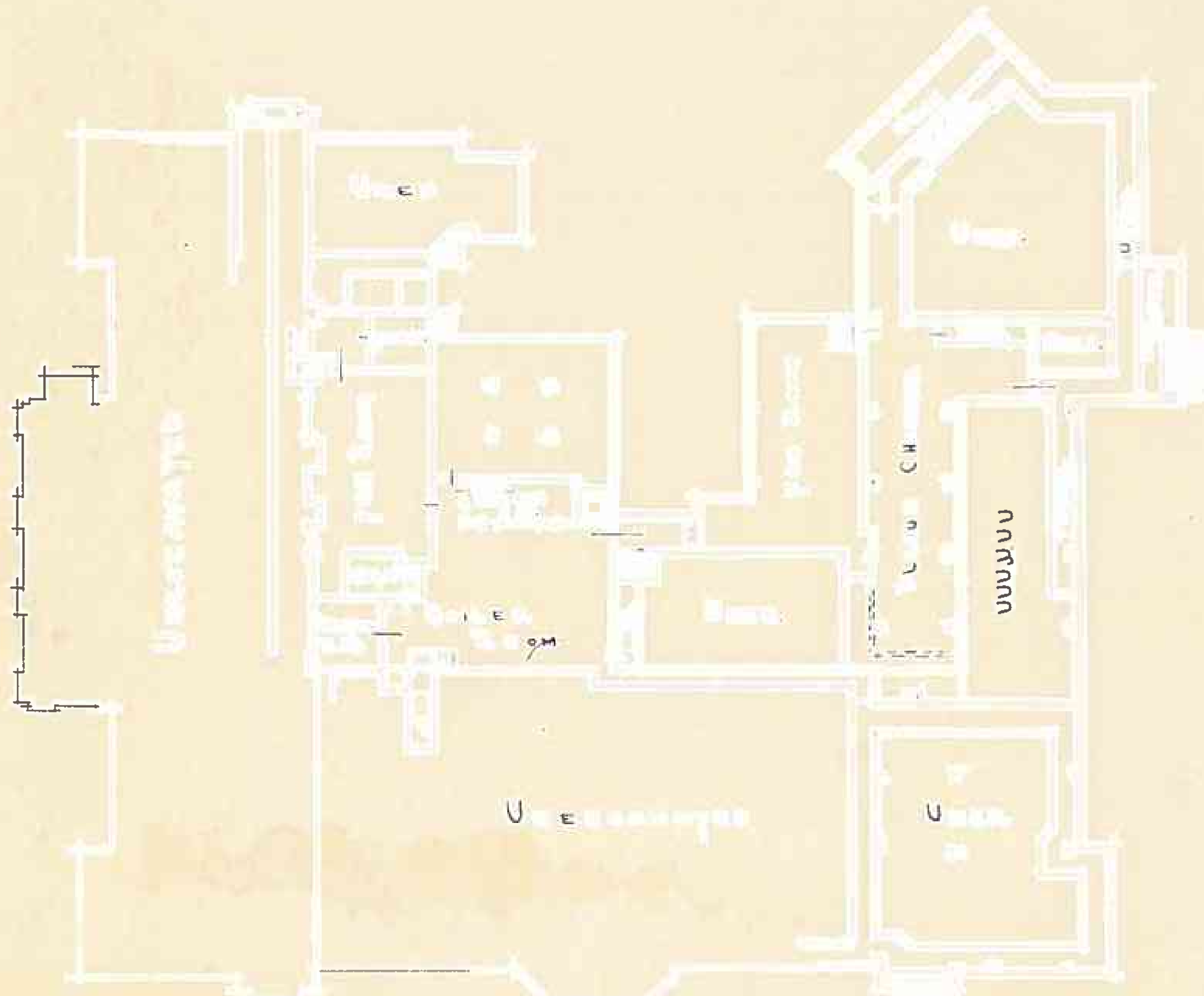
Cracking in the CMU infill walls between the classrooms, in the auditorium in the west wing, and in the plaster walls between the classrooms in the north and east wings may be related to water infiltration into the building, thermal or volumetric changes in the wall materials or relative stiffness of the walls within the structural frame system of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Concrete stair treads that extend up to the roof level are significantly deteriorated and spalled. Vegetation has rooted in the stair treads of the west entrance stair. Repairs of these stairs are warranted.



PLOT PLAN
COOLIDGE SCHOOL
BOARD of EDUCATION
DETROIT
Dept of Building & Grounds
Drawn by SH 1-8-28
Revised by SH Nov. 1951
Scale 1" = 100'
N
GRANDMONT AVE 60'
18'
6" water
18" sewer 12 Ft Deep
14'
4' walk
4' walk
Coal
Parking
NEW CB. (D.P.W. STD'S)
NEW CB. (D.P.W. STD'S)
Playground
DRIVE
NEW ADDITION 1950
1940
Lawn
walk
coal
COOLIDGE SCHOOL ORIG. BLDG. 1925
ADD. 1928
walk
Lawn
68'
ORANGELAWN AVE 60
20" SEWER
ELMIRA AVE 60'
WOODMONT AVE 60'



COOLIDGE
BASEMENT PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT - MICHIGAN

4

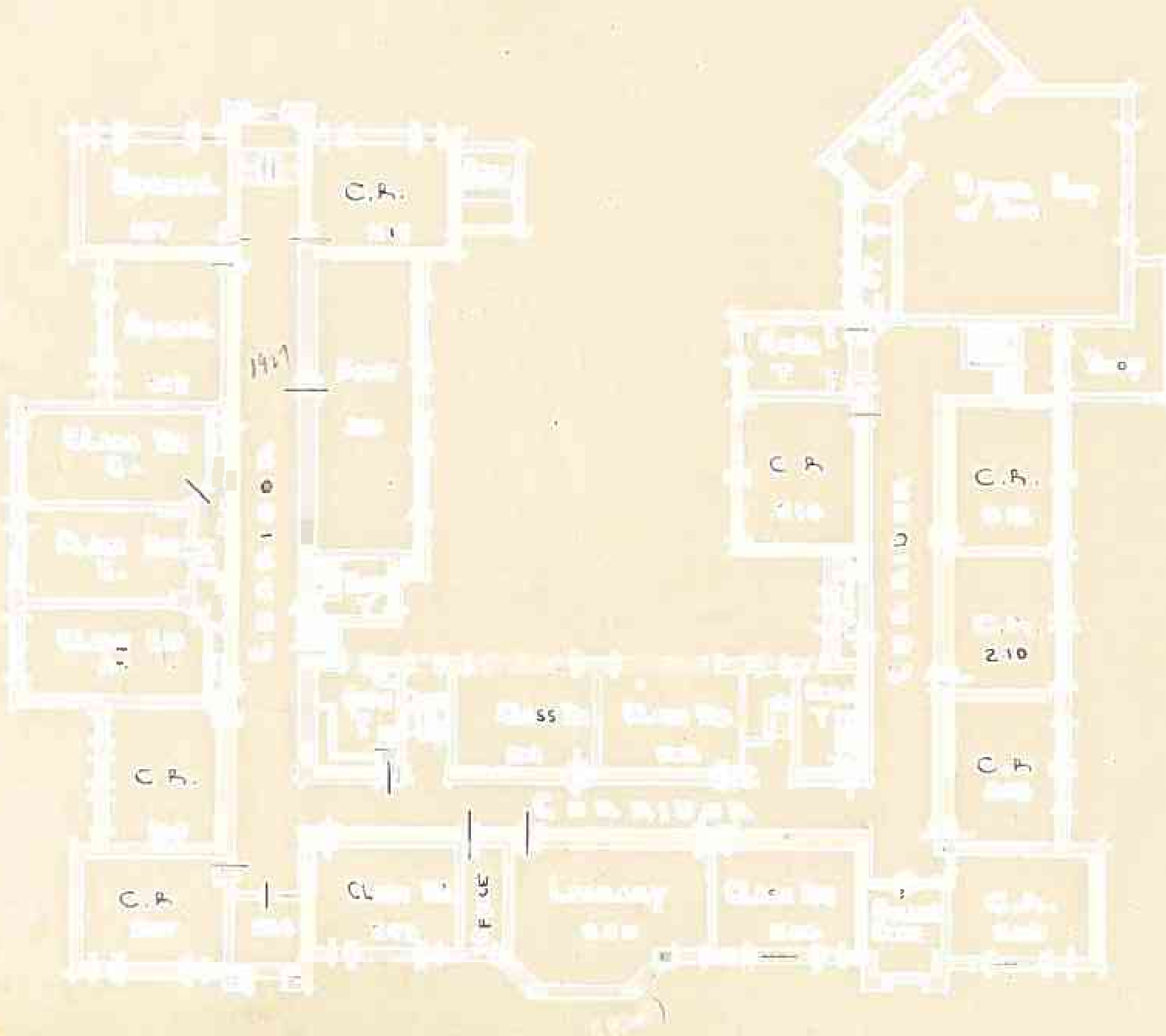
COOLIDGE
FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEPT
BOARD OF EDUCATION
DETROIT - MICHIGAN

COOLIDGE

SECOND FLOOR PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT - MICHIGAN



Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Mae C. Jemison Academy

Basic Property Information: COD 7-Jemison-6201 Auburn

Short Name:	Jemison
Address:	6201 Auburn Street, Detroit, Michigan 48228
Year Built:	1924
Additions Built:	1925 or 1930, 1951
Outbuildings:	Powerhouse
Year Vacated:	2006
Building Footprint:	195 feet x 240 feet
Square Footage:	34,906 sq. ft.
Number of Stories:	2
Building Height:	28 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ CMU ▪ Structural Steel ▪ Wood
City Council District:	7	**Exterior Wall System:**	▪ Limestone ▪ Brick
SNF District:	NA	**Window System(s):**	▪ Glass Block ▪ Steel-framed ▪ Replacement aluminum
		Roofing System(s):	▪ Built-Up Roof ▪ Internal Roof Drains ▪ Scuppers

Assessment Summary	
Assessment Date:	March 03, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush; Andrew Lobbestael
Report Date:	October 26, 2020
Building Risk Index:	**68.05**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,514,300
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,792,480
Sub-Total	$5,206,780
Contingency (25%):	$1,301,695
Sub-Total	$6,508,475
Overhead and Profit (15-18%):	$976,271
Sub-Total	$7,484,746
Escalation (6% for 2 years)	$449,084
Sub-Total	$7,933,831
Architectural and Engineering Design Services (20%):	$1,586,766
TOTAL COST ESTIMATE:	$9,520,597

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structural systems to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the buildings, including areas of the basement level that were not flooded. The fan room and powerhouse were flooded and could not be assessed from the interior. Limited access to the attic was obtained. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior’s Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original, two-story school building was rectangular in footprint and was contained within a larger, primarily rectangular footprint of the late 1920s addition. A 1951 addition, extending from the north facade of the 1920s addition, is of a "T" shaped footprint, with the wings of the "T" extending to the east and west along the north end of the building. A powerhouse is constructed south and west of the 1951 addition.

The exterior walls are of mass masonry within the 1920s construction and clay brick masonry veneer with concrete masonry (CMU) brick masonry back-up within the northern 1951 addition. Limestone units are generally present at the coping, sills, and window heads. Limestone surrounds are present at the primary entrances of the 1951 addition, while the main entrance on the 1920s west facade is framed with clay brick masonry and exposed aggregate accent panels. Punched wall openings within the 1920s portion contain original steel-framed windows or replacement aluminum windows. Similar window assemblies are present within the 1951 addition, though punched wall openings with glass block infill and operable steel-framed windows within the lower lites are also present. The glass block infill and operable units sit within steel frames constructed of C-shaped and I-Shaped members.

The internally drained, low-slope roof assembly consists of at least two bituminous built-up roofing (BUR) systems. The roof area over the original building is also drained via scuppers and downspouts. Concrete canopies are present on the north and west facades of the 1951 addition.

The structural systems of the 1920s construction and the 1951 addition are representative of the typical construction of their respective eras. The 1920s portion is of cast-in-place concrete construction bearing on multiwythe brick masonry walls with corridor ceiling systems separate from the roof and floor structures. The 1951 addition is also of cast-in-place concrete construction, but the tee joist-slab systems are formed with stay-in-place concrete forms allowing direct application of the ceiling finish to the floor structure. Additionally, the 1951 construction is of post and beam construction with concrete masonry unit (CMU) wall infill. The non-masonry interior finishes are in a state of deterioration, especially in the southern, original portion of the building allowing visual assessment of the structural members in these areas. The basement was only partially accessible due to flooding.

Although the interior finishes of the southern portion of the building are fully deteriorated and water infiltration into the building is extensive in this area, the structure is in good condition with minimal visible distress. There is little distress in the 1951 addition. The roofing and drainage systems are severely deteriorated. A temporary roof is recommended to be applied as soon as possible to protect the structure and remaining finishes from further damage. Localized areas of masonry repair are required of the facade. The window and door assemblies generally require replacement, though some elements may be repaired in-place if desired. Further detail of the observed distress is provided below.

Facade

The masonry facade is generally in serviceable condition with localized areas of distress. Minor localized cracking and displacement within the brick elements are present, which is attributed to corrosion of adjacent steel elements and the lack of expansion joints. A previous repair effort was completed within the

1920s construction. These repairs generally remain in serviceable condition, including localized areas of brick reconstruction and flashing repairs at steel lintels. Where repairs were not completed, especially within the original building portion, the original mortar has significantly deteriorated. At the 1951 addition, large ribbon windows on either side of the gymnasium/cafeteria and the upper lites of the auditorium windows have been infilled with masonry. Impact damage is present within a portion of the brick masonry wall on the east facade. A few limestone units above the window heads of the 1951 addition are cracked or spalled due to corrosion of the anchors supporting the window grates. The spalls are recommended to be removed to mitigate the hazard of falling objects. Mortar within the limestone coping units are typically deteriorated. Rehabilitation should include repair of the masonry elements to mitigate water penetration and further masonry distress.

The exterior concrete canopies contain minor deterioration resulting from the failed roofing assembly above. Paint failure and surface corrosion is present on the steel posts supporting the canopies. Water staining, efflorescence, and minor cracking is visible within the exposed concrete surfaces. The observed concrete distress does not appear significant, but should be re-evaluated following removal of the roofing assembly and sounding of the exposed concrete surfaces.

The windows are generally in fair-to-poor condition. A variety of window and door types are present throughout the building, which also vary in the extent of damage and deterioration. Several window frames and sashes are missing or displaced, though the majority of the glass-block infill and aluminum replacement windows remain. The observed distress includes paint failure and surface corrosion, broken glass, and failed sealant. The majority of the exterior doors are corroded or dented and some contain fire-damage. Rehabilitation of the building should consider replacement of all window and door assemblies, though repairs may be possible in some locations.

The conservatory largely remains intact and is repairable, though the wood framing is decayed near the bases and several of the lites are broken or missing. Rehabilitation of the building may consider rehabilitation of the conservatory depending on the future building use.

Roofing

The roofing and drainage elements are severely deteriorated, which is resulting in significant water infiltration into the building interior. These conditions are most significant on the south side of the 1920s construction where a large section of the roofing is missing, exposing another layer of roofing below. The observed deterioration also includes adhesion failure, especially at the vertical roof terminations, cracking, large areas of ponded water, and significant vegetation growing from the roofing. The insulation is soft and crushes underfoot due to the extent of water infiltration and deterioration. Several internal drains and drain conductors are damaged or missing. At the powerhouse, the original perimeter copper flashings have been removed by vandals, resulting in significant deterioration within the roof assembly. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and drainage systems. A temporary roof is recommended to be applied as soon as possible to protect the structure and remaining finishes from further damage.

Structure

The differences in the existing conditions of the finishes between the 1920s era construction and the later 1951 addition are vast. Water is readily infiltrating the interior of the building, especially at the southern end of the building, the 1920s era construction. The plaster finishes of most of the 1920s era construction have fully deteriorated and the clay tile partition walls between the classrooms are spalled and eroded. In the 1951 addition, the painted CMU walls and tile floors are more resilient to the water infiltration.

The formwork for the concrete roof and floor construction in the 1920s era is not present; concrete masonry forms are present in the 1951 addition. Considering the amount of water infiltration into the building, the concrete is in good condition with only isolated areas of exposed reinforcing, efflorescence, stalactites, and corrosion staining. At two locations in the 1920s roof structure, a longitudinal crack was observed where the roof slab meets the vertical face of the roof joist and water was observed to be penetrating through these cracks. Further investigation to confirm freeze-thaw damage has not occurred in the concrete is recommended. The through-slab cracking observed is recommended to be repaired, and isolated areas of partial depth concrete repairs are expected to be required.

At the second-floor level of the 1920s era construction, the interior and exterior brick masonry bearing walls have locations of spalled or soft brick with missing or deteriorated mortar. The interior wythe of the upper four courses (below the concrete roof structure) of the brick masonry is recommended to be rebuilt along the south wall of the building. On the interior corridor walls, isolated locations of spalled brick are located above ductwork. Where visible, steel lintels in the corridor masonry walls for both doorways and ductwork penetrations are visibly corroded. The steel is recommended to be cleaned, assessed and re-coated as appropriate.

The 1920s era corridor ceiling consists of dimensional lumber (2x) joists to which the plaster and metal lathe finish was secured. The wood joists are fire cut and pocketed into the three-wythe brick corridor walls. At the east wall, near the south stairwell, the second-floor ceiling joists are water stained and at least one joist is visibly crushed at the joist bearing. Once the water infiltration is mitigated, the wood is recommended to be reassessed, and reinforced or replaced as appropriate if a ceiling is to be installed.

The second-floor corridor ceiling of the 1951 addition is composed of gypsum planks spanning between structural steel members. Spot corrosion is present on the visible surface of the structural steel members and water droplets were observed on the underside of the gypsum plank. Further assessment of the gypsum planks is warranted as water will weaken the gypsum planks.

The CMU walls of the 1951 addition are cracked where the 1951 addition abuts the 1920s era construction, at lintel bearings, and at the east corridor wall in the storage room accessed through the gymnasium/lunch room. All but the cracking in the storage room are typical cracks of CMU construction. The cracking in the storage room may be related to settlement or differential movement between the masonry infill and the post and beam structural system of this portion of the building. These cracks may recur after repointing unless the underlying cause of the cracking is further assessed and mitigated.

The proscenium beam located over the stage opening is exposed due to water damaged finishes. The bottom flange of the beam is corroded with the occurrence of pitting and potential section loss. The beam and the structural members above the proscenium beam are recommended to be further assessed to determine if reinforcement of the beam, or other structural elements not yet exposed, is required.

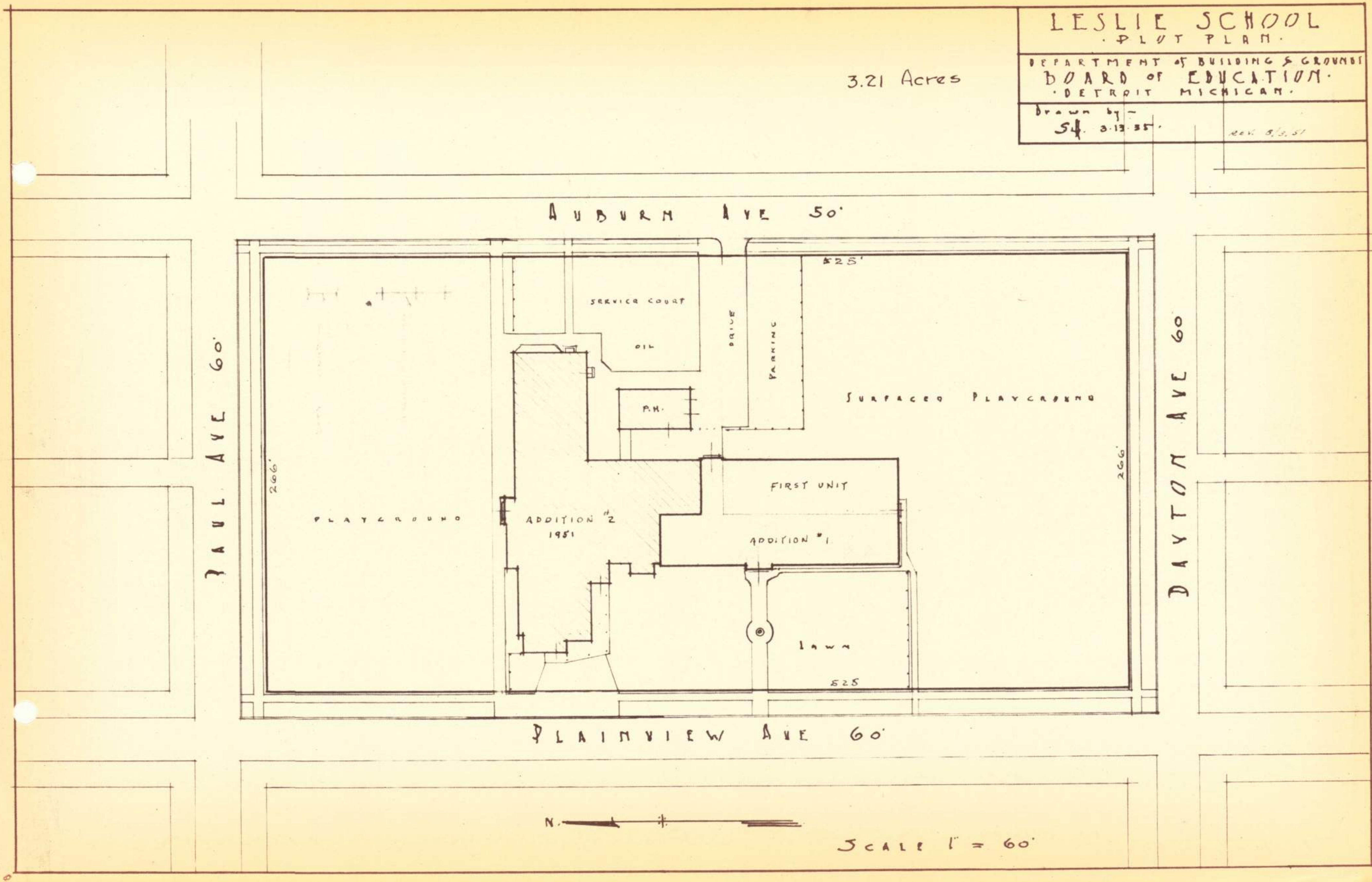
Corrosion is also present on the perforated metal ceiling system and rectangular built-up box beams in the gymnasium. Further investigation to verify the extent of corrosion of the box beams is recommended, and at minimum, the exposed steel is to be cleaned and re-coated with a rust inhibiting paint. Further investigation into the condition of the structure above the corroded metal ceilings is also recommended.

Miscellaneous

No distress to the structural members was observed at the fire damaged area on the first-floor level.

Some localized masonry infill areas and partition walls are damaged resulting from the extensive water infiltration and vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

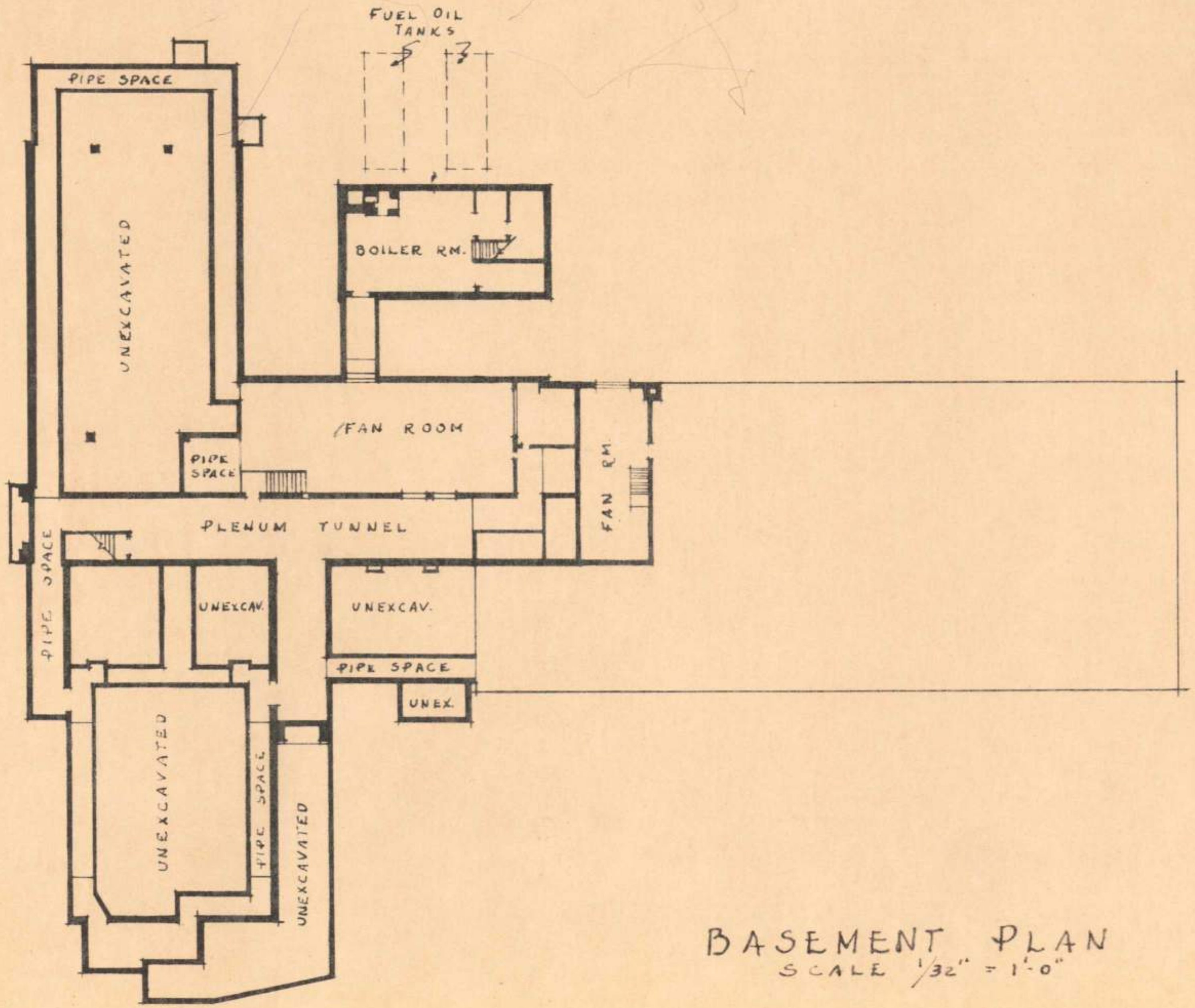
The fan room, and thus boiler room, of the basement level was not accessible during the walkthrough inspection due to approximately three-feet of standing water.


LESLIE SCHOOL
· PLOT PLAN ·
DEPARTMENT of BUILDINGS & GROUNDS
BOARD of EDUCATION ·
· DETROIT MICHIGAN ·
Drawn by –
3.21 Acres
AUBURN AVE 50'
PAUL AVE 60'
DAYTON AVE 60'
PLAINVIEW AVE 60'
525'
266'
266'
SERVICE COURT
OIL
DRIVE
PARKING
P.H.
SURFACED PLAYGROUND
PLAYGROUND
FIRST UNIT
ADDITION #2
1951
ADDITION #1
LAWN
525
N.
SCALE 1" = 60'

LESLIE SCHOOL

DEPT. OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
T.J.K.	8/3/51				



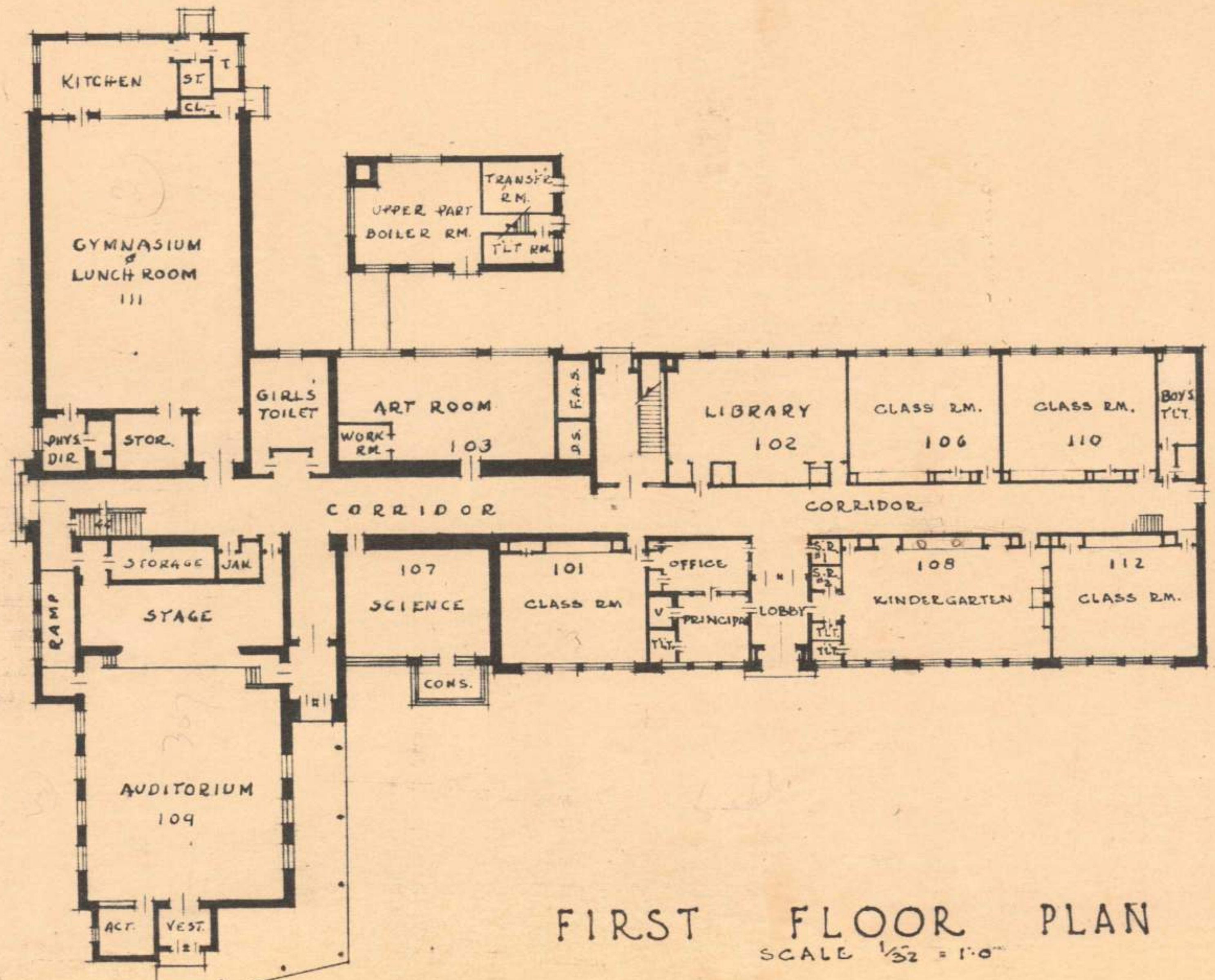
BASEMENT PLAN
SCALE 1/32" = 1'-0"

LESLIE SCHOOL

DEPT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F	5-13-26	G. L. S.	5-14-[illegible]		

REV. 8/3/61



FIRST FLOOR PLAN
SCALE 1/32 = 1'-0"

LESLIE SCHOOL

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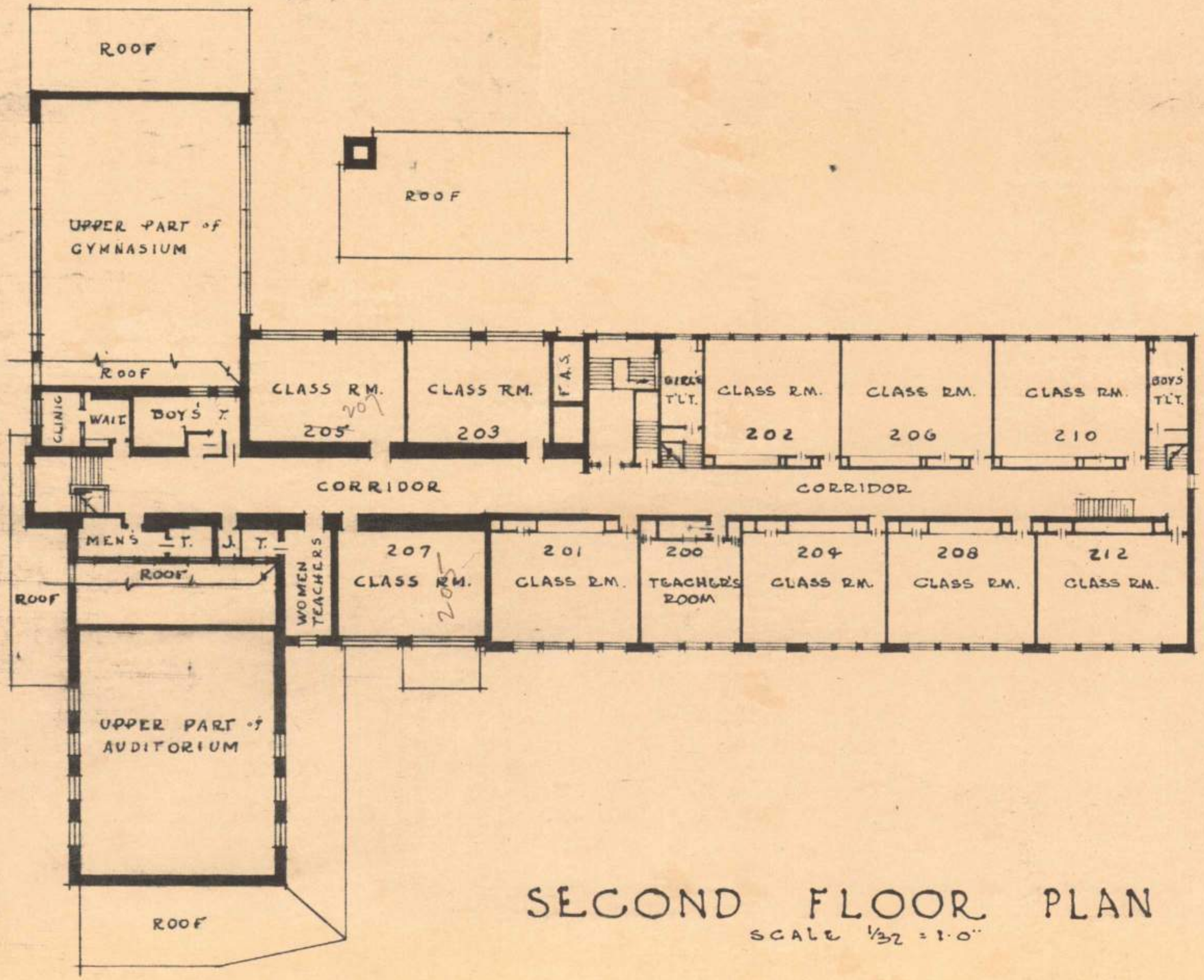
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.H.F.	3-13-26	G.L.S.	5-14-26		

REV. 8/3/51



SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"

WJE

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Kosciusko Elementary School

Basic Property Information: COD 7-Kosciusko-20390 Tireman

Short Name:	Kosciusko
Address:	20390 Tireman Avenue, Detroit, Michigan 48228
Year Built:	1955
Additions Built:	None
Outbuildings:	None
Year Vacated:	2007
Building Footprint:	225 feet x 150 feet
Square Footage:	35,120 sq. ft.
Number of Stories:	2
Building Height:	26 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Long Span Metal Deck ▪ Structural Steel
City Council District:	7	**Exterior Wall System:**	▪ Clay Brick ▪ Limestone ▪ Granite ▪ Cast-in-Place Concrete
SNF District:	WCR	**Window System(s):**	▪ Aluminum
		Roofing System(s):	▪ Built-Up Roof ▪ Slag Surfaced ▪ Internal Roof Drains ▪ Granulated cap sheet base flashing

Assessment Summary

Assessment Date:	March 03, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush; Andrew Lobbestael
Report Date:	October 26, 2020
Building Risk Index:	**46.01**

Cost Estimate

Base Rehabilitation Cost Estimate:	$716,750
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,809,600
Sub-Total	$4,426,350
Contingency (25%):	$1,106,587
Sub-Total	$5,532,937
Overhead and Profit (15-18%):	$829,940
Sub-Total	$6,362,878
Escalation (6% for 2 years)	$381,772
Sub-Total	$6,744,650
Architectural and Engineering Design Services (20%):	$1,348,930
TOTAL COST ESTIMATE:	$8,093,580

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structural systems to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The interior masonry wall finishes have been compromised by vandalism, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the

public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent nor purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)

- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The primarily rectangular two-story building extends along the west facade to the north for the multi-purpose room. Single story mechanical spaces extend eastward along the northern facade of the multi-purpose room creating a small central courtyard space at the first floor level.

The facade generally consists of clay brick masonry veneer with concrete masonry (CMU) back-up. Limestone masonry accents are present at the window sills and at a horizontal band near the base of the wall, while granite accents are present near the main south entrance. Aluminum ribbon windows and storefront assemblies were present but are now largely missing.

The internally drained, low-slope roof assembly consists of a slag surfaced, built-up roofing (BUR) system with granulated cap sheet base flashing and a perimeter gravel stop over what appears to be an original BUR or cold tar pitch roof system. Portions of structural framing are exposed on the facade, including exterior cylindrical columns and areas of the roof deck that form sloped soffits.

The building structure consists of cast-in-place concrete and long span metal decking supported by structural steel and concrete framing. The steel columns are encased in concrete cast with round cardboard forms. The beams between the columns are generally flush with the long span metal deck system and could be steel or concrete construction. In the larger auditorium and multi-purpose spaces, the beams are exposed and are built-up, rectangular box sections. Precast concrete planks form the floor structure of the first-floor classrooms and are located over crawl space areas. The floor structure of the first-floor corridor consists of a flat concrete slab forming the top of the basement plenum space. The structures of the boiler and coal storage rooms are of cast-in-place concrete slabs, beams and walls.

Secondary framing elements consist of a gypsum plank ceiling/plenum floor structure which extends over the second-floor corridor and steel angle lintels over openings in the CMU walls. It is undetermined if the interior CMU masonry walls are intended to be a part of the lateral force restraint system for the building.

In general, the building is in good condition with limited deterioration observed within the structural systems, facade, and interior finishes. The majority of the aluminum ribbon windows and storefront assemblies are missing, which has been attributed to scrapper activities; replacement of these assemblies will be required for future reuse of the building. The roof system is deteriorated in some regions, resulting in localized, minor water infiltration into the building interior. Localized maintenance repairs to the roofing assembly and drainage elements may be performed to extend the service life of the existing systems. Further detail of the observed distress is provided below.

Facade

The facade is generally in serviceable condition with localized areas of distress. Minor masonry distress included water staining, corrosion staining, paint failure, and localized cracking of the brick masonry veneer and limestone sills. These conditions are largely attributed to deferred maintenance, water infiltration into the roofing and wall assemblies, and corrosion of the embedded steel elements. The steel shelf angles above the ribbon windows contain minor surface corrosion. Exposed steel surfaces should be cleaned and painted. Portions of the exterior walls are missing and damaged in areas related to vandalism activity on the interior. Rehabilitation should include repair of these areas to mitigate future distress within the wall assembly or the exposed structural elements.

The majority of the aluminum framed ribbon windows and entrance storefront assemblies are missing. Where storefront assemblies remain, localized damage and deterioration was observed, such as bent frames or missing glass. The window openings have been boarded up with OSB sheathing in some locations and metal panels in other locations. The ribbon windows were anchored to the limestone sills at frequent intervals, and steel brackets were visible at head joints between sill units where spalls or mortar deterioration was present. This configuration suggests that the original lateral load path for the window assembly passes through the stone sills to the CMU back-up, which should be considered in the design of future replacement window assemblies. Rehabilitation of the building should include replacement of the ribbon windows and entrance storefront assemblies.

Roofing

The roofing assembly is generally in fair condition. The slag surfaced, built-up roofing system with modified bitumen flashing contains only localized areas of visible distress, including seam failures, cracking, ponded water, and vegetation growing from seams. Some of the internal drains and drain piping have failed. These conditions are resulting in water infiltration within the building interior, which is largely concentrated within the main corridor walls and gymnasium. Localized maintenance repairs to the roofing assembly and drainage elements may be performed to extend the service life of the existing systems in conjunction with more substantial repairs at isolated drains and conductors.

Roofing material is bleeding onto the brick wall surfaces on the north and south facades. Based on these observations and the age of construction, the lower roofing assembly is believed to be original to the 1955 building construction and consist of either a BUR or a cold tar pitch roof. The material on the facade is attributed to softening of this original roofing material, which is caused by external temperatures that are higher than the material softening point. It is common practice to envelope the edge of the roofing in felt prior to installing a second roofing assembly in order to prevent the observed bleeding condition. Removal of this material from the wall surface is possible, though it will be difficult to achieve a completely clean surface without causing distress to the brick masonry veneer. This condition is anticipated to continue until the roofing assemblies are removed or until a localized repair at the roofing edge is performed.

Structure

The 1955 structural system is in excellent condition with isolated areas of distress related to deferred maintenance of the envelope systems and vacant condition of the building.

Concrete repairs are recommended at the concrete slab roof above the transformer room at the north end of the building and the roof of the vaulted coal storage room, noting that not all of the cracks in the slabs require repair provided the roofing and/or waterproofing systems above these slabs are properly repaired.

Many of the CMU walls are cracked at exterior wall corners, near precast lintel bearings, and at interior walls. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Corrosion is present on the long span metal deck and ceiling systems[1], especially in the multi-purpose room ceiling. Corrosion of the metal deck is not a structural concern if it was used as a form deck but could be a structural concern if is behaving compositely with the concrete. Additional investigation would be required to determine if the deck is composite. At a minimum, the exposed steel is recommended to be cleaned and re-coated with a rust inhibiting paint as part of the rehabilitation effort. Further investigation into the condition of the structure above the corroded metal ceilings is also recommended, especially at the built-up box girder bearings.

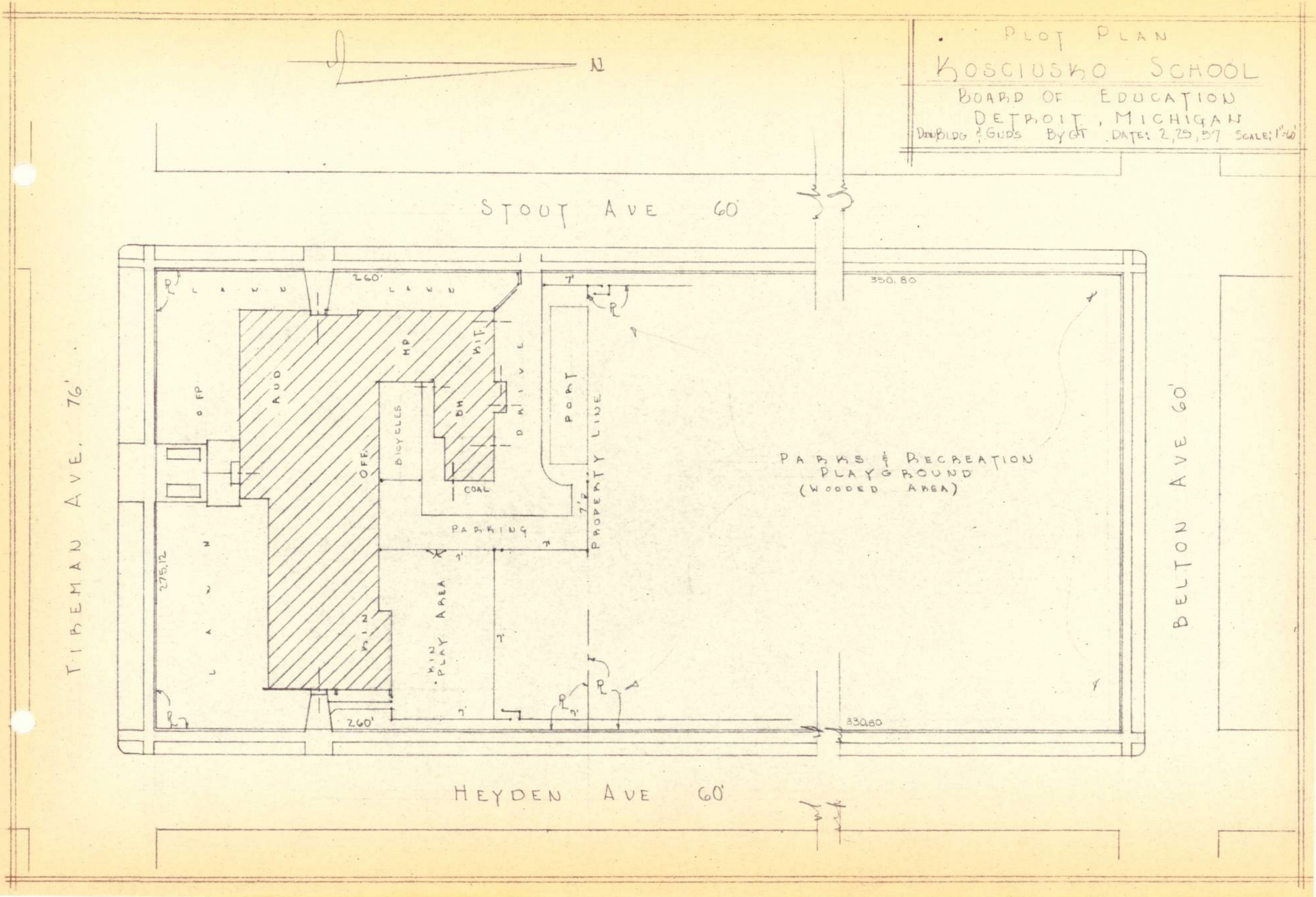
Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

The steel and gypsum plank ceiling above the second-floor corridor is damaged from water infiltration in one location and will require replacement of the gypsum plank in this area. We recommend cleaning and painting the exposed steel frame of this system with a rust inhibiting paint.

The hoist elevator pit in the boiler room was flooded during the site assessment. The source of the water may be related to a leaking water line nearby. The leak is recommended to be addressed and the pit dewatered.

[1] Initial review of the 1950s era long span metal deck system indicates the decking is acting non-compositely with the concrete tee joist-slab, that the decking was used as a stay-in-place form for the cast-in-place concrete. However, a non-technical, marketing brochure from this era was noted to advertise the decking as a “composite” concrete floor system.

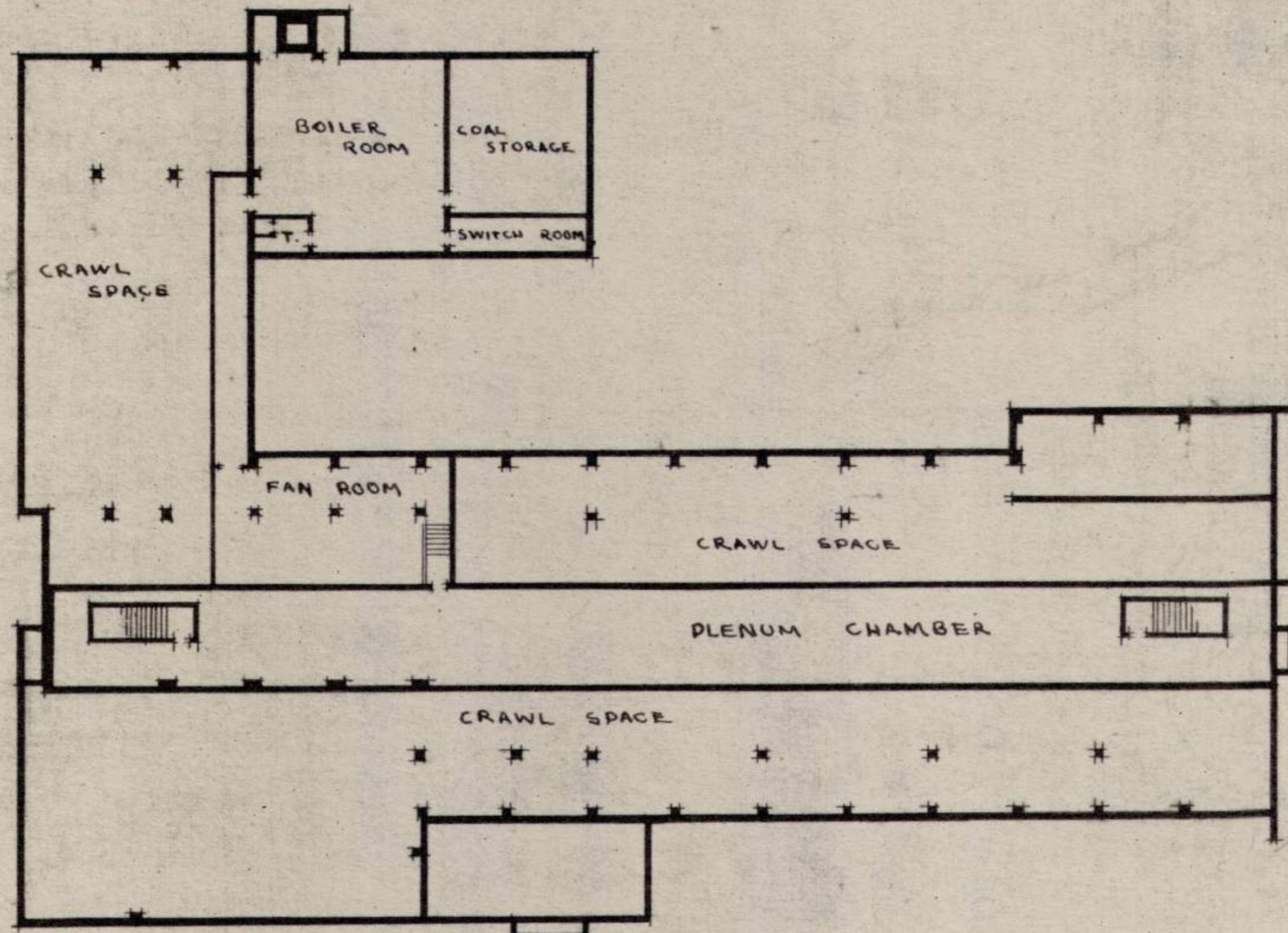


PLOT PLAN
KOSCIUSKO SCHOOL
BOARD OF EDUCATION
DETROIT, MICHIGAN
DIV. BLDG & GNDS BY GT DATE: 2.25.57 SCALE: 1"=60'
N
STOUT AVE 60'
TIREMAN AVE. 76'
BELTON AVE 60'
HEYDEN AVE 60'
260'
350.80
330.80
275.12
LAWN
LAWN
LAWN
AUD
HP
KIT
DH
BICYCLES
OFF.
COAL
DRIVE
PORT
PROPERTY LINE
PARKING
KIN PLAY AREA
KIN
PARKS & RECREATION PLAYGROUND (WOODED AREA)

KOSCIUSKO SCHOOL

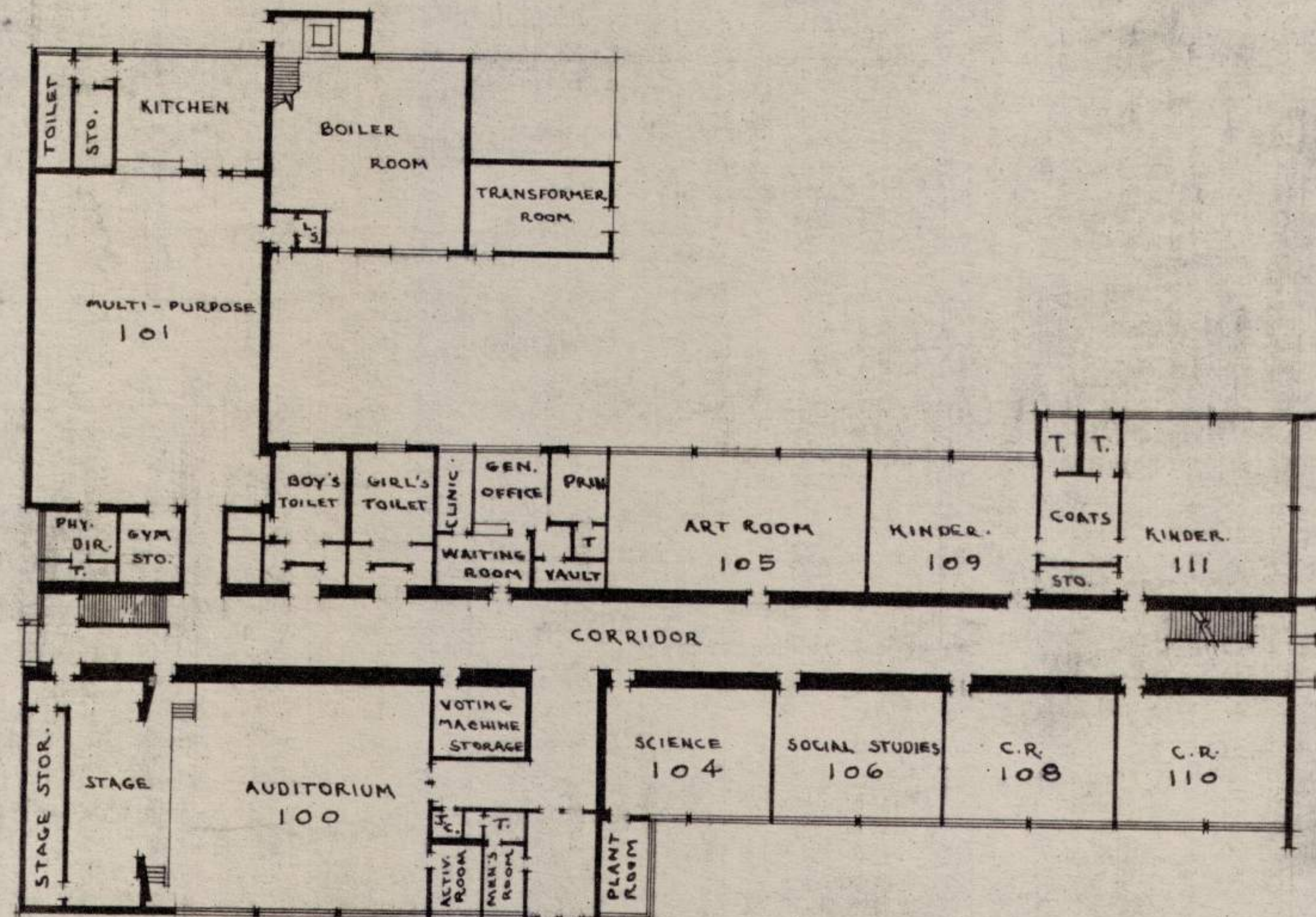
DEPT. OF ARCHITECTURAL PLANNING
BOARD OF EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.N.					



BASEMENT PLAN   SCALE : 1" = 32'

KOSCIUSKO SCHOOL					
DEPT. OF ARCHITECTURAL PLANNING BOARD OF EDUCATION DETROIT, MICHIGAN					
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.N.					

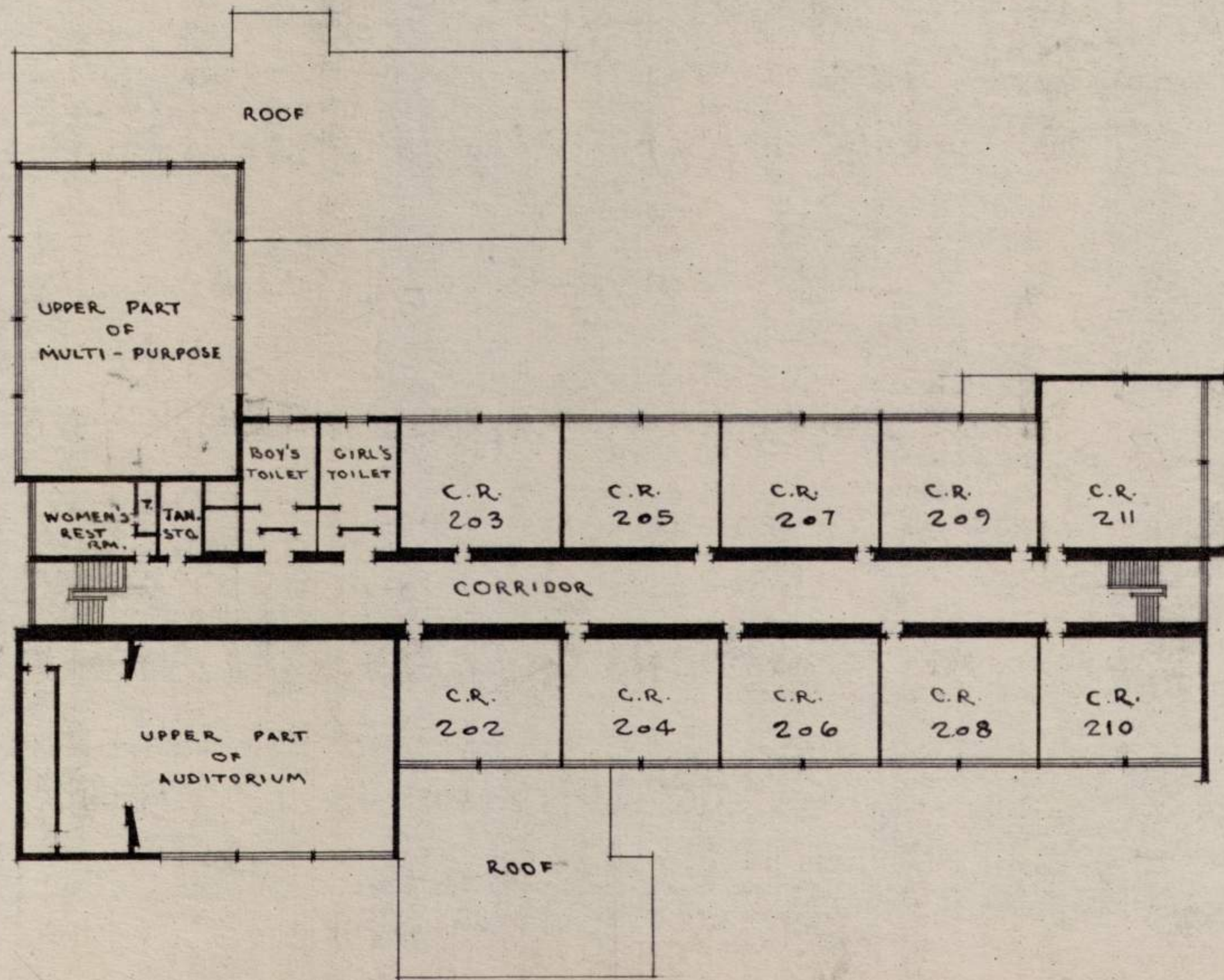


FIRST FLOOR PLAN SCALE: 1" = 32'

KOSCIUSKO SCHOOL

DEPT. OF ARCHITECTURAL PLANNING
BOARD OF EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.N.					



SECOND FLOOR PLAN SCALE: 1" = 32'

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

McFarlane Elementary School

Basic Property Information: COD 7-McFarlane-8900 Cheyenne

Short Name:	McFarlane
Address:	8900 Cheyenne Street Detroit, Michigan 48228
Year Built:	1925
Additions Built:	1930, 1953, and estimated 1990s
Outbuildings:	Powerhouse
Year Vacated:	2010
Building Footprint:	175 feet x 300 feet
Square Footage:	58,057 sq. ft.
Number of Stories:	2
Building Height:	32 ft.
Current Ownership:	City of Detroit
City Council District:	7
SNF District:	WCR

Structural Framing System:	▪ Cast-in-Place Concrete ▪ CMU ▪ Brick Masonry ▪ Structural Steel
Exterior Wall System:	▪ Brick ▪ Limestone ▪ Cast stone
Window System(s):	▪ Steel-framed ▪ Aluminum
Roofing System(s):	▪ Built-up Roof ▪ Gravel Surfaced ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	February 18, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 20, 2020
Building Risk Index:	**53.12**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,717,300
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,644,560
Sub-Total	$7,261,860
Contingency (25%):	$1,815,465
Sub-Total	$9,077,325
Overhead and Profit (15-18%):	$1,361,598
Sub-Total	$10,438,923
Escalation (6% for 2 years)	$626,335
Sub-Total	$11,065,259
Architectural and Engineering Design Services (20%):	$2,213,051
TOTAL COST ESTIMATE:	$13,278,311

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelopes from grade and select roof levels, using binoculars as needed. Some roof levels were inaccessible. On the interior, WJE performed a walkthrough of accessible areas of each floor of the main building; the interior of the powerhouse was not accessible. The basement level is flooded and was not accessed. The interior finishes of the main building are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

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systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports

The newer addition at the southeast corner of this building is not represented in the site or floor plans provided. Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

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- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
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Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

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BUILDING OVERVIEW

Overall

Three additions have expanded the original 1925 building creating the existing "U" shaped footprint with the powerhouse located within the courtyard created by the additions. The first addition, constructed in 1931, extended the original two-story building to the south, and the subsequent 1952 addition further extended the building to the south. A smaller, one-story classroom addition is suspected to have been added east of the 1952 addition in the 1990s based on the construction materials and knowledge of other school properties. Per the provided drawings, the powerhouse is connected at the basement level to the main building, but this was not confirmed during the assessment due to lack of access to the basement level.

The building facades generally consist of clay brick masonry with concrete masonry (CMU) backup. Mass masonry is present at the building stairwells. At the original 1925 construction, cast stone accent pieces frame the entrances, window sills, coping, and horizontal bands. At the later building additions, limestone accent pieces decorate similar locations. Within the south 1952 addition, limestone window mullions are present between the lower lites. Aluminum replacement windows were present in rough openings throughout the building, which replaced original steel-framed windows and glass block infill, though a majority of the aluminum replacements are now missing. Some steel windows are present within the original building portion and powerhouse. At the southeast addition, architectural overhead doors are present at the building corners. The building entrances generally consist of conventional steel doors surrounded by multi-light aluminum transoms, though the southwest door of the south 1952 addition is wood with wood-framed transoms. The low-slope roofs are internally drained and the roof covering is gravel surfaced, bituminous built-up roof (BUR) system with granulated cap sheet base flashing.

The structural systems of the original building and the first two additions are of cast-in-place concrete spanning between composite masonry constructed walls and concrete (or steel encased in concrete) beams and columns. The floor and roof slabs are typically of tee joist-slab construction with stay-in-place forms (clay tile and concrete masonry, depending upon location). The roof framing over the auditorium space consists of gypsum roof deck over open web steel joist construction clear spanning between the CMU walls at the perimeter of the space. The classroom addition at the southeast portion of the building is also of open web steel joist and CMU construction, but the decking is a cold formed metal deck. The first floor is primarily slab-on-ground construction except for utility tunnels, plenums and equipment rooms.

In general, the building is in serviceable condition with repairs needed at the building envelope systems. Localized areas of the facade require repair and the windows require replacement. Barricades should be installed and maintained at the windows and building entrances to secure the building. Removed coping stones at the southern 1952 addition has allowed for direct water infiltration into the wall assembly and building interior. The roofing assembly is recommended for replacement, but repairs may be possible in some regions to extend the service life of the existing assembly. Structural system distress was isolated in occurrence and is directly related to the distress in the building envelope. Further detail of the observed distress is provided below.

Facade

The facade is generally in good, serviceable condition. There is minor localized cracking within the brick elements due to water infiltration and corrosion of the adjacent embedded steel elements. Some steel lintels above the windows and doors are significantly corroded and displaced and should be repaired. The lintel repairs should consist of repair or replacement of the corroded steel lintels with installation of appropriate flashing details. Cracked or debonded mortar joints should be repointed, and isolated cracked brick units should be replaced. A roof level wall on the south end of the central 1931 addition consists of exposed concrete brick masonry, which is deteriorated due to water infiltration, including spalled and friable (soft, powdery) units and eroded mortar. Deteriorated units should be replaced and the mortar should be grinded and pointed. Painting the exposed concrete brick wall with an elastomeric coating could be considered for improved durability.

The removed limestone coping units on the west facade of the south 1952 addition have exposed the wall cavity to water infiltration. Removal of these units was presumably from vandals to access the flashing elements previously located below the coping stones. On the most recent southeast addition (constructed post 1952), the limestone copings are significantly eroded in a manner that suggest a material deficiency. Flashing improvements are recommended below or overtop the stone copings to account for the material deterioration, or the coping units may be removed and replaced with new stone or alternative materials. Limestone window mullions are present within the 1952 addition and are largely in good condition, though some units are missing or displaced, likely as a result of the window removals. Rehabilitation of the building should include repair of the distressed masonry elements to mitigate further distress.

The original conservatory is located on the north end of the east courtyard. The cast iron frame elements are largely intact with corrosion of the connectors at the partial height brick masonry walls. Glass is missing in the lites of the steel window frames located over the structural frame. Large trees are growing in the center of the conservatory and are extending through the windows and framing. The glass system will require replacement after the vegetation is removed; however, the structural frame can likely be salvaged and repaired if desired.

The majority of the aluminum windows are missing and require replacement, including the aluminum architectural overhead doors within the southeast addition. Where present, some of the windows are damaged, including missing sashes, cracked or missing glass, and failed sealant. Repairs may be possible in some regions where the windows remain though a majority will require replacement. The exterior conventional steel doors are typically corroded near the bases and should be repaired or replaced. The ornate wood door at the west facade is in good condition and may be restored.

Roofing

The upper level roof areas on the north side of the building, above the original building portion and the 1931 addition, were not observed due to limited roof access. In these regions, the interior ceiling finishes are generally dry and undamaged. At the southern two additions, the roofing assemblies were in fair condition with localized areas of roofing open to the building interior, including mechanical units and areas of failed roof decking above the auditorium space. Some of the internal roof drains are failed and permit water infiltration into the roofing assembly and building interior. Localized areas of seam failures and displaced or missing flashing were also observed, and the roof surface contained widespread cracking. Where the stone copings on the west elevation of the 1952 addition are currently resting on the roof level, isolated punctures through the roofing assembly were visible. Based on a lack of water intrusion below the field of the low-slope roofing, the roof appears to be performing well and requires only maintenance related repairs to extend the service life of the existing roof assembly in conjunction to the more significant repair work to the drainage system, missing rooftop units, and failed roofing over the auditorium.

Where the powerhouse basement extends to the east beyond the powerhouse exterior envelope, the elevated concrete structural slab is exposed due to failure of the bituminous waterproofing membrane. A few core holes have been drilled through the structural slab and the exposed concrete is deteriorated near these regions. Rehabilitation of the building should include removal and replacement of the waterproofing membrane and further assessment of the elevated concrete structure.

Structure

The structure is in good condition with localized areas of distress which correspond to roof or exterior wall damage.

The underside of the concrete roof and the second-floor systems are wet with minimal corrosion staining or efflorescence. Concrete cover over reinforcement bars in the concrete beams and tee joists appears to be minimal in few locations and the bars are partially exposed. The flat slabs are cracked, but the cracking may be related to original construction as there are no control joints in the slabs and do not represent a structural concern. Relatively minimal areas of partial depth repairs of the concrete structure are anticipated as part of the rehabilitation effort.

The fan room roof structure, at the uppermost level of the building, is constructed with cold form steel channels and a draped concrete slab. Beyond spot corrosion of the steel members and an isolated area of concrete distress along a perimeter wall, no distress was noted. The exposed steel can be cleaned and painted, but no structural repairs are anticipated.

Cracking is occurring in floor, wall and ceiling finishes where the building additions frame into the previous construction. Although the cracking may be related to the vacant condition of the building, they may also be related to the interface between the different eras of construction. New finishes can be installed to conceal the cracking and accommodate movement if the movement is recurring. An alternative solution would be to install expansion joints at these interfaces and is recommended to prevent repairs from re-cracking.

In the auditorium at the south end of the building, daylight was observed through the gypsum roof deck that is spanning between the open web steel joists framing the roof structure. This area of gypsum roof deck is recommended to be replaced, and the steel members and remaining area of gypsum decking further assessed.

Approximately three feet of ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.

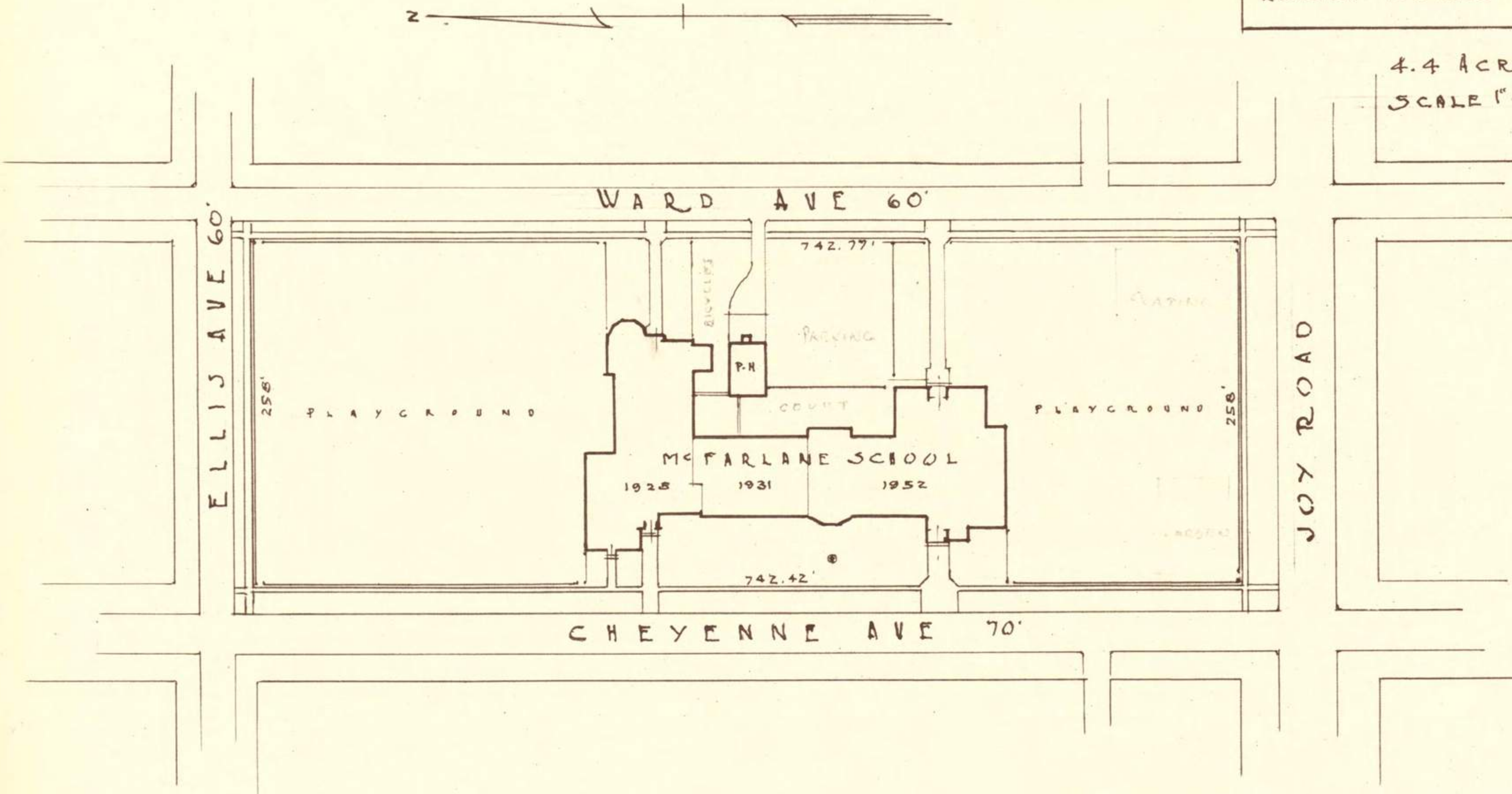
Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Many of the interior walls are cracked at exterior wall corners, at mid-length, and near beam bearings. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Cracking within select walls, such as stairwell and interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Plaster repairs and repointing of the cracked mortar joints with replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

PLOT PLAN
McFARLANE SCHOOL
BOARD OF EDUCATION
DETROIT
DEPT. OF BUILDING & GROUNDS
Drawn Jan 1925
Redrawn Feb 1952 SH.

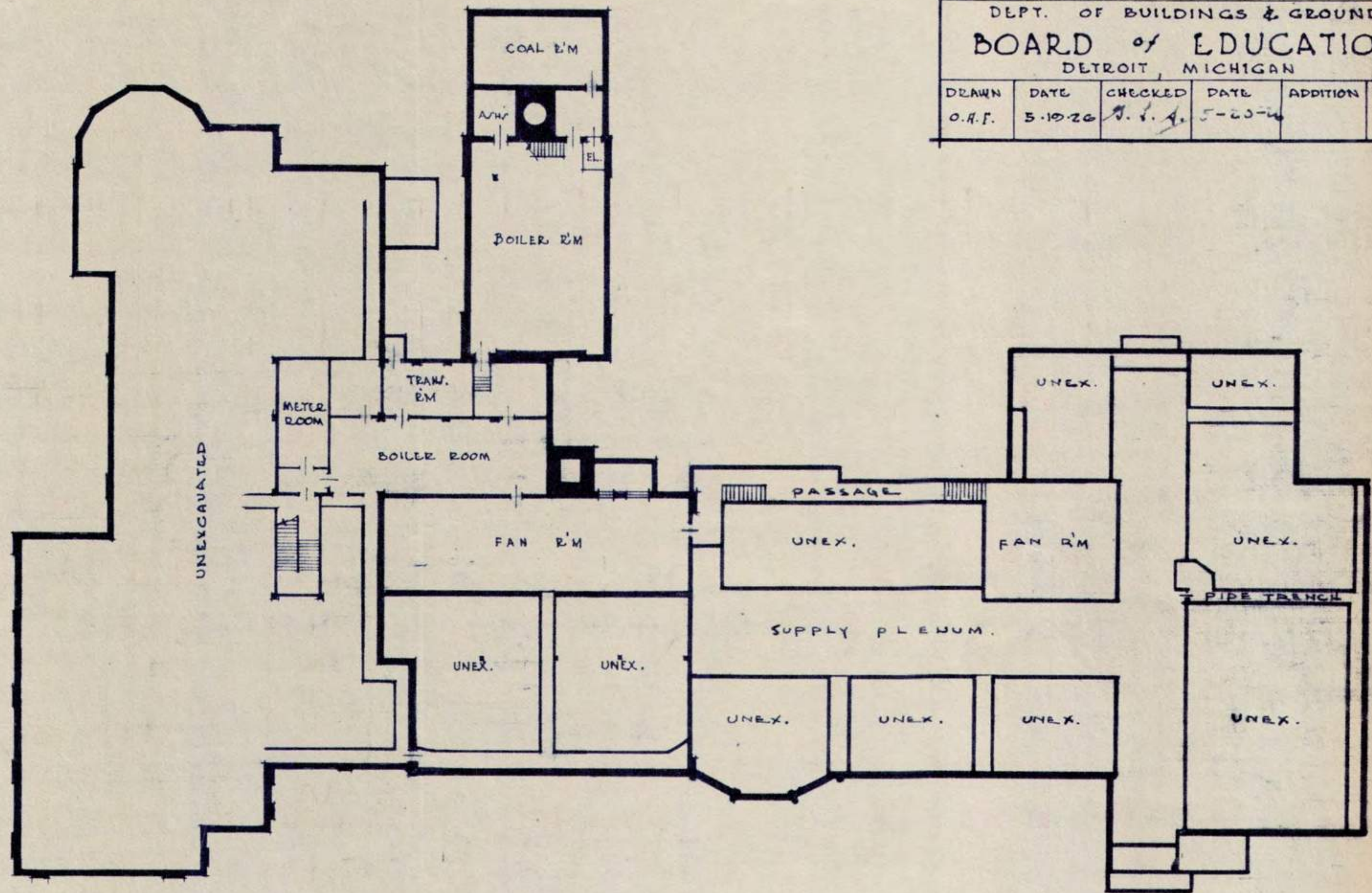
4.4 ACRES
SCALE 1" = 100'



McFARLANE SCHOOL

DEPT. OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F.	5.10.26	J. L. A.	5-25-26		



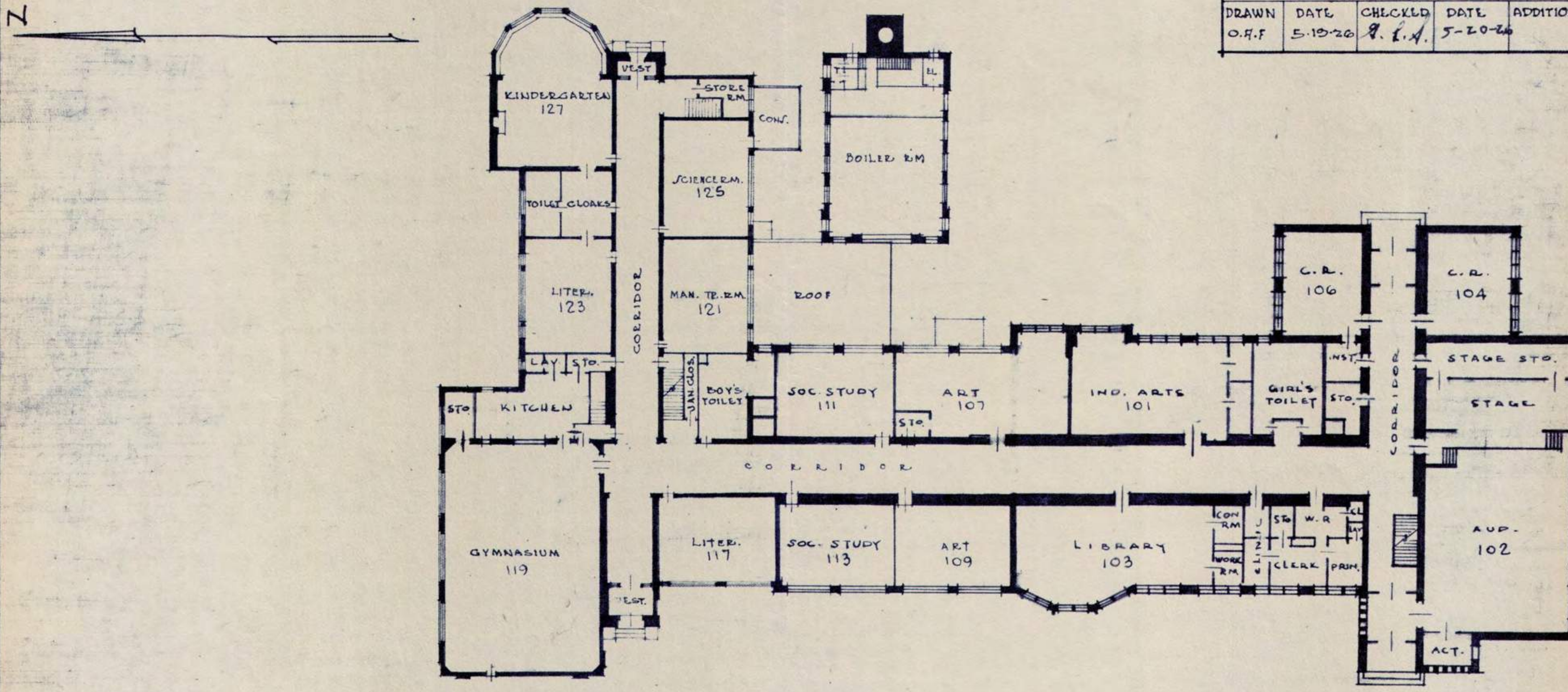
BASEMENT FLOOR PLAN

SCALE 1/32" = 1'-0"

McFARLANE SCHOOL

DEPT. OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT, MICHIGAN

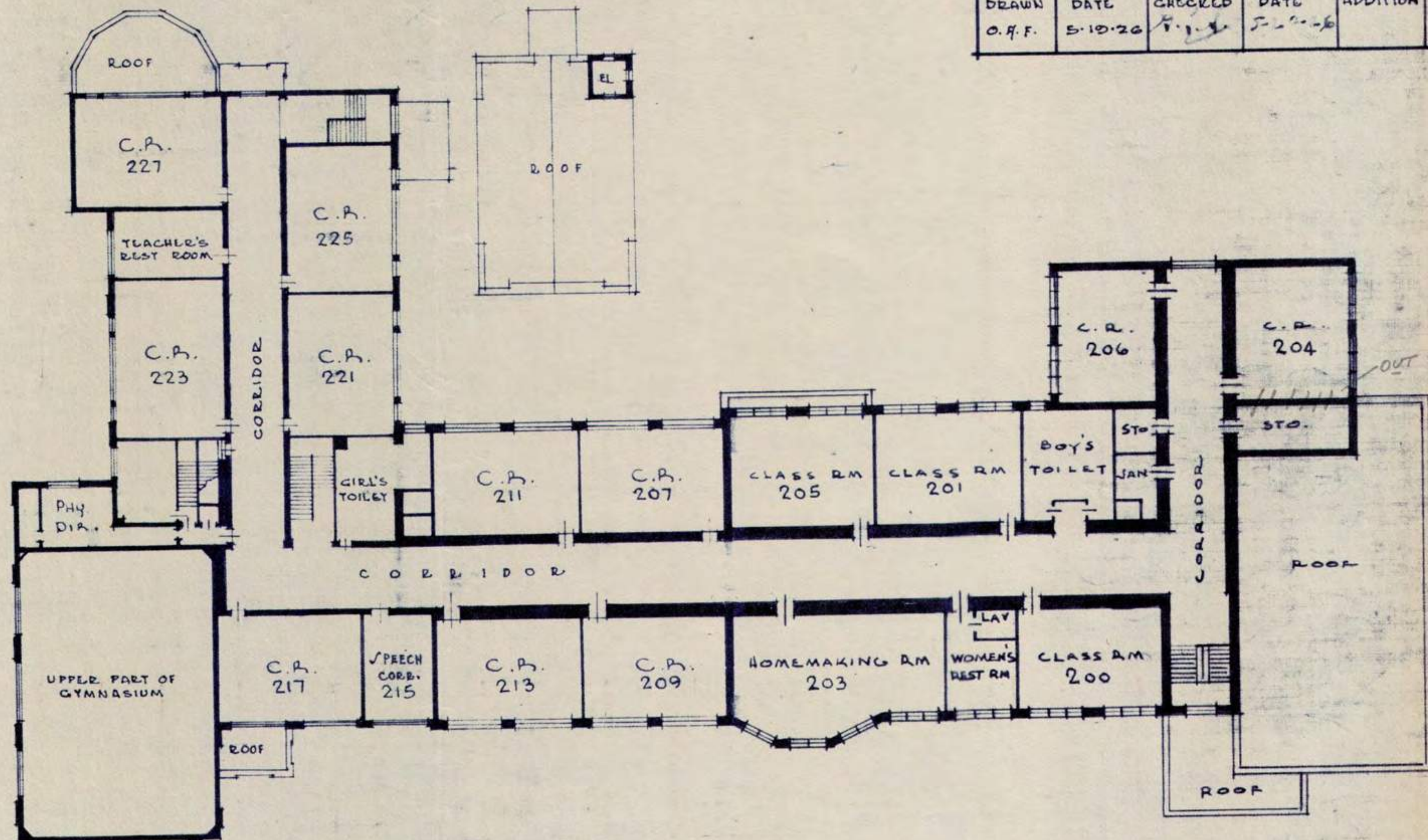
DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F	5-19-26	G. L. A.	5-20-26		



FIRST FLOOR PLAN

SCALE 1/32" = 1'-0"

McFARLANE SCHOOL					
DEPT. OF BUILDINGS & GROUNDS BOARD of EDUCATION DETROIT, MICHIGAN					
DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F.	5-10-26	[illegible]	[illegible]		



SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Detroit McKerrow / Transition School West

Basic Property Information: COD 7-Transition West-4800 Collingwood

Short Name:	McKerrow /Transition West
Address:	4800 Collingwood Street, Detroit, Michigan 48204
Year Built:	1926
Additions Built:	None
Outbuildings:	None
Year Vacated:	2011
Square Footage:	50,000 SF
Building Footprint:	185 feet x 170 feet
Number of Stories:	2
Building Height:	32 feet
Current Ownership:	City of Detroit
City Council District:	7
SNF District:	RW

Structural Framing System:	Cast-in-Place Concrete; Brick Masonry
Exterior Wall System:	Brick; Stone
Window System(s):	Metal; Wood; Aluminum Replacement
Roofing System(s):	Built-up Roof; Internal Roof Drains; Asphalt Shingles

Assessment Summary	
Assessment Date:	January 23, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 27, 2020
Building Risk Index:	**87.69**

Cost Estimate		
Base Rehabilitation Cost Estimate:		$1,806,150
Preparation for Rehabilitation Work:		$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):		$3,988,640
	Sub-Total	$6,694,790
Contingency (25%):		$1,673,697
	Sub-Total	$8,368,487
Overhead and Profit (15-18%):		$1,255,273
	Sub-Total	$9,623,760
Escalation (6% for 2 years)		$577,425
	Sub-Total	$10,201,186
Architectural and Engineering Design Services (20%):		$2,040,237
TOTAL COST ESTIMATE:		$12,241,423

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the main building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The basement level is flooded, and thus, was not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- Investment Memo
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior’s Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building comprises a U-shaped footprint with a central courtyard occurring over the basement level mechanical spaces.

The facade generally consists of multi-wythe clay brick masonry with limestone masonry accents. The original wood-framed window openings are essentially void and are currently boarded with plywood. The low-slope roofing consists of an internally drained, gravel surfaced, bituminous built-up roof (BUR) with granulated cap sheet base flashing. Small roof areas over the main south tower and two shaft openings consist of three-tab asphalt shingles over wood sheathing and framing.

The structural system generally consists of reinforced concrete beams and columns supporting reinforced concrete floor and roof construction. The second-floor joists are steel pan-formed concrete tee-joists. The roof structure consists of sloped, board-formed concrete beams and a steel pan-formed concrete roof deck. Interior load-bearing walls were observed to be of brick masonry. The interior corridor walls are non-load bearing partitions constructed of gypsum tile units and metal lathe-supported plaster.

Although initial appearances of the existing conditions are concerning based on the magnitude of the failure of the finishes and past crack repair attempts of the brick masonry, the building is in a repairable state. The windows require replacement, and stabilization of select stone elements of the facade is recommended. The roofing is recommended for replacement, though repairs may be possible in some regions. Failed and missing roof drains are allowing a significant amount of water to collect on the top of the second-floor corridor leading to material degradation of the concrete floor structure. Further assessment may determine partial depth concrete repairs are possible, but for the purposes of this effort, the corridor floors are assumed to require replacement with a new steel and concrete floor system as part of an overall rehabilitation project. The basement level is flooded and is recommended to be dewatered for additional assessment of the first-floor structure. Further detail of the observed distress is provided below.

Facade

The three and four wythe masonry walls are in fair condition. Localized cracking and masonry displacement were observed, which is primarily attributed to water infiltration, corrosion of the embedded steel support elements, and a lack of expansion joints in the mass masonry wall. At several brick masonry window jambs, the stacked bond units are displaced due to mortar bond failure and possibly a lack of ancillary support from the adjacent window frame. At the southwest corner of the south entrance, limestone masonry cornice is outwardly displaced and should be monitored and stabilized in the near term to prevent a falling object hazard. Limestone coping units at an alcove on the west elevation are missing, potentially due to vandalism. Previous flashing repairs have been completed at the window lintels on the east elevation, which are generally in good condition. Rehabilitation of the building should include repair of these masonry elements to mitigate water infiltration within the wall assembly and building interior, and to mitigate further distress.

The wood windows and frames are significantly distressed or missing and require replacement. Several existing plywood coverings over the window openings are displaced or missing, which is permitting weather exposure to the interior elements and reduces building security. Such temporary window coverings should be maintained to mitigate further water infiltration-related distress and deter vandalism. Rehabilitation of the building should include replacement of the window assemblies.

Roofing

The roofing assemblies are in fair-to-poor condition. Visible areas of the low-slope membrane roofing (i.e., areas of minimal snow cover at the time of our visit) are cracked, worn and have seam failures. At one RTU location, water infiltration was visible within the building interior, indicating failure of the corresponding flashing elements. The internal roof drains have failed and are permitting large quantities of water into the building interior. Water management of the roof drainage systems should be stabilized in the near term to mitigate additional distress.

At the low-slope roof areas, the flashing terminations at the perimeter parapets are generally cracked or separated from the parapet, permitting water to enter the roofing assembly at the building perimeter. The exposed masonry substrate at the flashing terminations are in serviceable condition, likely due to the sloped roof structure which allows water to drain away from the perimeter walls if it enters the roofing assembly. Additionally, the mortar joints between the clay tile coping units are generally deteriorated and some localized units are displaced. Rehabilitation of the building should include removal and replacement of the existing roofing assemblies, localized parapet repairs, and replacement of the drain and drain pipe systems. Repairs may be possible in some areas to extend the service-life of the existing roof assembly, though further investigation would be required to determine if repairs are a viable option in lieu of replacement.

At the smaller asphalt shingle roof areas, several openings are present within the roofing assembly, and significant decay of the wood plywood sheathing and wood framing was observed. These areas will require reconstruction during rehabilitation of the building.

Structure

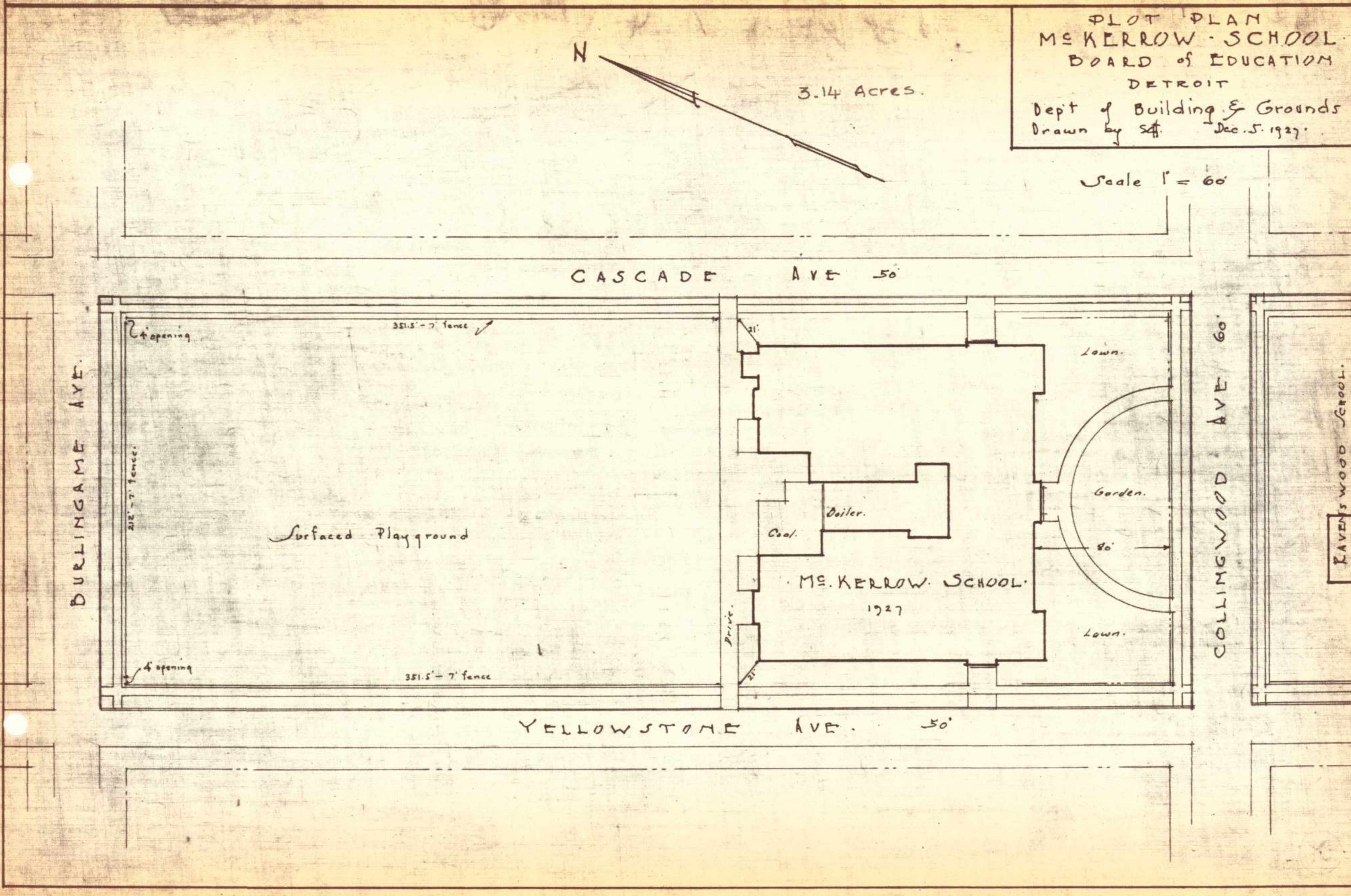
The building structure is in good condition except for localized distress of the second-floor corridor floor structure. However, the wall and ceiling finishes are fully deteriorated or missing in the corridors at the first-floor level, with the debris of the finishes collected on the first floor. The wall and ceiling finishes of the second-floor corridors are in similar condition, although the damage and deterioration are not as extensive. In the classrooms, the existing wood flooring has buckled, and the plaster finishes are distressed or damaged in some locations, but not to the extent of the first-floor corridors.

The roof structure over the auditorium is riveted structural steel construction with precast concrete planks spanning between the steel members. Water staining is prevalent along the edges of the precast planks with some cracking observed in the planks. Minor corrosion is present on the steel framing members. As part of a building rehabilitation project, the gypsum or concrete roof deck over the auditorium is recommended to be further assessed due to the extensive water staining observed and may require replacement. Removal of the planks would afford the opportunity to clean and re-coat the structural steel roof framing.

Steel reinforcing is exposed in the bottom of second-floor members (first floor ceiling) in the corridor areas. Stalactites were observed in multiple locations from the underside of the second-floor corridor concrete structure indicating material degradation of the concrete. Areas of extensive moisture infiltration, related to missing or damaged interior roof drains, were observed in seven locations within the second-floor corridors. On the eastern half of the building, the moisture infiltration is extending down to the first-floor corridor. Ponded water on the second-floor corridor floors does not extend into the classroom spaces due to the structural detailing and interior door thresholds. Organic growth, related to the missing windows of the exterior wall, is present on the floor of the second-floor corridor in the south wing.

Replacement of the second-floor corridors, excepting the northern portion of the western wing, may be necessary due to the amount of water infiltration through the structure, but further investigation is required to determine whether the structural capacity of the framing has been significantly affected. The first-floor structure of the eastern wing corridor should also be anticipated to require full replacement due to the amount of moisture infiltration in this wing of the building. The structural floor framing in the remaining areas of the building is in good condition, and significant repair or replacement of these areas is not anticipated.

Ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

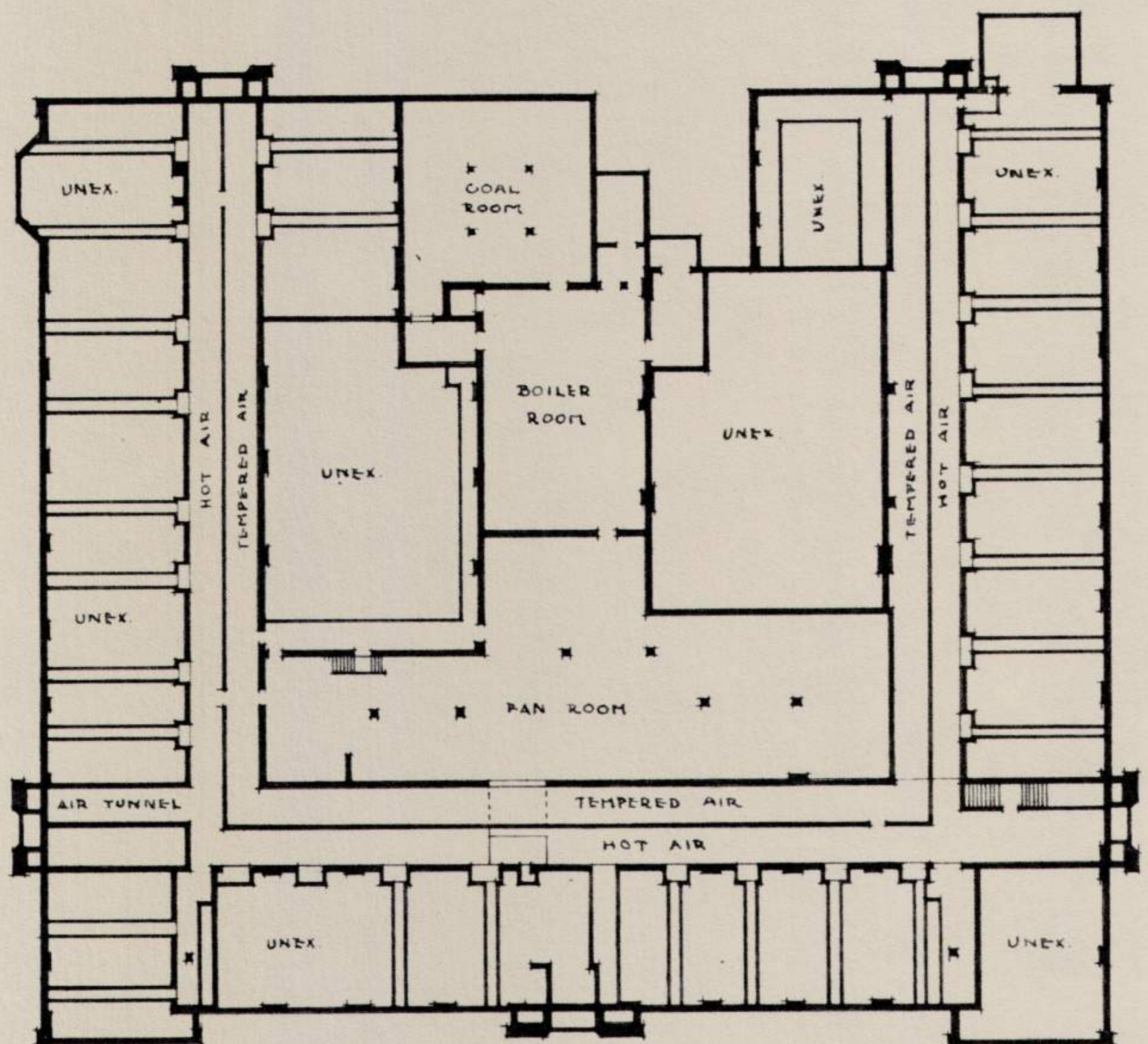


PLOT PLAN
McKERROW · SCHOOL
BOARD of EDUCATION
DETROIT
Dept of Building & Grounds
Drawn by S.H. Dec. 5. 1927.
Scale 1" = 60'
N
3.14 Acres.
CASCADE AVE 50'
YELLOWSTONE AVE. 50'
BURLINGAME AVE.
COLLINGWOOD AVE 60'
RAVENSWOOD SCHOOL.
4' opening
351.5' - 7' fence
212' - 7' fence
Surfaced Playground
21'
Drive.
Coal.
Boiler.
McKERROW · SCHOOL ·
1927
Lawn.
Garden.
80'
Lawn.

Mc KERROW SCHOOL
BASEMENT PLAN

DEPARTMENT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-27-27				



· McKERROW · SCHOOL ·

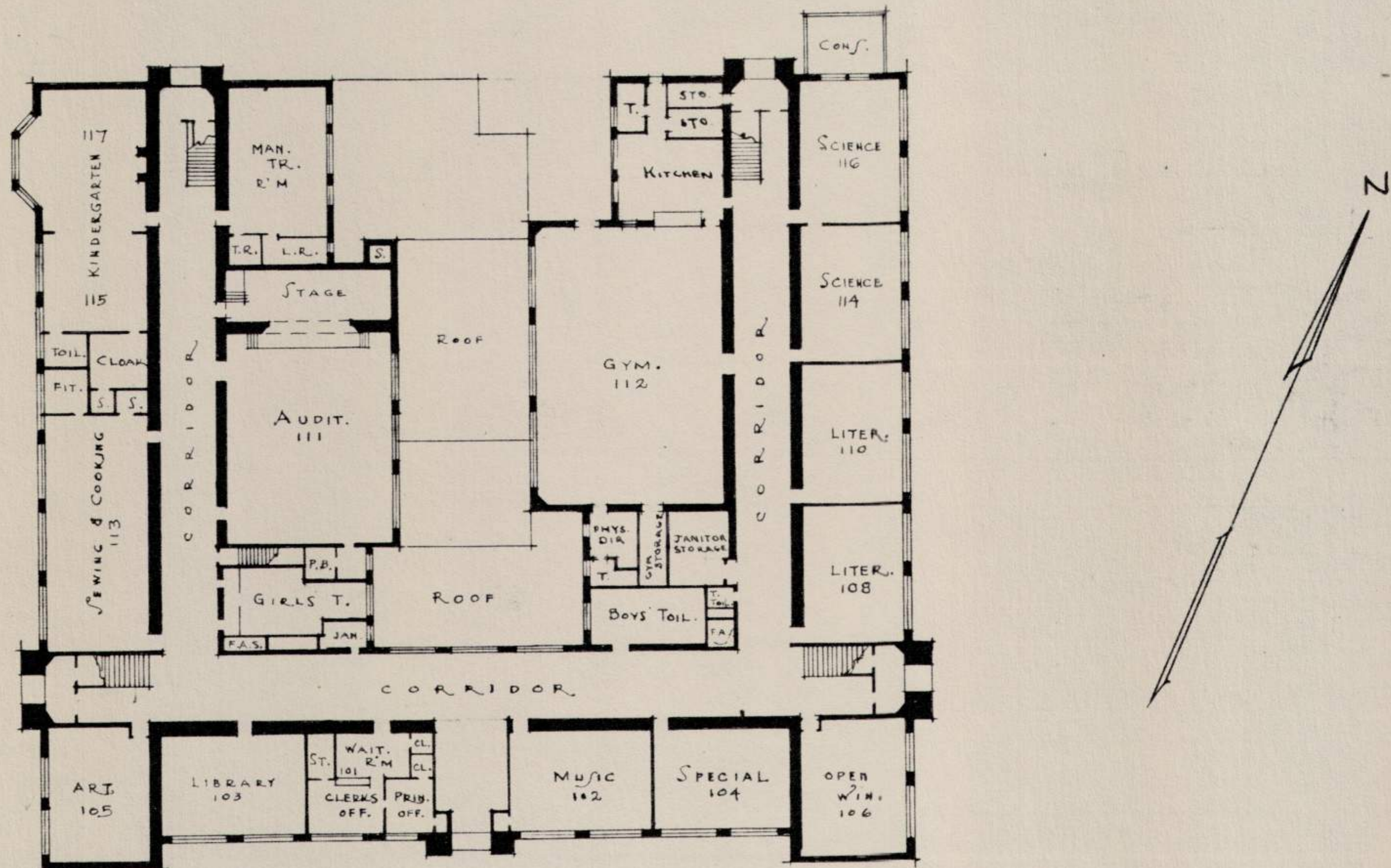
· FIRST · FLOOR · PLAN ·

DEP'T OF BLDG'S & GR'DS

BOARD OF EDUCATION

DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	2-21-27	O.I.L.	2-25-27		

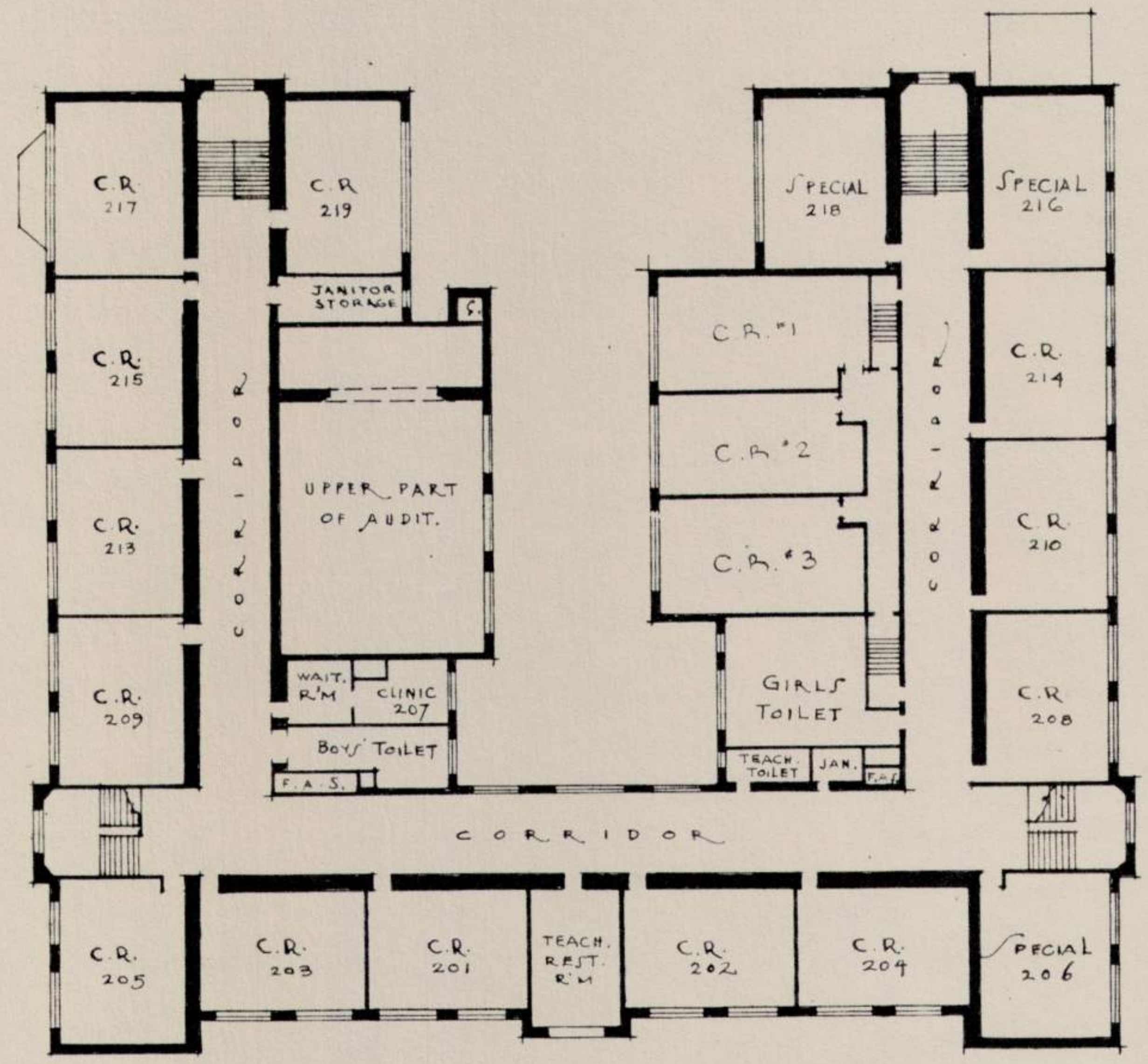


McKERROW · SCHOOL
SECOND FLOOR PLAN

DEPT OF BLDGS & GR'DS
BOARD OF EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWB	2·21·37	S. L. L.	2-25-37		

REV. 9-57 MOY



WJE

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Monnier Elementary School

Basic Property Information: COD 7-Monnier-13600 Ward

Short Name:	Monnier
Address:	13600 Ward Avenue, Detroit, Michigan 48227
Year Built:	1923
Additions Built:	None
Outbuildings:	None
Year Vacated:	2007
Building Footprint:	190 feet x 245 feet
Square Footage:	57,225 sq. ft.
Number of Stories:	2
Building Height:	33 ft.
Current Ownership:	City of Detroit
City Council District:	7
SNF District:	NA

Structural Framing System:	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
Exterior Wall System:	▪ Cast stone ▪ Limestone ▪ Brick
Window System(s):	▪ Wood-Framed ▪ Aluminum Frame Covers ▪ Aluminum Sashes
Roofing System(s):	▪ Built-up Roof ▪ Gravel Surfaced ▪ Asphalt Shingles ▪ Internal Roof Drains ▪ Gutters

Assessment Summary	
Assessment Date:	February 11, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	October 28, 2020
Building Risk Index:	**55.81**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,604,540
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,578,000
Sub-Total	$7,082,540
Contingency (25%):	$1,770,635
Sub-Total	$8,853,175
Overhead and Profit (15-18%):	$1,327,976
Sub-Total	$10,181,151
Escalation (6% for 2 years)	$610,869
Sub-Total	$10,792,020
Architectural and Engineering Design Services (20%):	$2,158,404
TOTAL COST ESTIMATE:	$12,950,424

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the main building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facade from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to access ladder conditions. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The basement level is flooded, and thus, was not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The classroom wings of the primarily U-shaped footprint of the two-story building extend outward to the east from the main portion of the building which fronts Ward Street. The auditorium/gymnasium space extends to the west at the south end of the front facade.

The facade generally consists of two-wythe clay brick masonry with clay tile and brick masonry backup, though one exterior wall area at the north facade is constructed with concrete brick. Cast stone and limestone accent units frame the entrances, window sills, and coping and cornice elements at the top of the walls. The window lights are grouped together to create larger window areas, and generally align vertically between the first and second floors. The windows consisted of original wood framing with aluminum covers and aluminum replacement windows installed within the original openings, though the aluminum components are largely missing.

The sloped roofing assembly consists of three-tab asphalt shingles over plank wood sheathing and wood rafters. These sloped roof areas drain to internal sheet metal gutters that are inset into the cast stone cornice. The gutters generally tie into the internal roof drain conductors located within the building envelope, though some roof areas drain to exterior downspouts. The low-slope roof areas, located between the sloped roof areas, consist of internally drained, gravel surfaced, bituminous built-up roof (BUR) with granulated cap sheet base flashing.

The structure consists of concrete beams spanning between concrete columns and supporting concrete tee joist-slabs formed with clay tile units for the floor systems. Steel columns are exposed at the common wall between the gymnasium and corridor. Steel trusses, composed of steel angle members, clear span the gymnasium space and support dimension lumber (2x) members and wood plank decking. The stairwells consist of brick masonry bearing walls. The sloped, wood framed roof structures integrate metal tie rods which frame into the top of the exterior masonry wall or the wood roof framing, depending on location. The tie rods are anchored to the exterior wall assembly with rectangular metal plates which are exposed on the exterior in multiple locations. The metal tie rods extend at least to the corridor support line.

Although initial observations of the existing conditions are concerning based on the magnitude of the failure of the interior finishes, the building is in a repairable state. The majority of the observed damage results from water infiltration through the roof or exterior wall assemblies. Repair of the interior roof drains and associated piping, replacement of the roofing assemblies, and repair of localized steel shelf angles within the facade are recommended to maintain the good condition of the building’s structural system. The existing windows require replacement (frames and sash). The building’s structural system is generally in good condition, though localized structural repairs are needed near the damaged internal roof drains. A majority of the interior finishes require replacement. Further detail of the observed distress is provided below.

Facade

The masonry walls are in fair condition. Localized cracking and displacement of the masonry was observed, which is primarily attributed to prolonged water penetration into the wall assembly and corrosion of the embedded steel support elements. At least two previous masonry restoration projects have been completed at this building based on the observed brick unit replacement types. These past projects appear to have included installation of flashing at isolated window heads, rebuilding of localized parapet areas, and masonry repairs at the chimney. The repaired areas are generally in good condition, though cracking and outwardly displaced masonry was observed at some shelf angles where flashing was added, which indicates continued corrosion of the embedded steel elements. Rehabilitation of the building should include repair of these masonry elements to mitigate continued deterioration of the exterior wall assembly, development of potential falling object hazards, and water infiltration to the building interior.

Cast stone and limestone copings are present at the perimeter of the low-slope roof areas. The limestone coping units located over the gymnasium and stage wing are in good condition. The cast stone coping units located elsewhere on the building are in poor condition and have been capped with sheet metal. Several cast stone units are cracked and spalled, and the sheet metal cap is corroded and has weathered and failed sealant at the seams. Rehabilitation of the building should include replacement of the sheet metal, and repair or replacement of the cast stone copings.

The surface mounted plates that engage the tie rods to the exterior walls are present at the top of the walls and located below the sloped roof areas. These plates and tie rods likely were installed to provide supplemental lateral support for the top of the masonry wall to resist the roof thrust resulting from the sloped wood framed roof. Evidence of brick displacement or other distress was not observed at these areas, nor was evidence of prior masonry repair. The exposed plates are recommended to be cleaned, assessed, and recoated. Localized replacement of the tie rods may be required as described below.

The mechanical penthouse walls contain significant spalling of the brick masonry units due to water penetration, freeze thaw damage, and the presence of mortar with higher strength than the individual brick units. These deteriorated walls should be rebuilt.

The aluminum covers over the original wood window frames are displaced or missing at some window locations. Where visible, the original wood frames exhibited severe decay and the window sashes are typically missing. At some locations, steel pully elements that remain from the original operable sash components are visible within the frame elements, which may be contributing to the corrosion staining on the stone sills below. Plywood coverings, which were previously installed over some original windows are displaced or missing, which is permitting unintended weather exposure to the interior elements and reduces building security. Such temporary window coverings should be maintained to mitigate further water infiltration-related distress and deter vandalism. The wood framed building entrances also show evidence of decay. Rehabilitation of the building should include replacement of the window and door assemblies.

Roofing

The roofing assemblies are in poor condition. Visible areas of the low-slope membrane roofing are cracked, worn, and exhibit seam failures. Some areas of the asphalt shingles are missing at the sloped roof areas, and sheet metal flashing elements at adjacent terminations are generally missing or pulled away from the substrate surfaces. Rehabilitation of the building should include removal and replacement of the existing roofing assemblies.

At the base of the sloped roof areas, the internal sheet metal gutters are corroded, displaced, and have cracked seams in some areas. The cast stone cornices below are water stained and contain localized cracks and spalls. At roof areas that drain to exterior downspouts, the exterior downspouts are damaged and sometimes missing, resulting in significant moisture penetration and freeze-thaw damage to the masonry below. The internal roof drains and drain piping are typically failed, which permits water into the building interior. Rehabilitation of the building should include replacement of the internal gutter, downspout, drain, and drain pipe systems.

Structure

In general, the structure is in good condition. Many of the interior finishes are extant, but the finishes near damaged roof drain locations are severely damaged. The structure exhibits signs of initial deterioration related to the water infiltration at these isolated locations.

The majority of the wood framing of the roof above the fan room is visibly saturated with fungal growth present. Daylight was observed between the sections of wood plank roof deck, indicating the roofing has failed over this space. The fan room roof structure is recommended to be replaced and should be coordinated with the replacement of the roofing assembly.

At the junction between the bay window low roofs and the second story exterior wall, in the northern kindergarten room and at the southern stairwell and entrance, concrete deterioration was observed due to water infiltration from the roofing and facade systems. Significant cracking is present in the brick masonry in the southern stairwell related to the water infiltration in this area. The masonry will require rebuilding of at least the inner wythe, and the concrete will require partial depth overhead repairs.

The wood framed, sloped roof structure is restrained from roof thrust acting on the perimeter masonry walls with the steel tension rods, as observed from both the exterior and at select areas of the interior where the finishes are missing. At the exterior brick masonry wall of Classroom 200, the tension rod is corroded and expanded at the interior face of the wall. This tension rod may require full replacement; however, evaluation of the exterior walls in this area is recommended to verify the purpose and need for these components.

Surface corrosion was observed at exposed steel structural elements due to deteriorated finishes from extensive water infiltration. The exposed steel is recommended to be cleaned, assessed, and recoated. Vertical cracking of the masonry was observed on both the exterior and interior gymnasium and stage perimeter walls. The masonry distress is likely related to corrosion of the steel bearing plates or columns embedded within the masonry; however, further investigation into the cause of the cracking is warranted.

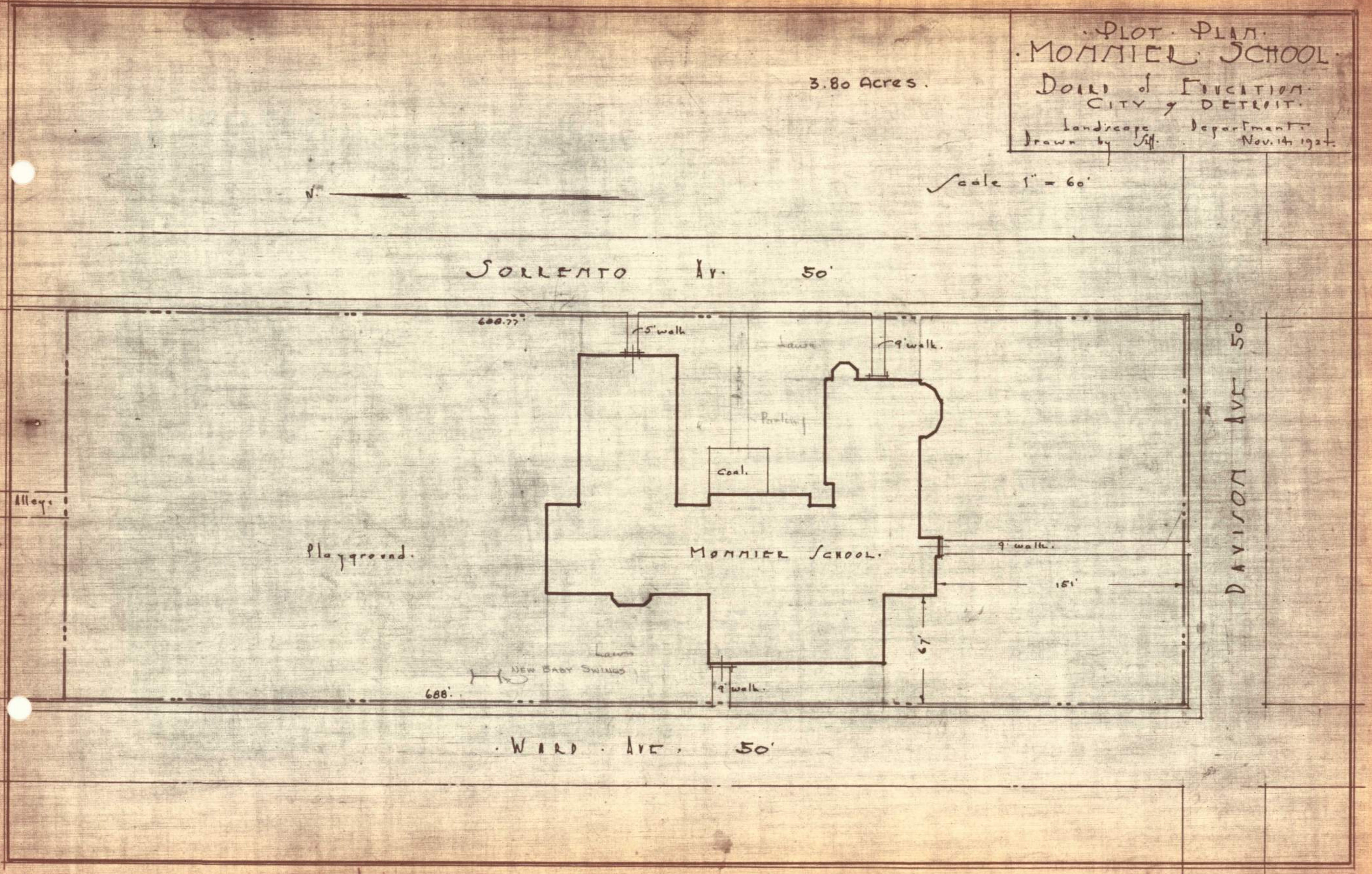
The balcony floor structure and supporting structure in the gymnasium consist of wood construction and were visibly wet. In addition, the wood roof framing between the steel trusses that support the roof over the gymnasium was visibly wet and water was ponded in the plumbing trench located below the locker rooms underneath the eastern balcony. Localized reinforcement or replacement of the wood roof framing and balcony framing is anticipated and should be coordinated with facade repairs and roof replacement as applicable.

Ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered, which will allow for assessment of the basement level structure prior to the implementation of other recommendations stated herein.

Miscellaneous

The top surface of the floor in the second-floor janitor's closet is visibly dropped to the southwest. Distress was not observed on the underside of this floor structure in the Stage Dressing Room below. Further investigation should be performed to review the displacement and evaluate the floor structure to determine if this is a structural issue or related only to the interior finish materials.

Many of the finishes of the classroom walls, specifically those oriented perpendicular to the exterior wall, and the finishes of the stairwell walls, are cracked vertically or diagonally along the length of the walls and previous repair efforts to address the cracks were evident. The cracking may be related to thermal or volumetric changes in the wall materials or relative stiffness of the walls within the structural frame system of the building. Further assessment of these cracks is recommended. If the underlying cause of the cracking is not determined, the cracks may recur after rehabilitation and remain an ongoing maintenance item.



PLOT PLAN
MOMMIER SCHOOL
BOARD of EDUCATION
CITY of DETROIT
Landscape Department
Drawn by S.H.
Nov. 14, 1924
3.80 Acres.
N.
Scale 1" = 60'
SORRENTO AV. 50'
688.77'
5' walk
Lawn
9' walk
Parking
Coal.
Alley
Playground
MOMMIER SCHOOL
9' walk
151'
67'
Lawn
NEW BABY SWINGS
688'
9' walk
DAVISON AVE 50
WARD AVE. 50'

MONNIER SCHOOL

DEPT of ARCHITECTURAL ENGINEERING

BOARD of EDUCATION

DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
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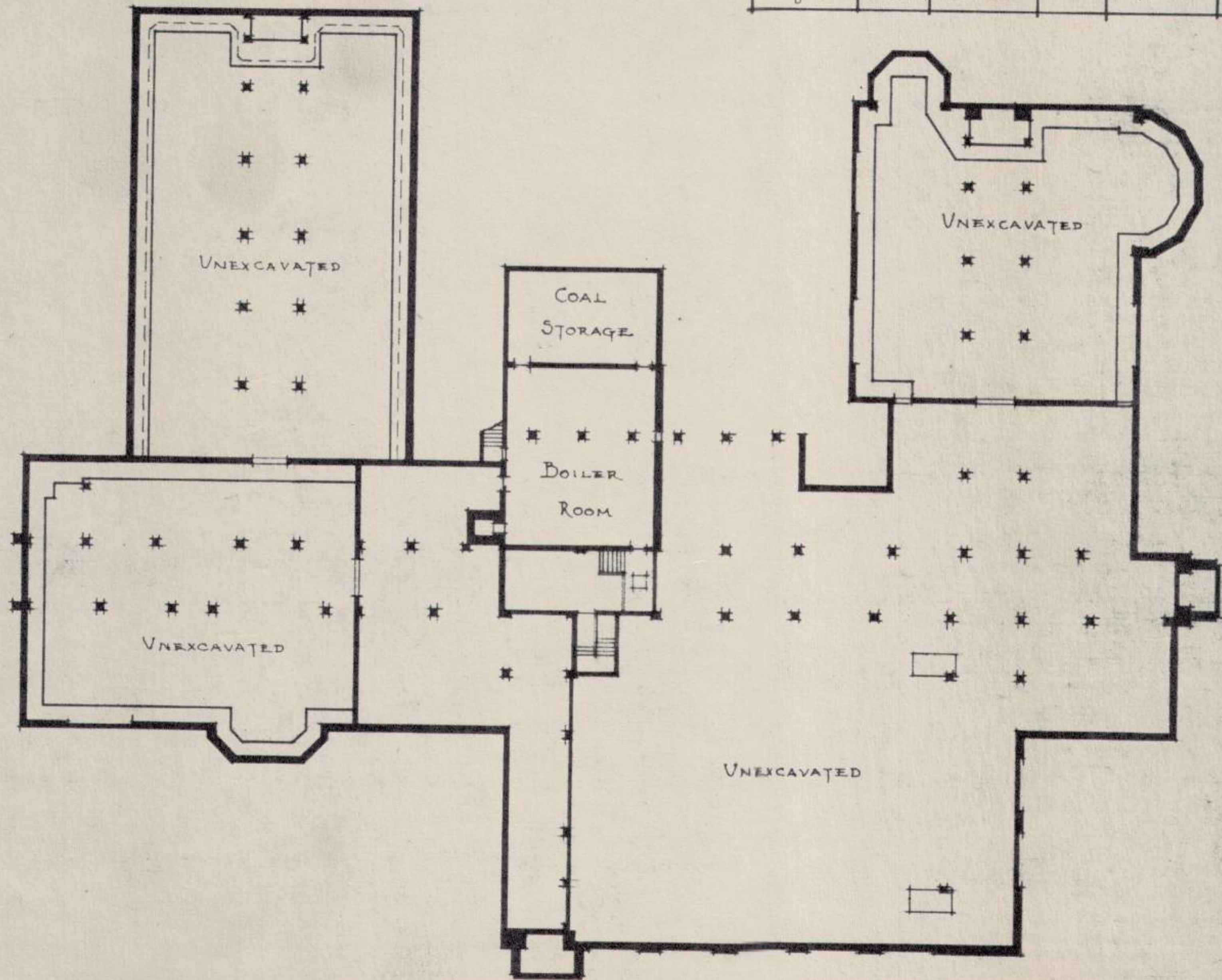


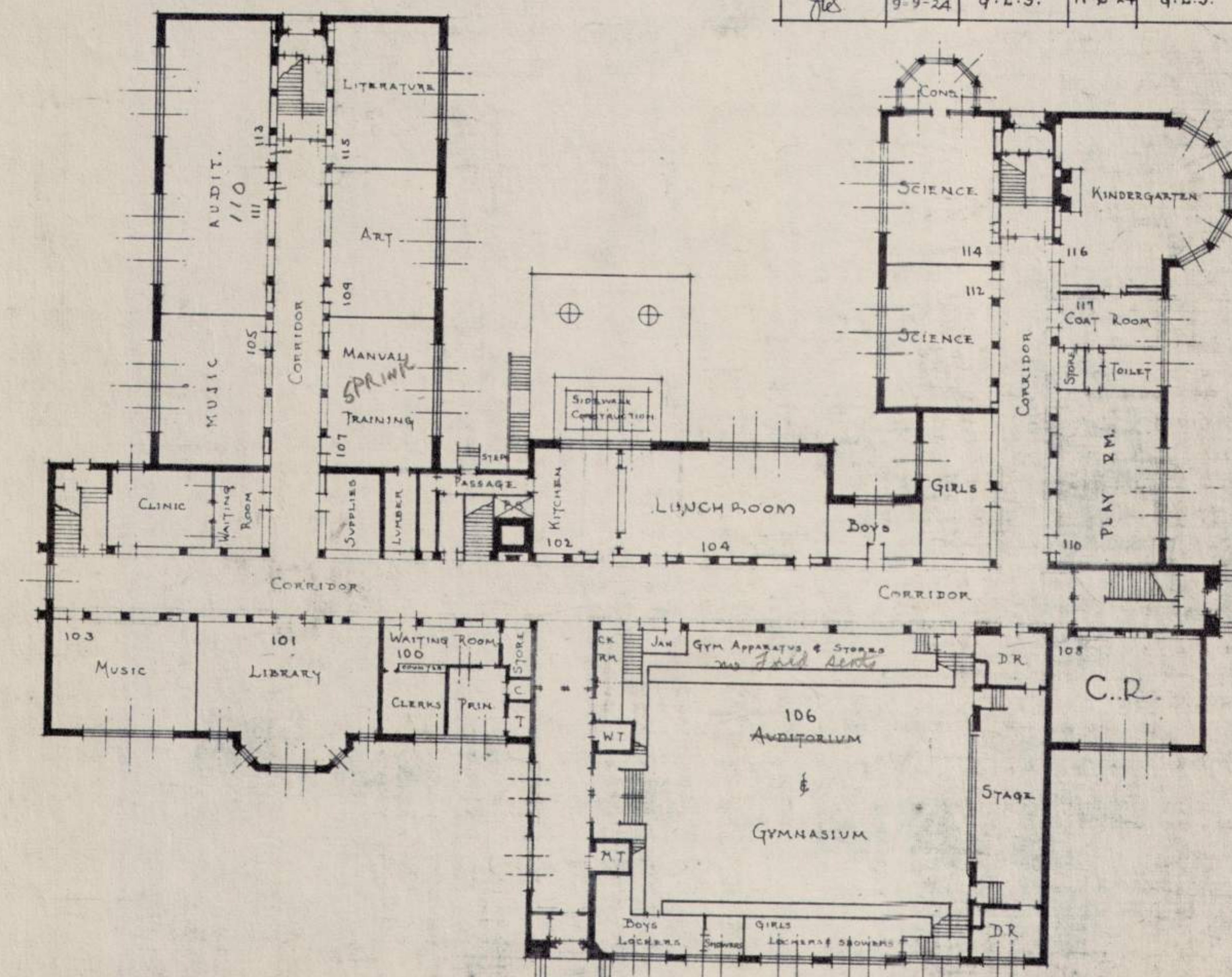
BASEMENT PLAN

SCALE: 1'-0" = 32'-0"

· MONNIER SCHOOL ·

DEPT. of ARCHITECTURAL ENGINEERING
·BOARD of EDUCATION·
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
JES	9-9-24	G.L.S.	11-6-24	G.L.S.	11-6-24



·FIRST FLOOR PLAN·

SCALE: 1"-0" = 32'-0"

MONNIER SCHOOL

DEPT. of ARCHITECTURAL ENGINEERING
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DETROIT, MICH.

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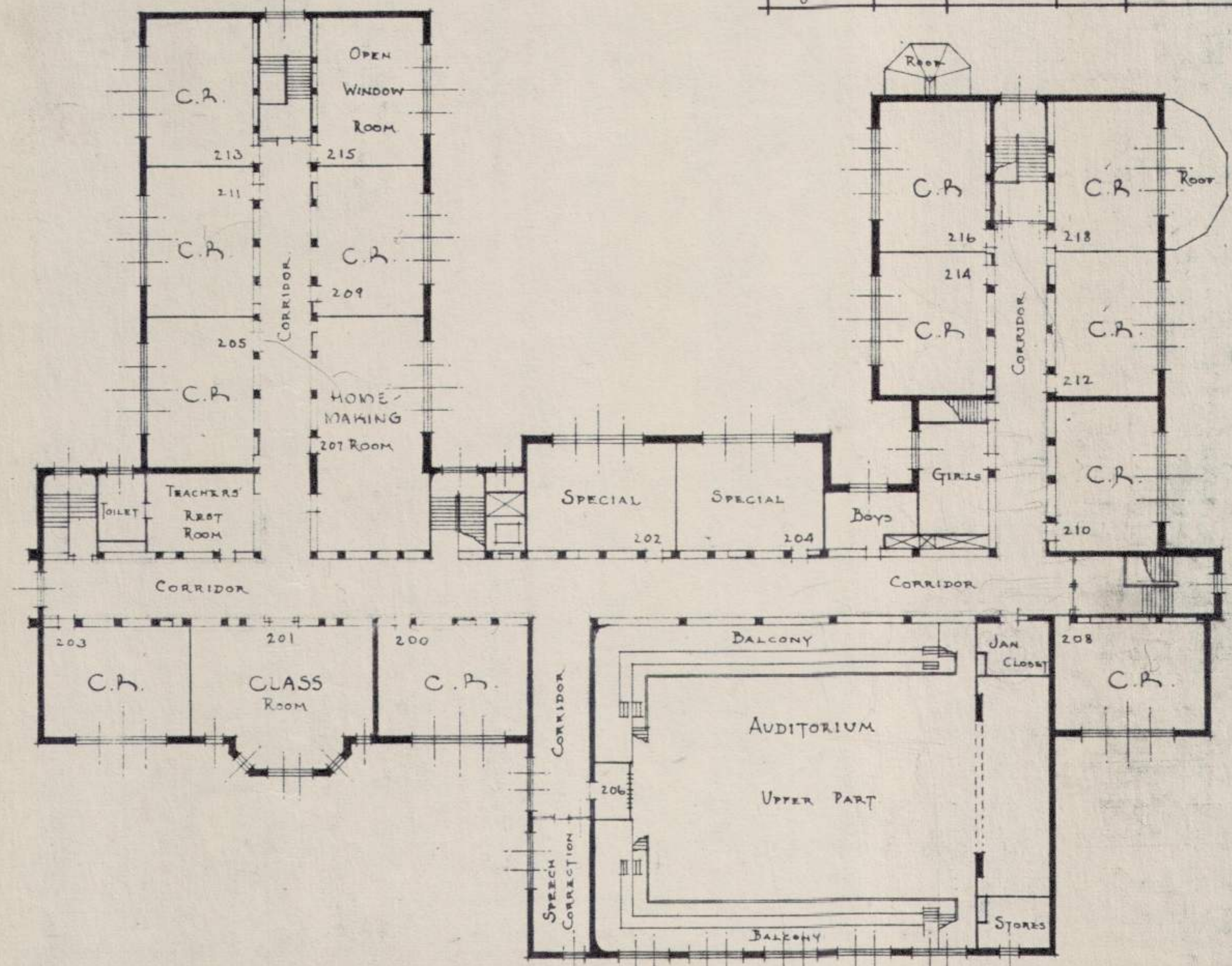
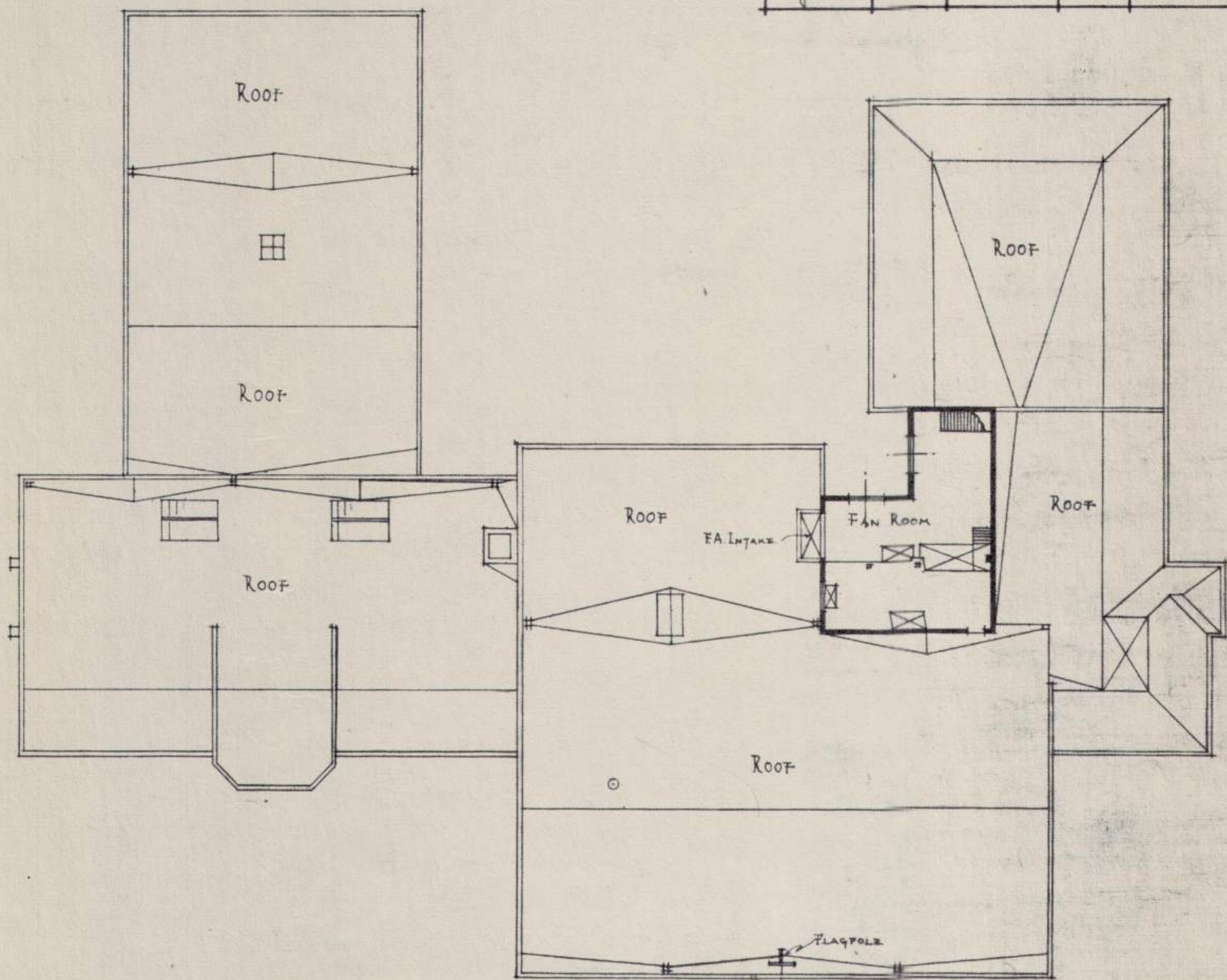


SECOND FLOOR PLAN

SCALE: 1'-0" = 32'-0"

• MONNIER SCHOOL •					
DEPT. of ARCHITECTURAL ENGINEERING • BOARD of EDUCATION • DETROIT, MICH.					
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
JES	9-10-24	G.L.S.	11-6-24		



• ROOF • PLAN •
SCALE: 1'-0" = 32'-0"

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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Oakman Elementary

Basic Property Information: COD 7-Oakman-12920 Wadsworth

Short Name:	Oakman
Address:	12920 Wadsworth Street, Detroit, Michigan 48227
Year Built:	1929
Additions Built:	None
Outbuildings:	Boiler House
Year Vacated:	2013
Building Footprint:	225 feet x 280 feet
Square Footage:	47,492 sq. ft.
Number of Stories:	1
Building Height:	27 ft.
Current Ownership:	City of Detroit
City Council District:	7
SNF District:	NA

Structural Framing System:	▪ Cast-in-Place Concrete ▪ CMU ▪ Structural Steel
Exterior Wall System:	▪ Stone ▪ Brick ▪ Cast-in-Place Concrete
Window System(s):	▪ Aluminum
Roofing System(s):	▪ Slate Shingles ▪ Modified Bitumen ▪ Gutters ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	February 13, 2020
WJE Inspector(s):	Sarah Rush; Cheryl Early
Report Date:	November 16, 2020
Building Risk Index:	**58.45**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,807,050
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,799,360
Sub-Total	$6,506,410
Contingency (25%):	$1,626,602
Sub-Total	$8,133,012
Overhead and Profit (15-18%):	$1,219,951
Sub-Total	$9,352,964
Escalation (6% for 2 years)	$561,177
Sub-Total	$9,914,142
Architectural and Engineering Design Services (20%):	$1,982,828
TOTAL COST ESTIMATE:	$11,896,970

ASSESSMENT METHODS

Visual Survey

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WJE performed a visual review of the building facades from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of the main floor of the school building. The basement level is flooded and was not accessed. Basement flooding also prevented access to the interior of the boiler house outbuilding. In the main building, limited access to the attic was obtained near the roof hatch. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

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Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

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In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
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- Escalation (6% for 2 years)
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The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The facade generally consists of brick masonry with rounded custom shapes at stepped wall corners, and concrete masonry (CMU) backup infill. Stone masonry accents frame the entrances, window sills, cornice, coping, and ornamental horizontal bands near roof level and grade. Ornate steel railings and cast iron spandrels are present below the windows at the end of each wall length. The structure's concrete roof slab is exposed on the exterior just below the roof line. The building entrances consist of steel doors typically surrounded by a multi-lite, aluminum transoms, and the windows consist of multi-lite replacement aluminum windows. Similar facade elements are present at the walls facing an interior courtyard. On the south, east, and west facades, stone pillars with ornate steel railings line elevated concrete pavilions that extend between the building projections located at entrances and building corners. A large central courtyard contains a playground area.

The roof consists of steep-sloped roof surfaces at the front exterior walls of the building and low-sloped areas between the sloped surfaces. The sloped roofing assembly consists of slate roof shingles over gypsum panel decking. These sloped roof areas drain to external gutters and downspouts. The low-slope roof areas consist of internally drained, modified bitumen membrane roofing.

A boiler house is present on the north end of the property and has a similar stone and brick masonry cladding. A chimney constructed from multi-wythe brick masonry adjoins the boiler house, which is tapered in a series of three setbacks, and features stepped corners. Neither interior or roof access was obtained at the boiler house at the time of our site visit due to flooded basement access from the main school building and secured doors at grade level. In comparison of the building plans provided and the existing site condition, it appears that a portion of the boiler house basement extends northward, beyond a chain link fence visually delineating the school property from the neighboring residential property.

The main school building is a single-story building, rectangular in footprint, with primary classrooms located on the street side of the building. Specialized, smaller rooms and offices border a central courtyard which allows light into these spaces. The larger spaces of the school, including the auditorium, lunch room, "cot room", and gymnasium, are located at the corners of the building footprint and have increased ceiling heights as compared to the typical classrooms. The roof structure consists of reinforced concrete slabs spanning to dropped beams which are supported on concrete (or steel encased concrete) columns at interior bearing lines. The exterior walls are either CMU bearing walls or CMU encasing concrete columns between the window openings. The roof structure over the four corner rooms is of steel construction which supports the gypsum panel roof decking of the sloped roof areas.

In general, the buildings are in relatively good condition with the majority of observed distress resulting from water infiltration due to damage and subsequent deterioration within the sloped, slate roof assemblies, and water infiltration at internal drains within the low-slope roof assemblies. The damaged conditions within the sloped roof assemblies are largely attributable to vandalism. As a result of the roofing deterioration, future investigation on the extent of deterioration within the gypsum panel roof decking, structural steel framing, and concrete roof slab structure is warranted. Repair of the roof elements is essential to maintain a serviceable condition of the existing structure. Many of the replacement aluminum windows are missing or damaged and require replacement. Cracking observed in the concrete slab ceilings of the corridors and classrooms is reasonably expected to occur during original construction and occupancy of the building, but water is now infiltrating these cracks and causing deterioration of the concrete. The more durable, “hard surface” finishes including terrazzo and vinyl composite tile flooring, and glazed tile and CMU walls, require minimal cleaning and refinishing, whereas the perforated ceilings require additional repair. A fire had occurred in the classroom at the north end of the west corridor as evident by the extensive soot present in this classroom and the upper portions of the corridor walls near this classroom. Further detail of the observed distress is provided below.

Facade

The facade is generally in good condition. Localized cracking, displacement, erosion, and staining was observed within the stone units and is a result of water infiltration into the wall assembly and subsequent corrosion of the embedded steel support elements. The observed stone deterioration is generally most severe near areas where the drainage systems have been damaged. At the base of the walls, the original stone units have been previously replaced with a variety of concrete and CMU repair materials, many of which are currently delaminated, cracked, and spalled. The brick masonry was generally in good condition with only minor localized distress, though the majority of the veneer mortar is aged, eroded, cracked, or missing. Some areas of the brick wall assembly, largely concentrated within the courtyard exterior wall, are damaged or missing, which is attributable to vandalism. The cast iron spandrel and ornate steel railing elements located below the windows at the ends of the facade are typically corroded, often causing cracking and spalling within the adjacent stone units. Minor localized distress to the exposed reinforced concrete structure was observed, which is attributed to water infiltration and subsequent freeze-thaw damage. The masonry chimney is generally in good condition. Rehabilitation of the building should include repair of the distressed masonry, embedded steel supports, and exposed concrete elements to mitigate water infiltration within the wall assembly and into the building interior, and to mitigate further distress.

A majority of the aluminum windows are missing and require replacement. Where present, some of the windows are damaged, including missing sashes, cracked or missing glass, and failed sealant. These windows can be repaired, if desired. The exterior steel doors are typically corroded near the base. Rehabilitation of the building should include replacement or repair of the window and door assemblies.

Roofing

Snow covered a majority of the roofing assemblies during the site assessment, but where exposed, the roofing assemblies are in fair condition. The low-slope roofing appears to have been relatively well maintained prior to the building vacancy, though localized areas of the roofing are cracked or contain seam failures. Drains and rooftop mechanical units are typically damaged or missing, resulting in bulk water infiltration into the roof assembly and building interior at these locations. Rehabilitation of the building should include removal and replacement of the low-slope roofing assembly and internal drain and pipe systems.

The observed deterioration within steep-sloped roof areas is largely attributable to vandalism, including removal of the copper gutters, downspouts, and flashings; displaced and missing slate shingle elements located near the roof eaves and dormers; and exposure and decay of the wood fascia elements. Similarly, in regions where the slate shingles are missing or displaced, deterioration of the moisture-sensitive gypsum panel roof decking was observed. On the west elevation, some of the gutter and flashing elements have been previously replaced with non-copper elements, and the steep-slope roofing in these areas is generally in better condition than elsewhere in the building. Rehabilitation of the building should include replacement of the missing flashing and drainage elements within the steep-slope roof areas and repair to the slate shingle roofing, wood fascia, and gypsum panel roof deck in-kind or with appropriate alternative elements, noting that removal of large areas of the slate shingles may be required to properly address the roof deck condition. If possible, the flashing and drainage elements should be replaced in the near term to prevent further deterioration to the stone cornices, gypsum roof decking, and other building elements.

There are seven skylights located over select rooms bordering the central courtyard. The rectangular skylights vary in size, respective of the room in which each is located. The skylights are of ribbed concrete construction with wire-framed glass lites placed in an array to create the full extent of the skylight. The concrete ribs are tapered between the lites, with steel reinforcing exposed in isolated areas. Due to the minimal width of the concrete ribs, traditional concrete repairs may not be feasible, and thus the skylights, if to be functional again, are recommended to be salvaged and replicated as applicable, potentially in a new frame system.

Structure

The structural system is minimally exposed only at localized water damage or vandalized areas. The concrete, or concrete-encased steel, frame structure is in good condition with minimal distress observed.

The areas of distress, primarily cracking in the underside of flat concrete roof slabs, may be related to original construction, but are now accentuated from water infiltration through the cracks. The cracks should be further assessed to determine if they are reflecting snow drift load conditions above, were formed to allow for the natural movement between the wings of the buildings, or due to other causes. In a classroom near the northwest corner of the main building, the painted finish of the underside of the concrete roof slab is soot laden, cracked, and peeling. The underside of the concrete slab structure is cracked in multiple locations, but the contrast with the soot may be accentuating cracking that may have formed during original construction. Removal of the soot and failed paint coatings is recommended prior to further assessment of the concrete slab roof in this area. An isolated area of the roof slab is spalled on the exterior on the south facade and can be repaired with a partial depth concrete repair; the repair should be coordinated with the roofing repairs in this area.

The sloped roof structures consist of steel framing supporting gypsum roof decking visible only at isolated locations. Where exposed, the gypsum roof decking is presumed to be wet, potentially requiring replacement of the decking in these areas. Replacement of the decking is to be coordinated with the exterior facade and roofing repairs.

Ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level and interior of the boiler house prior to the implementation of the recommendations stated herein.

Boiler House

As stated above, the interior of the boiler house was not accessible during our site visit. The roofing assembly was not visible from grade but should be considered for replacement during rehabilitation of the adjacent building based on the condition of the low-sloped roofing on the school itself.

The exterior stone and brick masonry facade contained similar distress to the main building exterior. The stone elements are weathered with deep pitting in multiple units, and the window head units are spalled and cracked. Damaged stones are recommended to be replaced and the joints around all of the stones should be repointed. The square footprint of the chimney maintains the same masonry detail style as the rest of the property. The chimney is stepped three times on the north and south sides of the chimney with the east and west sides remaining continuous. There are multiple antennas secured to the top of the chimney and operating equipment located at grade on the east facade. Isolated areas of brick in the exterior wythe of the chimney are cracked in a crazed pattern as observed with binoculars. This area of brick should be further assessed and may require rebuilding.

Miscellaneous

The ceilings in the four corner rooms are sloped along the perimeter of the rooms and extend upward to a flat central area. The ceilings are of a perforated metal paneling system which is corroded, especially in the northeast corner lunch room. Further assessment of the extent of the corrosion and condition of the roof structural members above is recommended. At minimum, the ceilings can be cleaned and recoated if to remain with the new use of the building.

Glazed tile and CMU walls form the classroom and corridor spaces, with steel lintels extending over openings. Where exposed, the steel lintels are surface corroded and will require cleaning and re-coating if the walls are to remain. Cracking in the walls is prevalent near the interior corners of the building. Additionally, several walls oriented perpendicular to the exterior walls are cracked. Some of the cracks have been repaired in the past, and some of these repaired locations are re-cracked. The cracking may be related to thermal or volumetric changes in the wall materials or relative stiffness of the walls within the structural frame system of the building, especially at the corners of the building where the corner detailing will provide additional restraint of the wall assemblies. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Water staining and distress in the paint on the CMU walls is frequent in the auditorium, lunch room and along the exterior wall system. The masonry elements are to be cleaned and recoated. In the corridors the glazed tiles are spalled near the fire-damaged classroom and displaced near a locker block removed by vandals. The wire ties between the glazed tile and concrete column at the locker block are corroded. If the finish is to remain, this area of glazed tile will require rebuilding.

PLOT PLAN

DR. OAKMAN SCHOOL

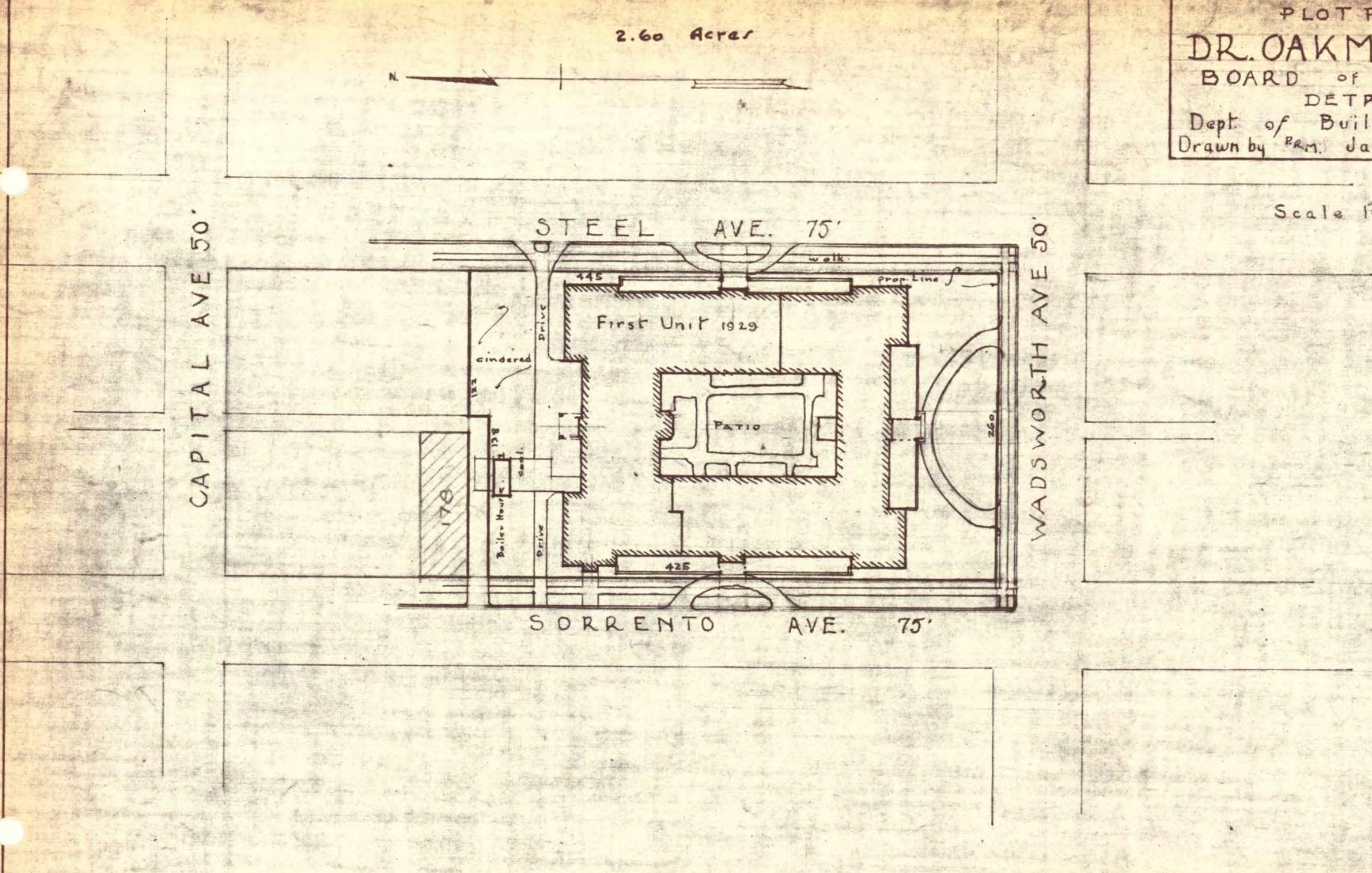
BOARD of EDUCATION

DETROIT

Dept of Building & Grounds

Drawn by R.R.M. Jan. 14. 1929

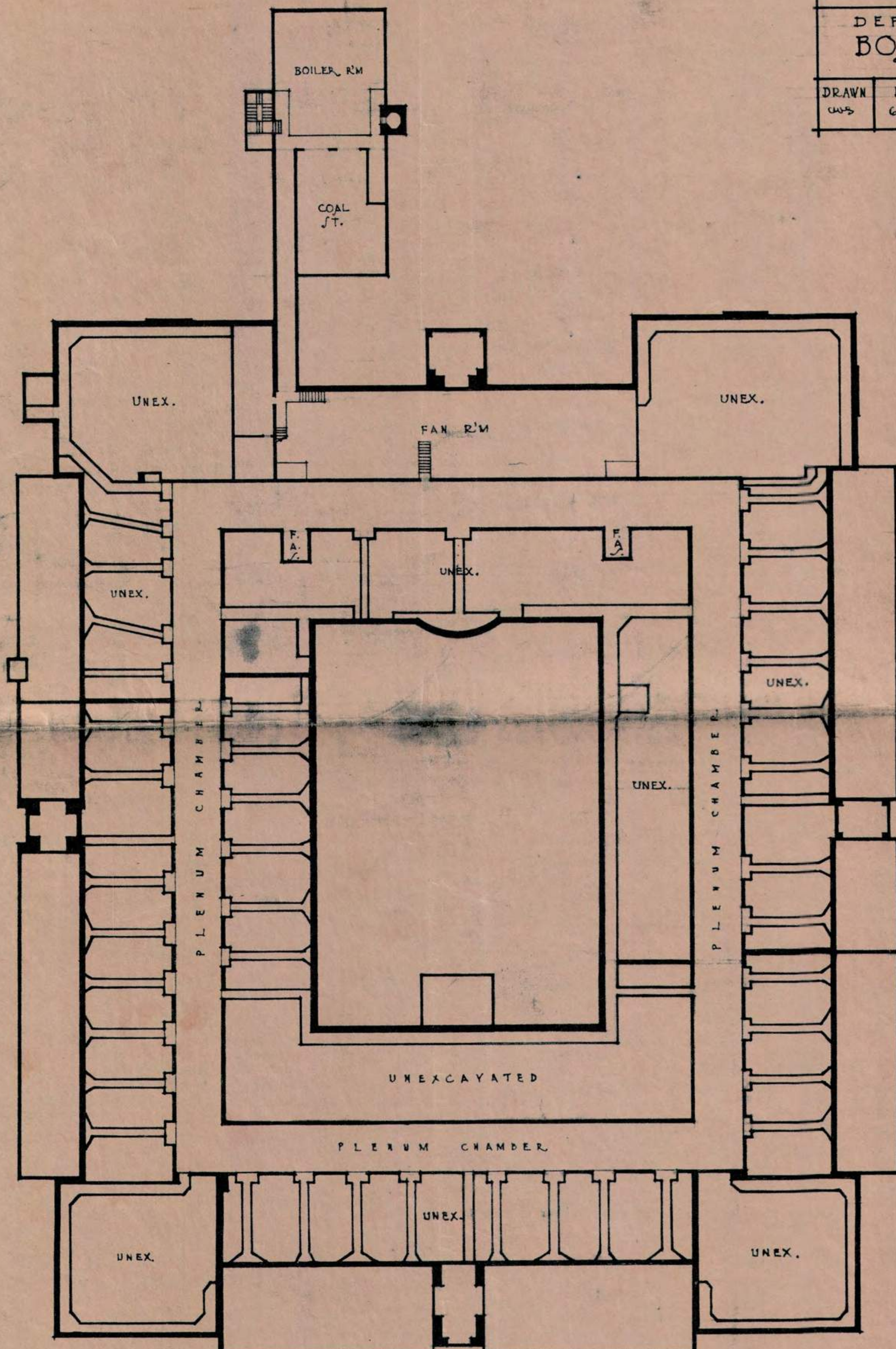
Scale 1" = 100'



OAKMAN SCHOOL
BASEMENT PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT-MICH

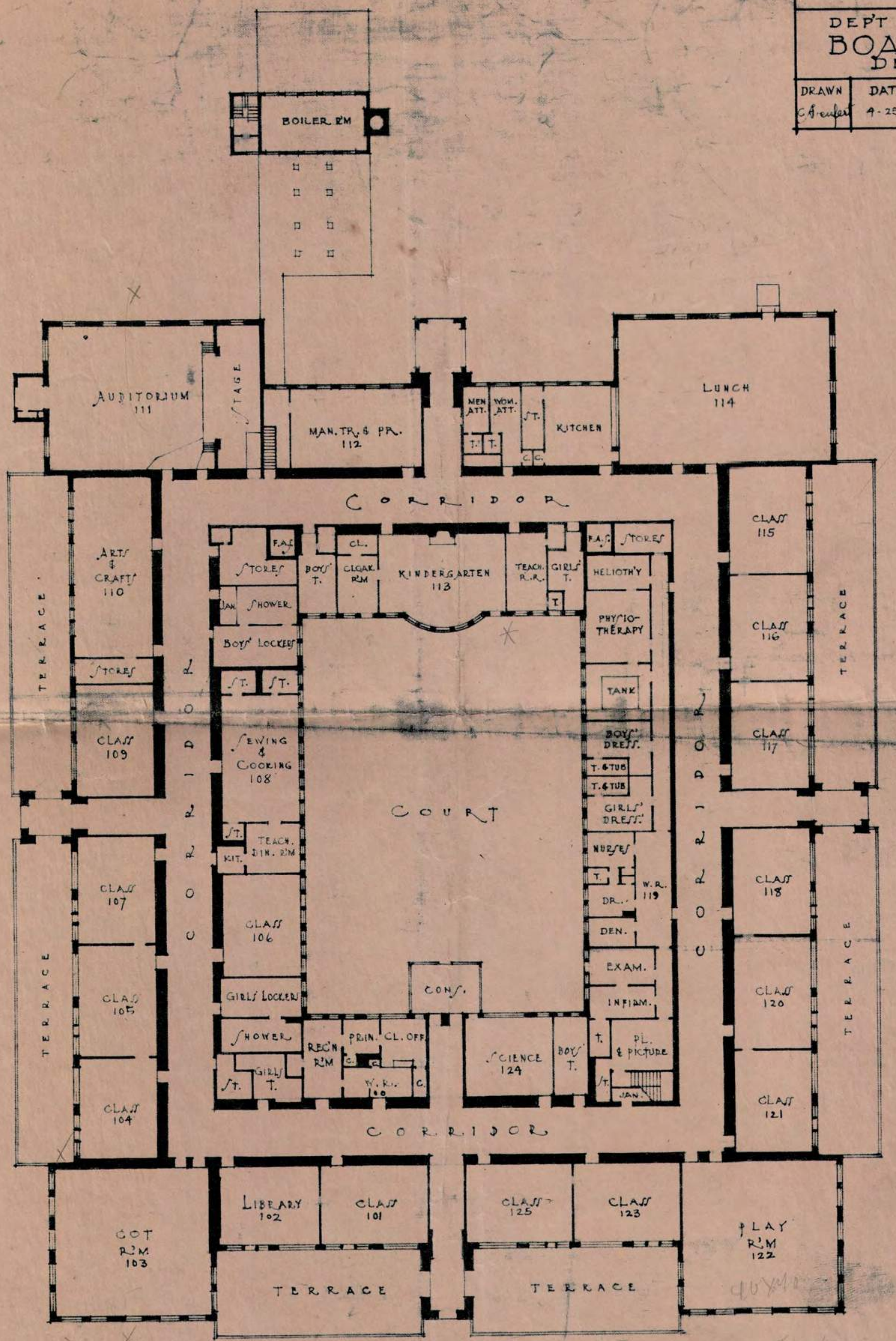
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
cws	6-11-29	[illegible]	6-17-29		



OAKMAN SCHOOL
GROUND FLOOR PLAN

DEP'T OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT — MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
C. Breufert	4-25-29	Z. J. S.	6-19-29		



Wiss, Janney, Elstner Associates, Inc.
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Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Parkman Elementary School

Basic Property Information: COD 7-Parkman-15000 Mackenzie

Short Name:	Parkman
Address:	15000 Mackenzie Street Detroit, Michigan 48228
Year Built:	1940
Additions Built:	1948, 1952
Outbuildings:	Powerhouse
Year Vacated:	2005
Building Footprint:	210 feet x 155 feet
Square Footage:	40,788 sq. ft.
Number of Stories:	2
Building Height:	27 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel
City Council District:	7	**Exterior Wall System:**	▪ Brick ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Steel-Framed
		Roofing System(s):	▪ Modified Bitumen ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	February 18, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 20, 2020
Building Risk Index:	**46.08**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$1,275,700
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,263,040
Sub-Total	$5,438,740
Contingency (25%):	$1,359,685
Sub-Total	$6,798,425
Overhead and Profit (15-18%):	$1,019,763
Sub-Total	$7,818,188
Escalation (6% for 2 years)	$469,091
Sub-Total	$8,287,280
Architectural and Engineering Design Services (20%):	$1,657,456
TOTAL COST ESTIMATE:	$9,944,736

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the buildings for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building envelopes from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the buildings, including the first floor of the powerhouse. The basement level is flooded, including the basement of the powerhouse, and thus, was not accessed. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the buildings; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the buildings, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

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BUILDING OVERVIEW

Overall

The original1940 building is a two-story structure, nearly square in footprint, and is located in the current southwest corner of the building. Within twelve years, two additions were added to the north and east, respectively, of the original building creating the current "U" shaped footprint of the building. The first addition was constructed in 1948; the second addition was constructed in 1952. A powerhouse, connected to the main building at the basement level, is located north of the 1948 addition.

The facade generally consists of multi-wythe clay brick masonry with concrete masonry (CMU) backup. Limestone masonry accents frame the entrances, window sills, coping, and horizontal bands. The building entrances contain original wood double doors, and the windows are original steel-framed windows. The low-slope roofing consists of a granular surfaced modified bitumen roofing membrane with aluminum faced base flashings. These roof areas are internally drained or contain hanging gutters.

The primary structural system consists of cast-in-place concrete floors spanning to concrete, or steel encased in concrete, beams and columns. Depending upon location within the building, the concrete roof and second floor are of flat slab and tee joist-slab with stay-in-place concrete masonry form construction. Both exterior and interior walls are of concrete masonry construction throughout the building. A portion of the first-floor structure over basement plenum spaces consists of precast concrete plank. The roof structure of the powerhouse consists of a board-formed concrete deck supported by steel beams and the perimeter masonry walls.

In general, the buildings are in good condition with the majority of observed distress resulting from water infiltration into the building due to removed and damaged copings and deterioration of the internal drains. Removed coping stones have allowed for direct water infiltration into the wall assembly and damage to the roofing and interior finishes. Repair of the roof elements are critical to maintain the sound condition of the existing structure. The original steel-framed windows and wood doors can be restored. Structural system distress was isolated in occurrence and is directly related to the distress in the building envelope. Further detail of the observed distress is provided below.

Facade

The masonry walls are in good condition, but are showing early signs of deterioration that will progress into more significant repairs if the ongoing bulk water infiltration into the wall assembly from deficiencies in the roofing and coping are not addressed. Localized areas of steel lintel corrosion was observed, which has resulted in masonry distress in some areas, including cracking, spalling, displacement and staining of the brick surfaces. The brick masonry is cracked near the top of the walls at some of the rounded building corners, which is attributed to corrosion of adjacent steel lintels or corroded anchors from adjacent wall mounted elements. Localized limestone units at the entrances are spalled due to corrosion of the embedded steel anchors. Rehabilitation of the building should include repair of the distressed masonry elements and embedded steel support elements to mitigate further distress.

The limestone coping units have been removed and set on the roof levels or are currently located at the base of the walls. Removal of these units has been attributed to vandals to access the copper flashing elements previously located below the coping stones. Where the flashing has been removed, the roofing membrane is typically pulled away from the masonry substrate, resulting in bulk water infiltration at those regions. Rehabilitation of the building should include the installation of new flashings and resetting the existing coping stones. Some of the existing coping stones are cracked or damaged, and may require replacement units. In the near term, temporary repairs should be considered to address the ongoing water management issues and stabilize the observed deterioration within the wall assemblies and building interior.

The original steel-framed windows are in good condition with minor corrosion, paint failure, and localized areas of damaged framing elements and missing glass. Where exposed, the original wood exterior doors are generally in fair condition with minor decay and paint failure. The original window and door assemblies can be restored.

The original conservatory is also largely intact with minor deterioration of the wood and metal frame and glass elements. Rehabilitation of the building could include restoration of the original conservatory depending on the future building use.

Roofing

The roofing assemblies are in poor condition, largely due to the missing limestone and flashing elements and deterioration of the internal drains. Localized cracking and seam failures were observed, and deterioration of the roof insulation was noticed underfoot in several areas. Water was ponded at some drain bowls, and organic growth was observed in some areas. A majority of the water infiltration within the building interior was observed to be a result of failed drains pipes, which are positioned within the interior walls, though several of the classroom wall and ceiling finishes were intact and dry. Rehabilitation of the building should include removal and replacement of the existing roof assemblies and replacement of the internal drains and drain pipe systems. In the near term, temporary roofing repairs should be considered to address the ongoing water management issues and stabilize the observed deterioration within the wall assemblies and building interior.

Structure

The structure is in good condition; exhibiting distress at only isolated locations.

Water staining was apparent throughout, but more noticeably in the eastern, 1952 addition where active water infiltration was observed between the concrete and concrete masonry stay-in-place formwork. At the east, single story alcove on the southeast corner of the building, the reinforced concrete roof deck is deteriorated at its exposed edge, resulting from missing flashing and roofing deterioration of this small roof area. Concrete repairs at this location are recommended to be coordinated with the recommended roofing repairs.

In the gymnasium, steel corrosion, primarily of the perforated metal ceiling system but also of the steel roof beams, is present at the perimeter of the ceiling. In the powerhouse, the exposed steel beams are corroding in the proximity of the roof drain. From a distance, the corrosion in each location appears to be minor, but should be further assessed to determine if reinforcement of the steel is required and to verify the condition of the structural roof deck above the perforated ceiling system. After assessment and at minimum, the steel is recommended to be cleaned and re-coated with a rust inhibiting paint.

The second-floor corridor ceiling of the 1952 addition is composed of gypsum planks spanning between structural steel members. Spot corrosion is present on the visible surface of the structural steel members. The gypsum plank is exposed, visually saturated, cracked and eroded in multiple locations, deeming the attic and roof levels unsafe for access. Once saturated, gypsum planks are typically not salvageable, therefore the second-floor corridor ceiling is recommended to be replaced with a new attic floor structural system in this area of the building.

Approximately three feet of ponded water was observed in the basement level preventing access to the basement spaces. The portions of the basement walls and underside of the first-floor structure visible from the point of access are in good condition with no distress observed. The basement should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.

Miscellaneous

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Some of the CMU walls are cracked at exterior wall corners and along interior walls, most notably the east and south walls of the gymnasium. Repairs had been attempted at some of the crack locations. Further investigation is recommended to determine the cause of the distress, but it is suspected to be related to the water infiltration occurring and thermal or volumetric changes in the wall materials. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

PARKMAN SCHOOL
PLOT PLAN

ARCHITECTURAL PLANING DEPT.
BOARD OF EDUCATION
DETROIT MICHIGAN

Drawn by LM. oct 23/30 | Revised by S4. 1948 Feb.
Revised 5/19/55 D.C.
REVISED 6/22/55 G.J.

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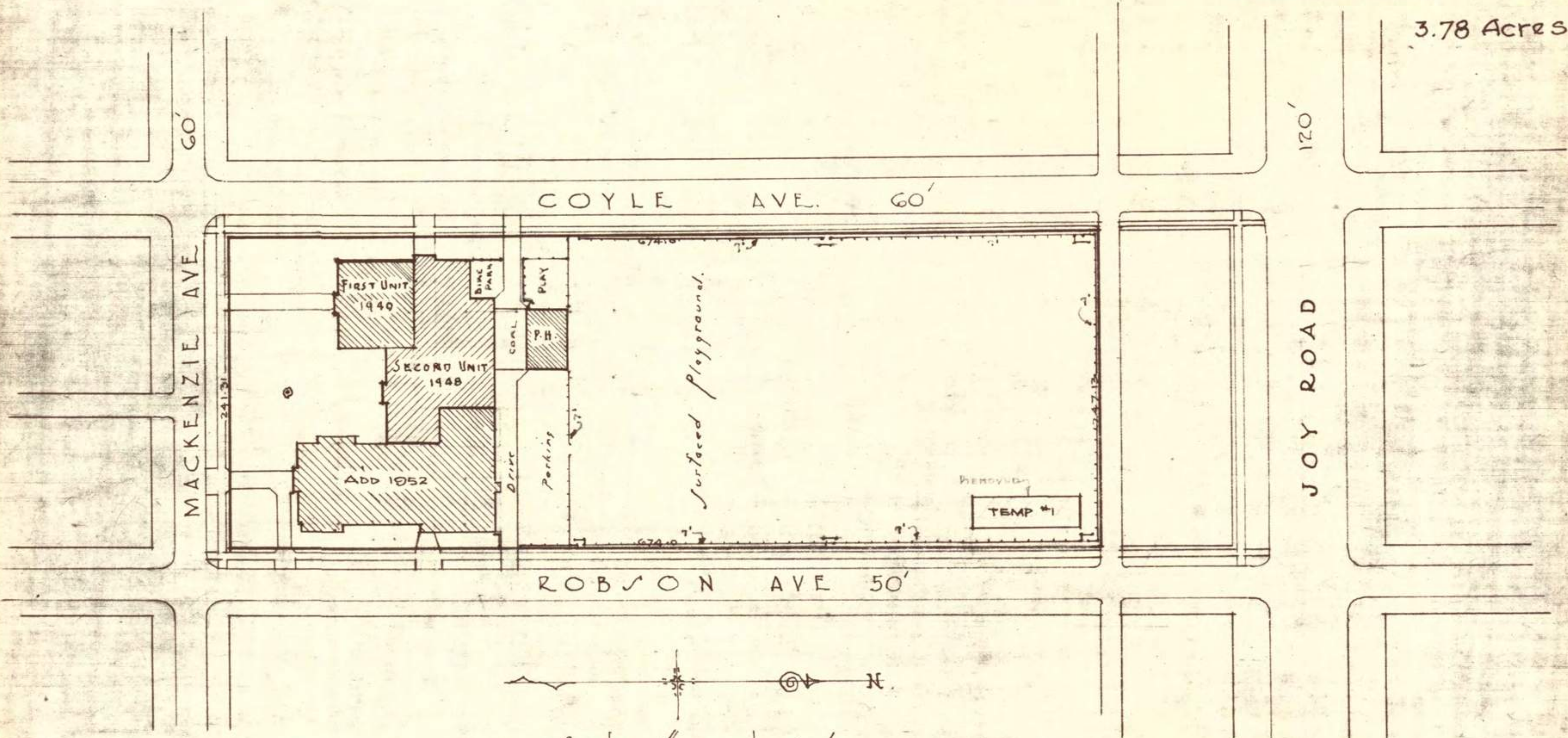

Scale 1" equals 100'

Revised 5/19/68 P.B.

PARKMAN

BASEMENT PLAN

ARCHITECTURAL PLANING DEPT.

BOARD OF EDUCATION

DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.H.M.	11-29-46	LANDSING	7-16-53		

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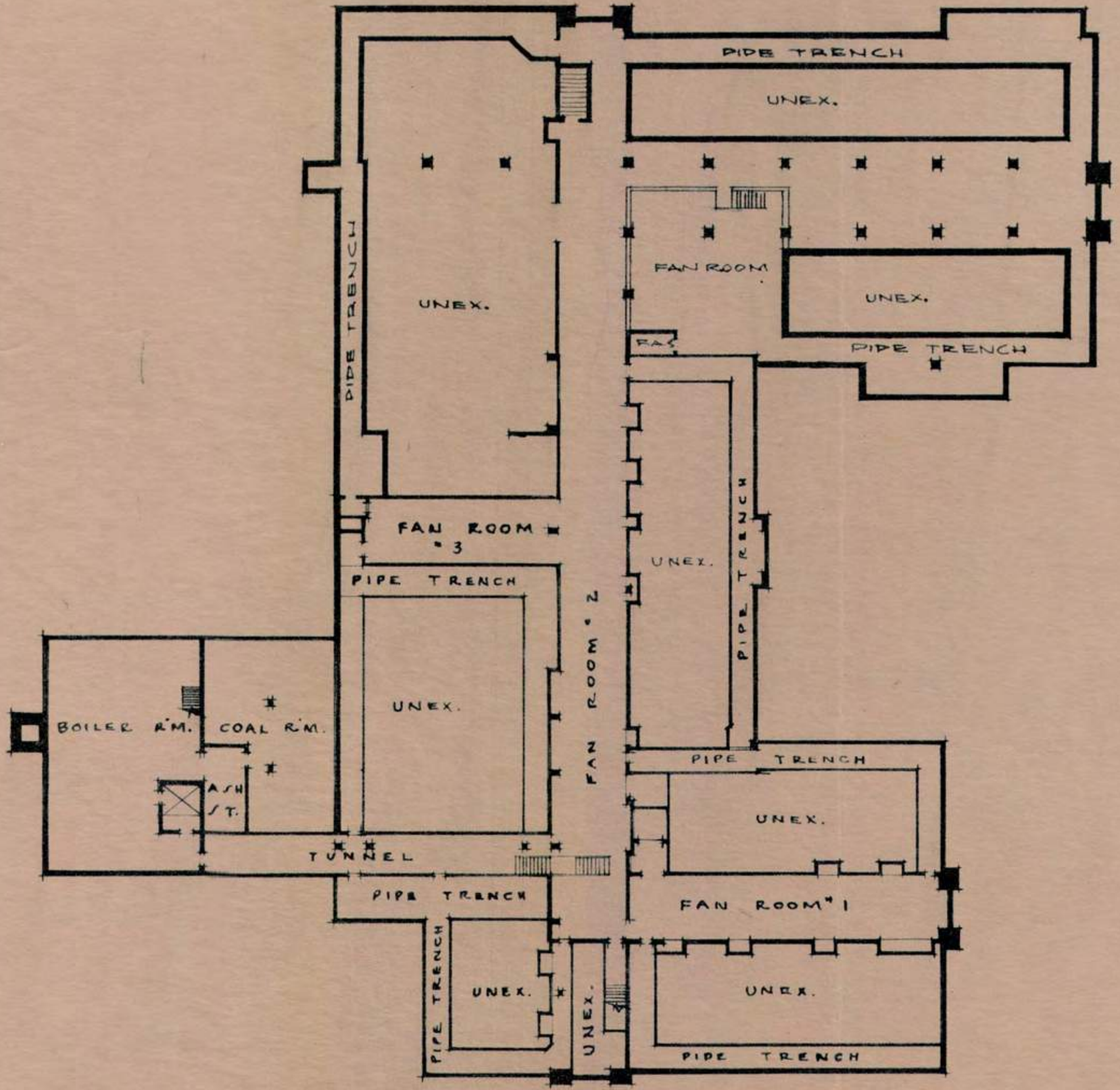

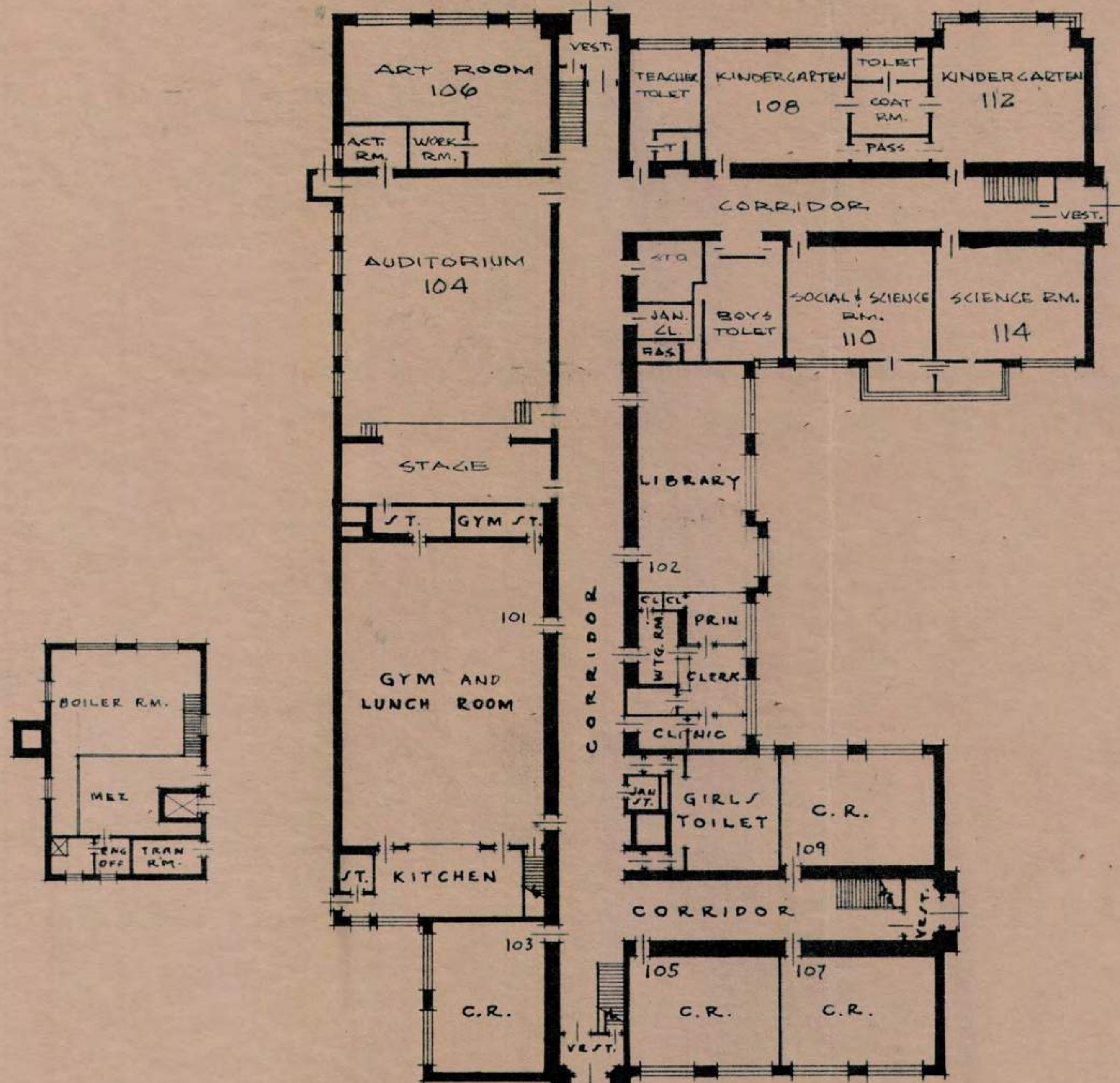

Revised 5/19/55
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PARKMAN
FIRST FLOOR PLAN

ARCHITECTURAL PLANING DEPT.
BOARD OF EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.H.M.	11-27-46	LANSING	7-16-53		

SCALE 1/32" = 1'-0"

REVISED 5/19/55 DC

PARKMAN

SECOND FLOOR PLAN

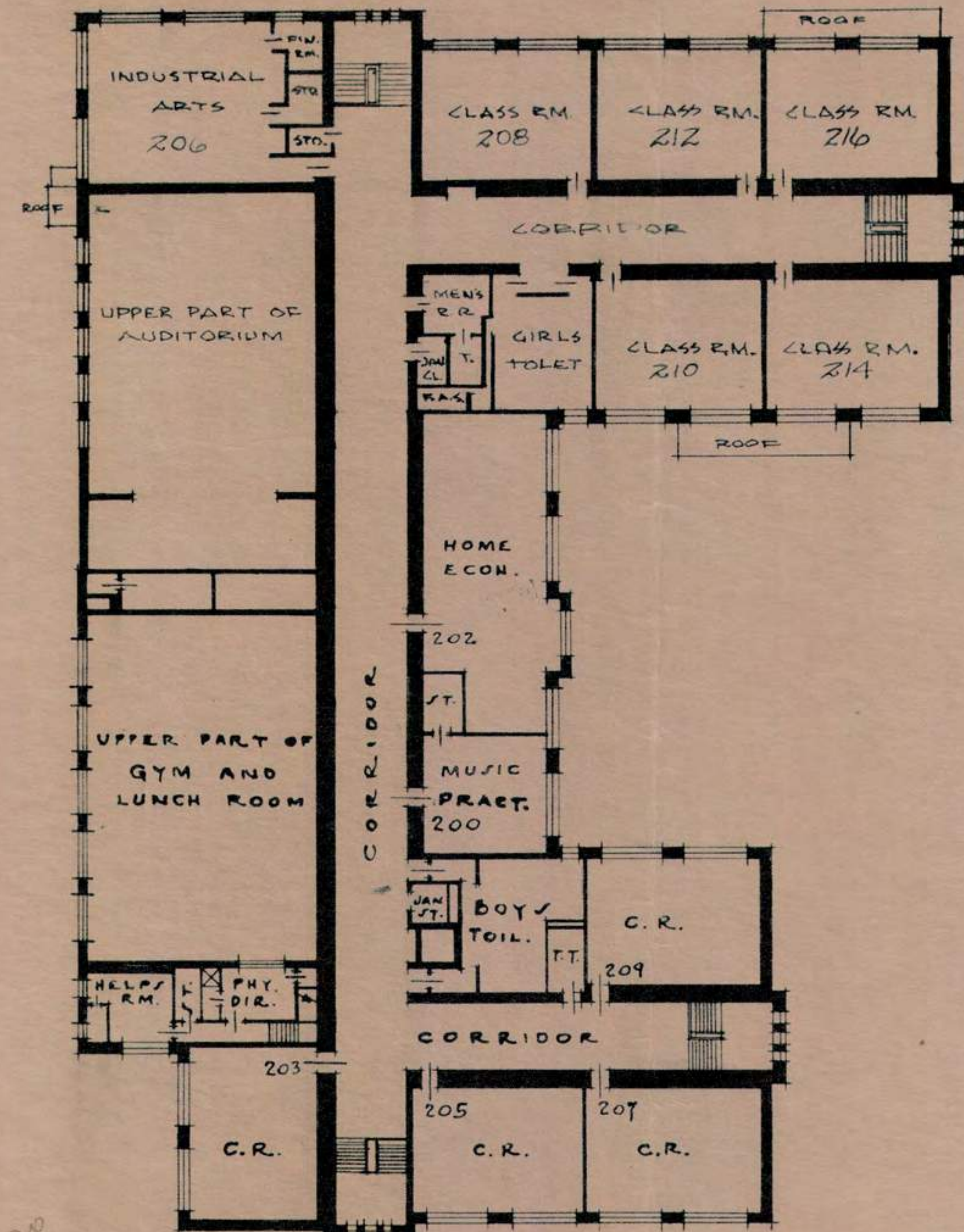
ARCHITECTURAL PLANING DEPT.

BOARD OF EDUCATION

DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.H.M.	11-29-46	LANSING	7-16-53		

SCALE 1/32" = 1'-0"



Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Parker Elementary School

Basic Property Information: COD 7-Parker-12744 Elmira

Short Name:	Parker
Address:	12744 Elmira Street, Detroit, Michigan 48227
Year Built:	1927
Additions Built:	1973
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	365 feet x 140 feet
Square Footage:	55,363 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	7	**Exterior Wall System:**	▪ Limestone ▪ Granite ▪ Brick
SNF District:	NA	**Window System(s):**	▪ Wood
		Roofing System(s):	▪ Built-Up Roof (assumed) ▪ Internal Roof Drains

Assessment Summary

Assessment Date:	February 13, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 16, 2020
Building Risk Index:	**81.37**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,764,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,429,040
Sub-Total	$7,093,040
Contingency (25%):	$1,773,260
Sub-Total	$8,866,300
Overhead and Profit (15-18%):	$1,329,945
Sub-Total	$10,196,245
Escalation (6% for 2 years)	$611,774
Sub-Total	$10,808,019
Architectural and Engineering Design Services (20%):	$2,161,603
TOTAL COST ESTIMATE:	$12,969,623

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded, and thus was not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)
- Environmental Reports
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story, original portion of the building is primarily rectangular in footprint, with a central wing minimally extending to the north. A single-story addition was constructed to the north, connected to the eastern end of the original building with a small connector link hallway.

The facade generally consists of multi-wythe clay brick masonry. Limestone accent pieces frame the entrances, window sills, coping, ornamental bands, and other localized ornamental features. Granite masonry is present within the alcove on the south facade. The original wood-framed window openings and exterior doors are currently boarded with plywood. The low-slope roofing was not accessed due to ladder limitations, but it likely consists of an internally drained, built-up roof or modified bitumen roofing that may be gravel-surfaced.

The structural system generally consists of reinforced concrete beams and columns supporting reinforced concrete floor and roof construction. The concrete tee joist-slab floor and roof decks are supported by the interior beam and column line and the perimeter mass masonry walls. The wood and metal forms for the concrete construction have been removed, potentially for reuse during original construction. The majority of the interior walls are non-load bearing partitions constructed of gypsum tile units and metal lathe-supported plaster. The north central portion of the building, housing the gymnasium and auditorium, is of brick masonry wall construction supporting structural steel trusses which support the wood plank roof deck.

A pre-fabricated, steel-framed addition is connected with a small, single-story, steel-framed corridor to the central north end of the main building. The pre-fabricated structural elements of the addition are nearly all that remain in place. All exterior walls and interior partitions, excepting a concrete masonry unit (CMU) core, are missing or damaged; suspended ceiling tiles and light fixtures are in place only in the northernmost bay.

Although initial appearances of the existing conditions are concerning based on the magnitude of the failure of the finishes, the main building is in a good condition. The roof and windows require replacement. Failed and missing roof drains and missing mechanical rooftop units are allowing a significant amount of water to collect on the top of the second-floor corridor and drain to the first-floor corridor. The extent of ponded water is leading to material degradation of the concrete roof and second floor structure, as well as deterioration of the interior finishes. The main structural frame, which is either conventionally reinforced concrete, or structural steel encased in concrete, is in good condition. The tee joist-slab system supported by the interior beams and perimeter masonry walls exhibits minor distress related to the water infiltration from the deteriorated condition of the roof system, primarily in the corridors. The plaster finishes are fully deteriorated and missing in the corridors; some plaster is present in the classrooms but is deteriorating and the wood flooring is buckled. Window barricades were missing in several locations, and at the time of our assessment, it was apparent that this building was actively utilized by others. Of note, a gas-like smell was noted in the north side of the west end of the building, and multiple deceased and live animals were found within the building. Further detail of the observed distress is provided below.

Facade

The mass masonry walls are in relatively good condition. Localized cracking and masonry displacement were observed, which is primarily attributed to water infiltration into the wall assembly and subsequent corrosion of the embedded steel lintels. Deterioration of the brick masonry mortar was frequently observed at the parapets, potentially due to water infiltration into the parapets due to deterioration of the roofing and/or parapet flashings. Mortar within the limestone and granite masonry joints is also frequently deteriorated. Rehabilitation of the building should include repair of these masonry elements to mitigate water infiltration within the wall assembly and building interior, and to mitigate further distress.

The wood windows and frames are significantly distressed or missing and require replacement. Several existing plywood coverings over the window openings are displaced or missing, which is permitting weather exposure to the interior elements and reduces building security. Such temporary window coverings should be maintained to mitigate further water infiltration-related distress and deter vandalism. Rehabilitation of the building should include replacement of the window assemblies.

Roofing

The low-slope roof levels were not accessed at the time of this assessment due to access ladder limitations. Drains and rooftop mechanical units are typically damaged or missing, resulting in bulk water infiltration into the roofing assembly and second floor corridors. At the lower roofs of the building entrances, holes in the roofing assembly were visible from below and significant water damage was present within the wood framing and decking elements. Rehabilitation of the building should include removal and replacement of the low-slope roofing assemblies and internal drain and pipe systems.

Structure

With the exception of isolated areas, the structure is in good condition. The interior finishes are in a state of deterioration, exposing the structural framing systems, especially in the primary corridor spaces.

The roof and second-floor concrete tee joist-slab systems are exposed on the underside in the corridor spaces and have localized areas of efflorescence and corrosion staining. Cracking is present in the underside of the slab between the joists and at each end of the beam framing the southern central entryway. A small hole in the floor of a second-floor bathroom space located east of the gymnasium is currently covered with debris; the hole is only visible from the underside. A relatively small area of the second-floor concrete tee joist-slab structure is exposed in the library space where there has been a fire event which has destroyed all the finishes in this room. The soot is recommended to be encapsulated or cleaned from the remaining concrete structure. The second-floor concrete structures are recommended to be further assessed up-close. Partial-depth concrete repairs are anticipated in some locations.

Above the second-floor corridor, an attic catwalk structure is minimally constructed with two wood planks supported on the metal ceiling system. Planks were visibly saturated with fungal growth on the underside. Replacement of the existing attic catwalk with an appropriate system for maintenance access is recommended.

The wood plank roof decking is visibly wet where exposed from the underside in the gymnasium and auditorium spaces. The wood decking is spanning between rolled steel sections supported on built-up steel trusses. Surface corrosion of the structural steel is visible but appears to be minor as observed from floor level. Further, up-close assessment of the corroded structural steel members is recommended after the corrosion is cleaned, and prior to recoating of the steel framing. The wood decking should be replaced where deteriorated. Both the repairs to the wood decking and steel roof framing are recommended to be coordinated with the roofing repairs.

Vertical cracking in the brick construction of the east gymnasium wall is occurring where the north wall of the east wing intersects the east wall of the gym. A steel roof truss may be bearing at this location, and corrosion of the steel may have caused the initial cracking which allowed water to enter the crack and further develop the crack. The crack may also be related to movement of the north wall of the east wing, which may have induced the cracking to relieve restraint at the wall intersection. The movement of the east wing north wall could be related to settlement or shifting of the support of this wall in the flooded basement area below. Comparison of observations during the 2020 assessment and other photographs of this same area found on the internet indicate the crack has expanded both in width and length since the building has been vacated. Further investigation is appropriate to understand the cause of the observed cracking prior to implementing repairs.

Additional cracking was observed in the brick masonry at the north window of the east wall of the gymnasium. The mortar on the side of the key brick at the window arch above this opening is missing and appears to be related to a horizontal crack on the interior face of the brick occurring at the suspended ceiling elevation. Cracking below this window, previously repaired and re-cracking, is also present. The cracking below the window may be related to corrosion of the embedded steel lintel for the recessed radiator that was at this location and/or for piping related to this radiator.

Approximately three feet of ponded water was observed in the basement level preventing access to the basement spaces. The portions of the basement walls and underside of the first-floor structure visible from the point of access are in good condition with no distress observed. The basement should be dewatered allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

North Addition

The eight-bay, pre-fabricated steel-framed structure is fully exposed due to the missing finish elements. The steel roof structure is of C-shaped purlins spanning north-south to steel bents comprised of tapered steel beams and wide-flange columns. A metal roof deck spans between the purlins. As the structure currently stands, it is performing as an open-air structure without an apparent lateral restraint system in the north-south direction. Most likely, the pre-fabricated frame was not engineered for the wind loads generated by an open-air structure.

All of the exposed steel is shop-painted, with localized areas of minor surface corrosion occurring. The concrete coverings at the base of the columns are broken or damaged above grade level, however the anchor bolts and column appear to be in sound condition. The concrete slab-on-ground appears to have heaved in relation to the top of the column foundations where debris was cleared away from the column bases.

The structural steel is salvageable for re-use, potentially in place with potential replacement of the slab-on-ground depending upon its condition once exposed, or the steel structure can be relocated to a new foundation system. Regardless if the structure is to remain or be relocated, the steel structure is recommended to be cleaned and re-coated, then re-enclosed with perimeter wall and new roofing systems to make the building weathertight. The connector link between the addition and the main building can be treated in a similar fashion.

Miscellaneous

Many of the finishes of the classroom walls oriented perpendicular to the exterior walls and the stairwell walls are cracked vertically or diagonally along the length of the walls. Repairs have been attempted at some of the crack locations. The cracking may be related to thermal or volumetric changes in the wall materials or relative stiffness of these non-structural walls restrained within the structural frame of the building. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

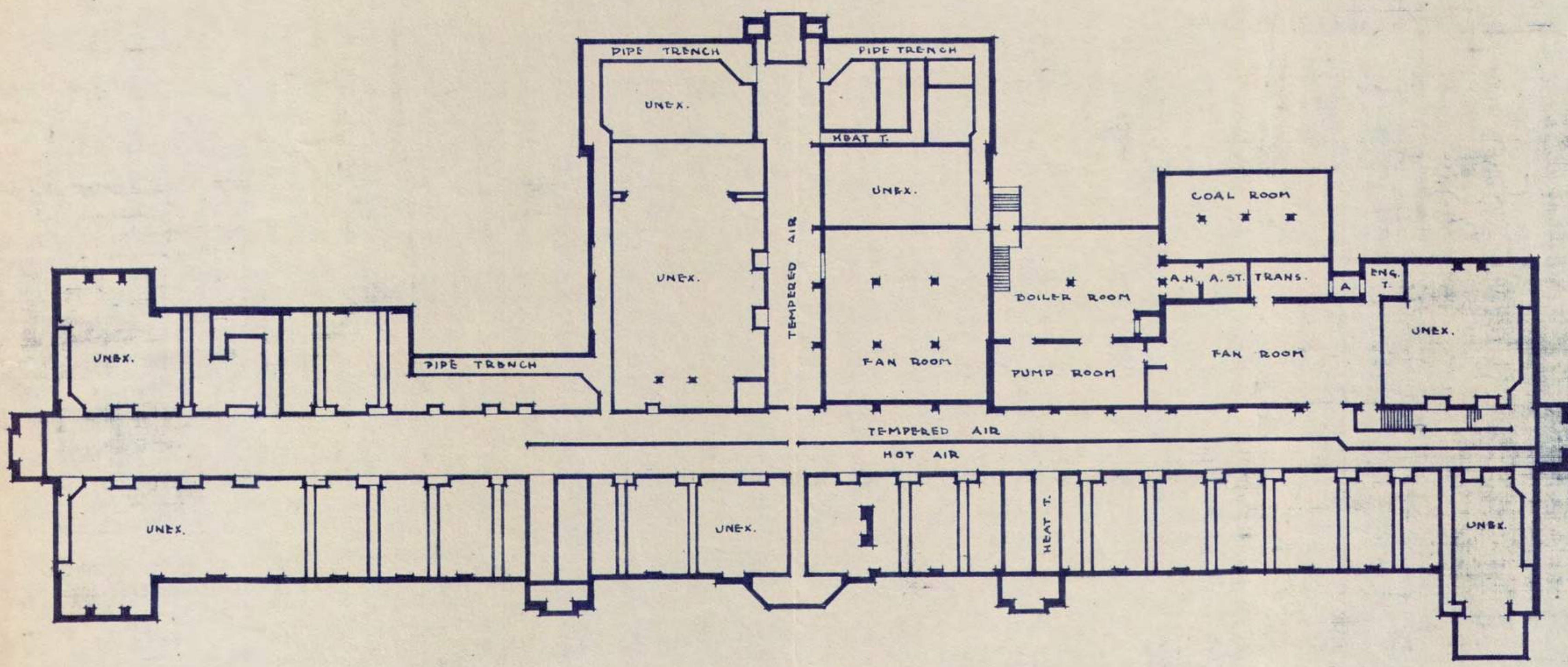
Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Steel-framed stairs located in the north wing and up to the projection room of the auditorium are heavily corroded on their surface. Cleaning of the stair framing and further structural investigation is recommended to assess the remaining capacity of the stairs and, if appropriate, make repairs. Planning to replace the stair systems is a conservative budgetary approach.

PARKER SCHOOL

DEPARTMENT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-29-27				

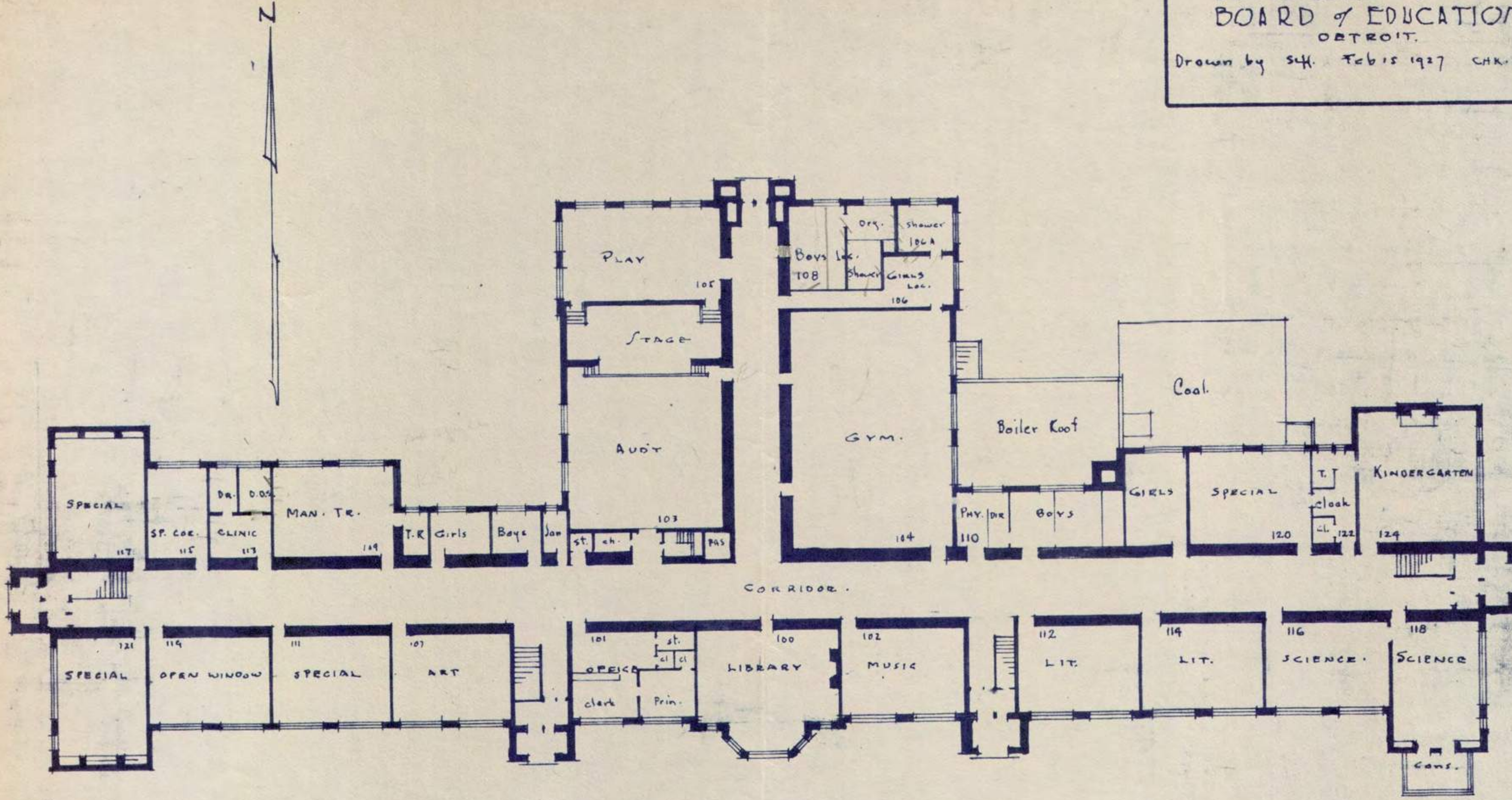


BASEMENT PLAN
SCALE $\frac{1}{32}$" = 1'-0"

PARKER SCHOOL.

DEP'T OF BUILDING & GROUNDS
BOARD of EDUCATION.
DETROIT.

Drawn by S.H. Feb 15 1927 CHK. 2-25-27.

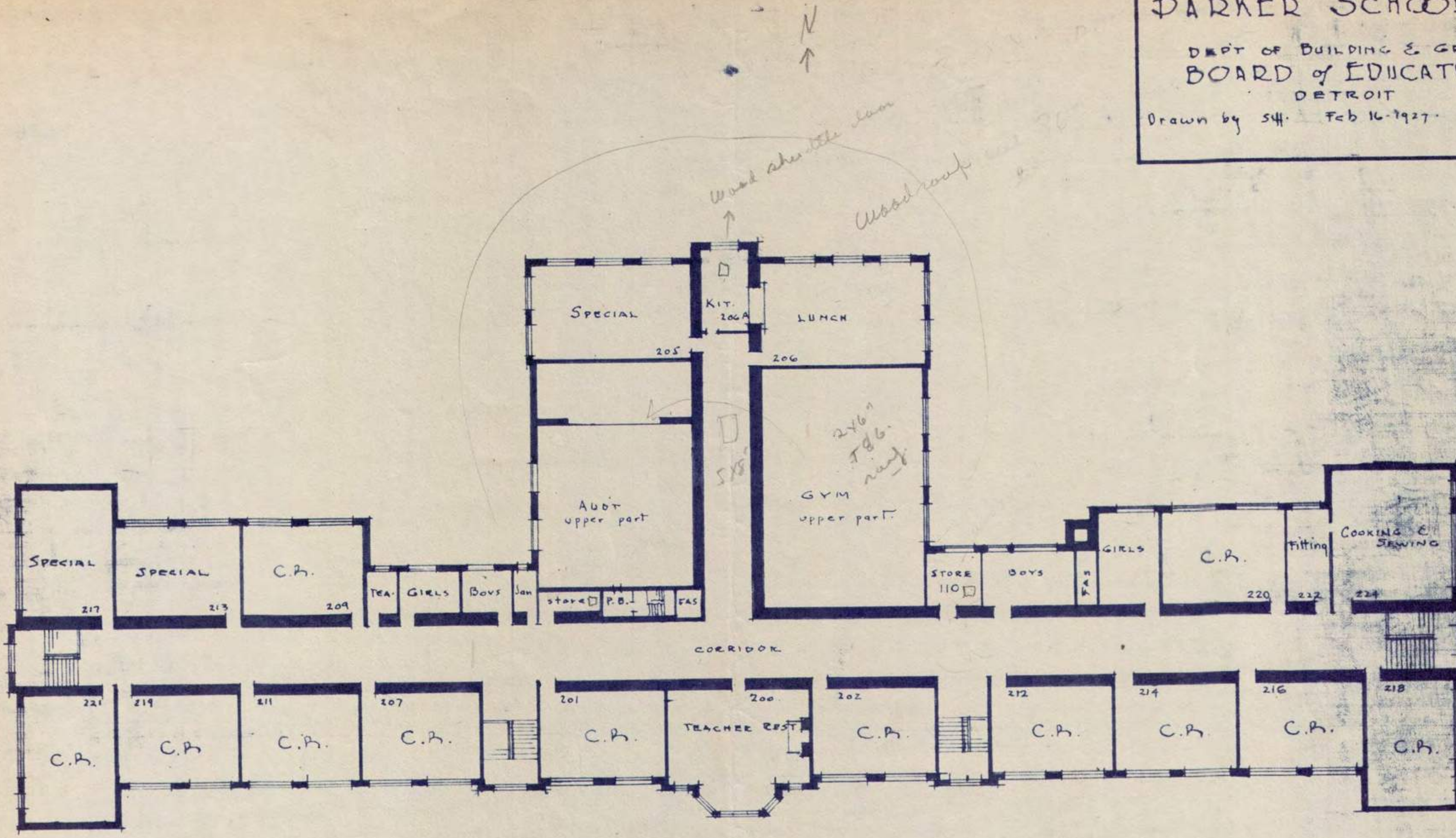


FIRST FLOOR PLAN.
Scale 1/32" = 1'-0"

PARKER SCHOOL.

DEPT OF BUILDING & GROUNDS
BOARD of EDUCATION.
DETROIT

Drawn by SH. Feb 16-1927. M. E. L. 2-25-27.



SECOND FLOOR PLAN

Scale 1/32" = 1'-0"

Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Weatherby Elementary School

Basic Property Information: COD 7-Weatherby-12099 Fielding

Short Name:	Weatherby
Address:	12099 Fielding Street, Detroit, Michigan 48228
Year Built:	1956
Additions Built:	None
Outbuildings:	None
Year Vacated:	2005
Building Footprint:	180 feet x 180 feet
Square Footage:	27,418 sq. ft.
Number of Stories:	2
Building Height:	29 ft.

Current Ownership:	City of Detroit	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ CMU ▪ Cold-Formed Steel Deck
City Council District:	7	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone ▪ Storefront
SNF District:	NA	**Window System(s):**	▪ Aluminum ▪ Storefront ▪ Steel-framed ▪ Glass Block
		Roofing System(s):	▪ Built-Up Roof ▪ Modified Bitumen ▪ Internal Roof Drains ▪ Stone Ballast

Assessment Summary

Assessment Date:	March 05, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush; Justin Barden, Meredith Crouch
Report Date:	November 16, 2020
Building Risk Index:	**21.33**

Cost Estimate

Base Rehabilitation Cost Estimate:	$427,700
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,193,440
Sub-Total	$3,521,140
Contingency (25%):	$880,285
Sub-Total	$4,401,425
Overhead and Profit (15-18%):	$792,256
Sub-Total	$5,193,681
Escalation (6% for 2 years)	$311,620
Sub-Total	$5,505,302
Architectural and Engineering Design Services (20%):	$1,101,060
TOTAL COST ESTIMATE:	$6,606,362

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. Limited access to the attic was obtained near the roof hatch. The basement level is flooded, and thus, was not accessed. The interior finishes consist of durable materials including painted masonry, concrete and metal decking, and are generally intact. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for

example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)

- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior’s Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building, constructed in 1957, is "L" shaped in plan. A powerhouse is located on the far north end of the building footprint, while the gymnasium and auditorium are located on the west and southwest ends of the building, respectively.

The facade generally consists of brick masonry veneer and limestone sill units over concrete masonry (CMU) backup. Ribbon windows contain glass block infill with operable metal-framed windows within lower lites. The glass block infill and operable units sit within steel frames constructed of C-shaped and I-shaped members. Aluminum storefront assemblies are present in select locations, such as stairwells and entrances. The internally drained, low-slope roof assembly consists of a gravel surfaced, built-up roofing (BUR) system with granulated cap sheet base flashing and an aluminum coating. The sloped roof area over the gymnasium consists of granular modified bitumen roofing which is internally drained near the exterior walls. The roof structure extends outward past the exterior walls to create an overhang around the building perimeter.

The building structure consists of long span metal deck for concrete tee joist-slab construction supported by a concrete beam and column system. A localized area above the second-floor corridor is constructed of a flat concrete slab; the remaining corridor ceiling consists of a gypsum plank ceiling system which is suspended from the concrete flat slab of the roof above. Painted CMU walls infill the space between the concrete beams and columns; glazed masonry units are used in the lower portions of the corridor walls. The gymnasium structure consists of concrete encased steel bent frames with perforated metal panels spanning between the frames. The auditorium construction is similar to the gymnasium excepting the bent frames are simple span dropped beams.

In general, the building is in good condition with limited deterioration observed within the structural systems, facade, and interior finishes due to localized water infiltration into the building. The window and storefront assemblies are generally intact and can be repaired in-place. Maintenance-type roofing repairs should be completed to extend the service life of the existing roof assemblies, and mitigate further water infiltration into the building interior. Additional evaluation of the metal formed floor and roof structures is also recommended to confirm the metal deck on the underside of the structure is a form for the cast-in-place concrete structure. Further detail of the observed distress is provided below.

Facade

The masonry facade is generally in good condition. Minor localized cracking of the brick masonry is attributed to corrosion of embedded or adjacent steel elements. Isolated limestone sill units are cracked or spalled due to corrosion of the embedded anchors and perimeter steel window frames, and mortar between the stone units is generally cracked, debonded, or missing. Some sills are displaced. Vertical cracks in the brick masonry were observed at the corners of the chimney, though notable displacement was not observed. Rehabilitation of the building should include maintenance repairs to address the conditions above and to mitigate further masonry distress. These recommended repairs include grinding and pointing distressed mortar, replacing isolated cracked brick units, repairing or resetting limestone sills as needed, and repair of the corroded steel lintels with durable flashing details.

The soffit below the roof level overhang around the building perimeter exhibits localized areas of water staining, cracked and peeling paint, and isolated regions of minor cracking and spalling due to water infiltration through the roof assembly. The perimeter metal trim conceals the edge of the assembly. The condition of the concrete roof slab in these areas should be investigated to determine if structural repairs are required. The exposed areas of the soffit should be cleaned and repainted.

The operable, metal-framed windows exhibit limited cracked glass lites and widespread perimeter sealant failure. Localized glass block units above the operable windows are displaced, damaged, or missing. Corrosion of the perimeter steel frames is visible from the exterior and interior, and has caused localized cracking of adjacent masonry units. The storefront assemblies are in serviceable condition with sealant failure and localized cracked glass units observed. The conventional steel doors are generally corroded and damaged. The windows and storefront assemblies may be restored, though the conventional steel doors should be replaced.

Roofing

The roofing assemblies are in serviceable condition and exhibit only localized areas of distress, including weathering, seam failures, cracking, ponded water, and organic growth. Failure of sealants was also observed at roof penetrations and at counterflashings. Minor water damage to the building interior finishes and structural elements was observed in limited areas due to failed drains and drain conductors, which should be replaced or repaired. Rehabilitation of the building should consider maintenance repairs in localized areas to extend the service life of the existing roof assembly and to mitigate future water-related distress within the building interior or exterior wall assemblies.

Structure

The building structure is in excellent condition with minimal visible distress in the concrete systems or in the glazed tile and painted concrete masonry walls, excepting isolated locations where vandals have damaged the walls.

Minimal corrosion and paint loss have occurred on the underside of the concrete and long span metal deck systems of the classrooms and common spaces. The metal deck[1] is fire damaged in the art room and at the second-floor stairwell. Neither corrosion nor fire damage of the metal deck are a structural concern if the deck was used as a form deck for the concrete structure, but this could be a structural concern if it is behaving compositely with the concrete. Additional investigation would be required to determine if the deck is composite. At a minimum, the exposed steel is recommended to be cleaned and re-coated with a rust inhibiting paint as part of the rehabilitation effort.

The underside of the concrete joist slab system of the roof structure exhibits corrosion staining, exposed reinforcement, and efflorescence in isolated areas. These conditions are most prevalent throughout the roof structure above the boiler room. Preventing the water infiltration into the boiler room roof structure via implementation of localized roofing repairs will prevent the need for extensive concrete repairs in this

[1] Initial review of the 1950s era long span metal deck system indicates the decking is acting non-compositely with the concrete tee joist-slab, that the decking was used as a stay-in-place form for the cast-in-place concrete. However, a non-technical, marketing brochure from this era was noted to advertise the decking as a “composite” concrete floor system.

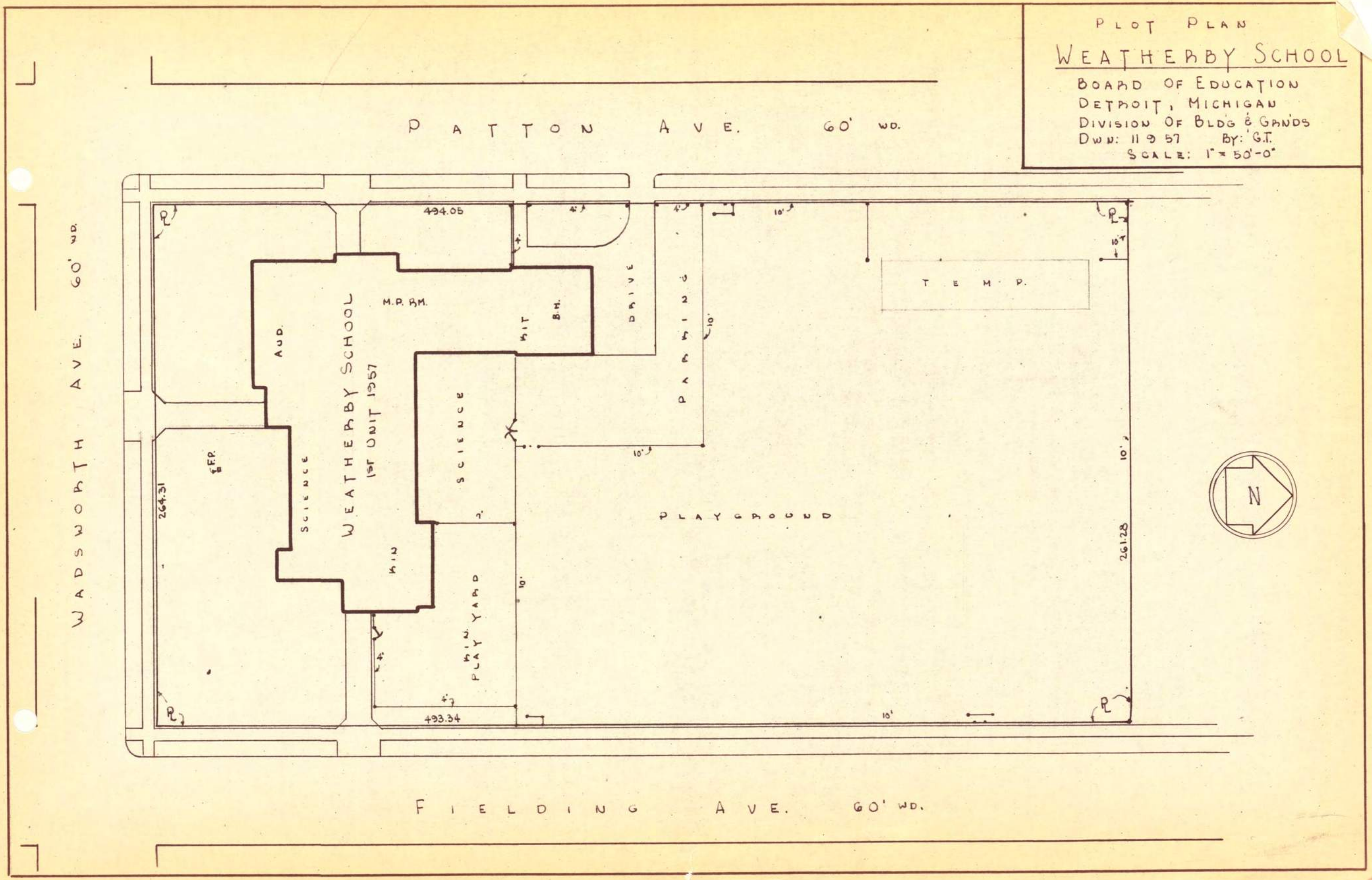
area in the future. Cleaning of the underside of the roof structure that is exposed to the interior space will allow for assessment of the existing concrete. Minimal partial depth concrete repairs are anticipated for this roof structure.

Approximately two feet of ponded water was observed in the basement level preventing access to the basement spaces. The basement should be dewatered allowing for assessment of the basement level, prior to the implementation of the recommendations stated herein.

Miscellaneous

Vertical cracks exist in the CMU in multiple locations, which most are attributable to inadequate support, water infiltration, and thermal or volumetric changes in the wall materials. Previous repair of the corner cracking at the exterior wall of the stage has recurred. Cracking within select walls, such as interior classroom walls, may be related to the relative stiffness of the walls within the structural building frame system. Repointing of the cracked mortar joints and replacement of cracked units is recommended. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.


PLOT PLAN
WEATHERBY SCHOOL
BOARD OF EDUCATION
DETROIT, MICHIGAN
DIVISION OF BLDG & GRNDS
DWN: 11 9 57 BY: G.T.
SCALE: 1" = 50'-0"
PATTON AVE. 60' WD.
WADSWORTH AVE. 60' WD.
FIELDING AVE. 60' WD.
494.05
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264.31
261.28
WEATHERBY SCHOOL
1ST UNIT 1957
M.P. RM.
AUD.
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B.R.
SCIENCE
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KIN PLAY YARD
DRIVE
PARKING
TEMP.
PLAYGROUND
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WEATHERBY SCHOOL

BASEMENT PLAN

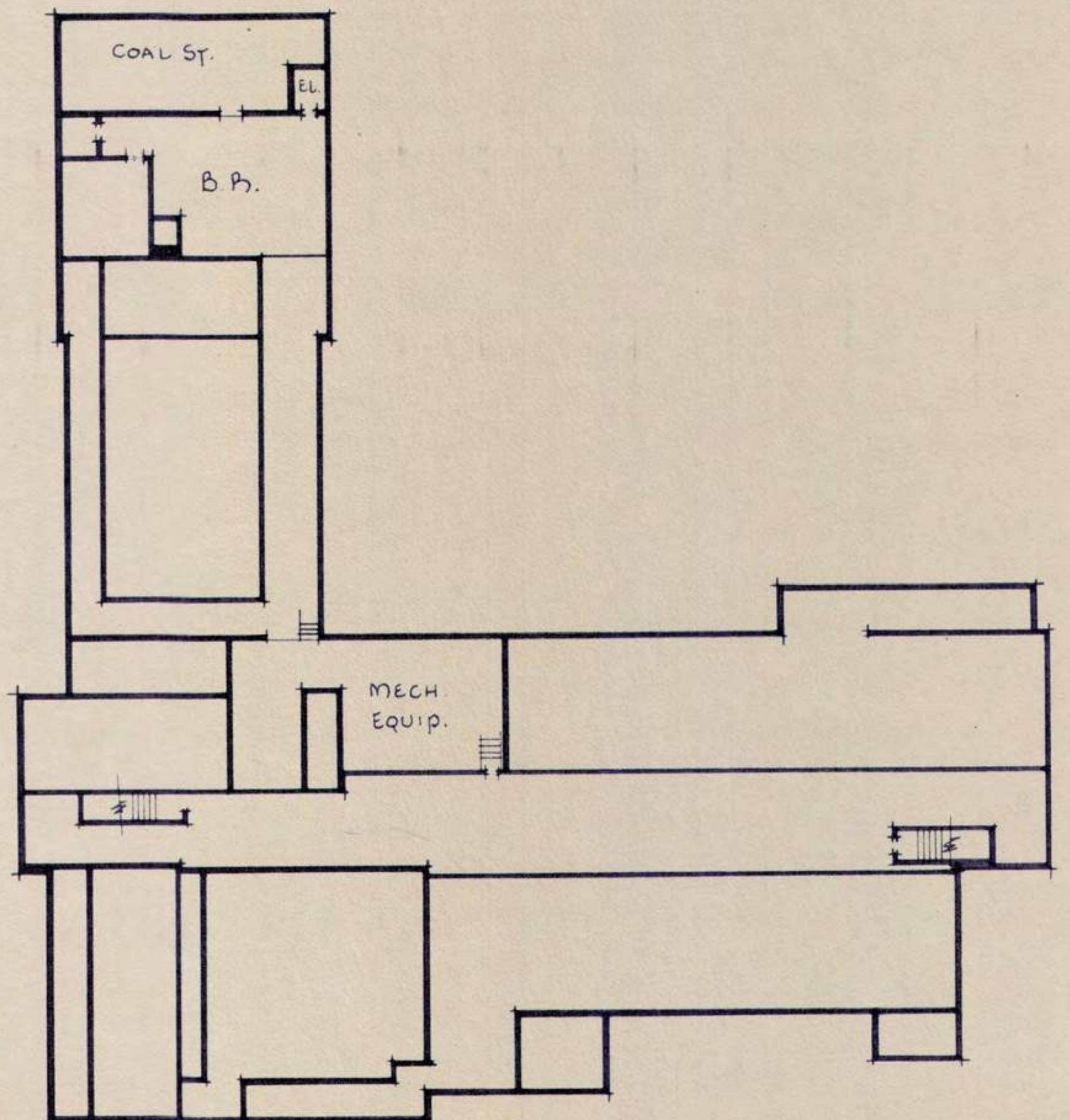
SCALE 1/32"=1'-0"

ARCHITECTURAL PLANNING DEPT.

BOARD OF EDUCATION

DETROIT, MICH.

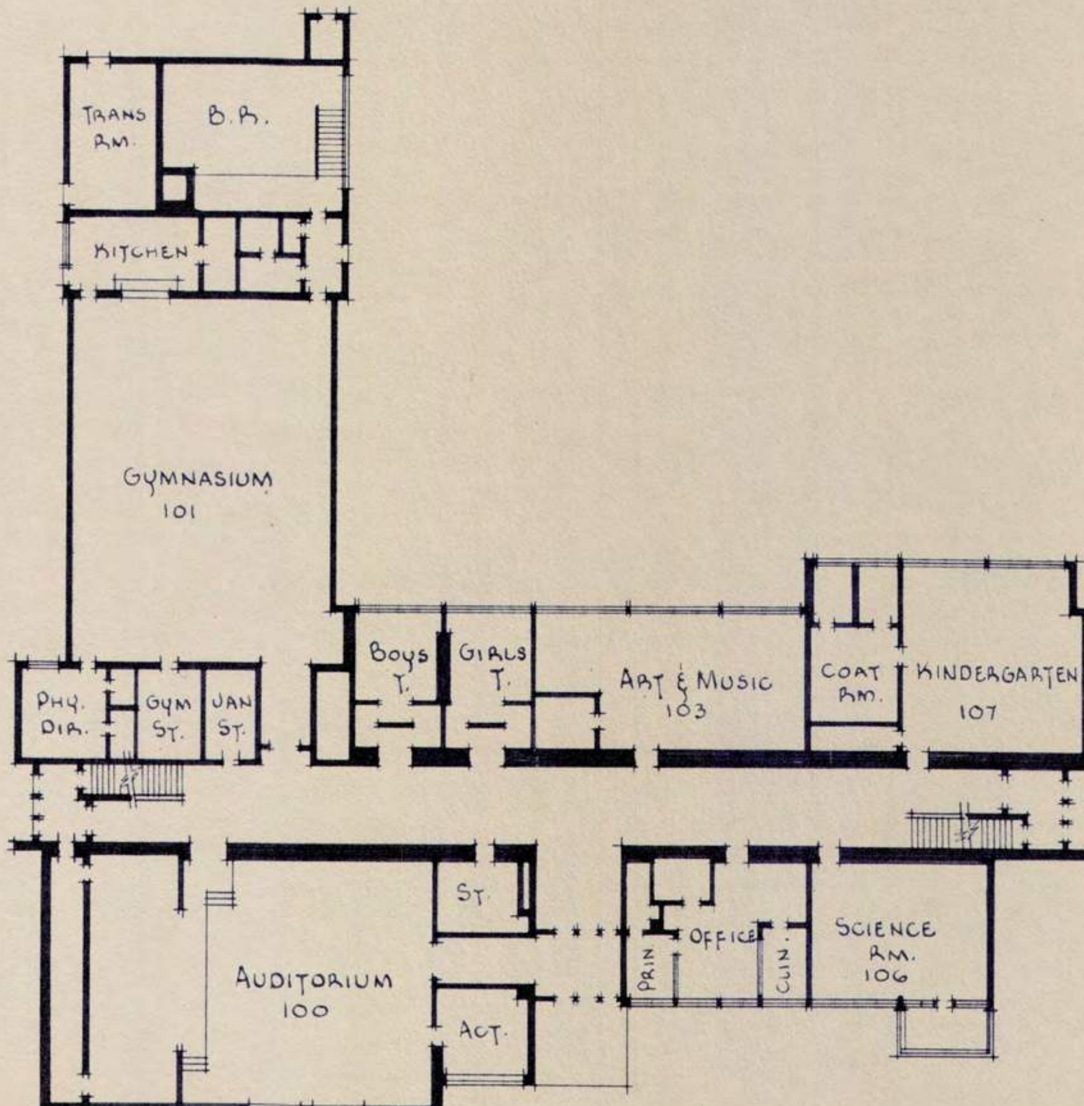
DRAWN	DATE	APPROV.	DATE	CHECKED	DATE
MOY	11-1-57	LANSING	1 NOV 57	"	"



WEATHERBY SCHOOL
FIRST FLOOR PLAN
SCALE 1/32" = 1'-0"

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT, MICH

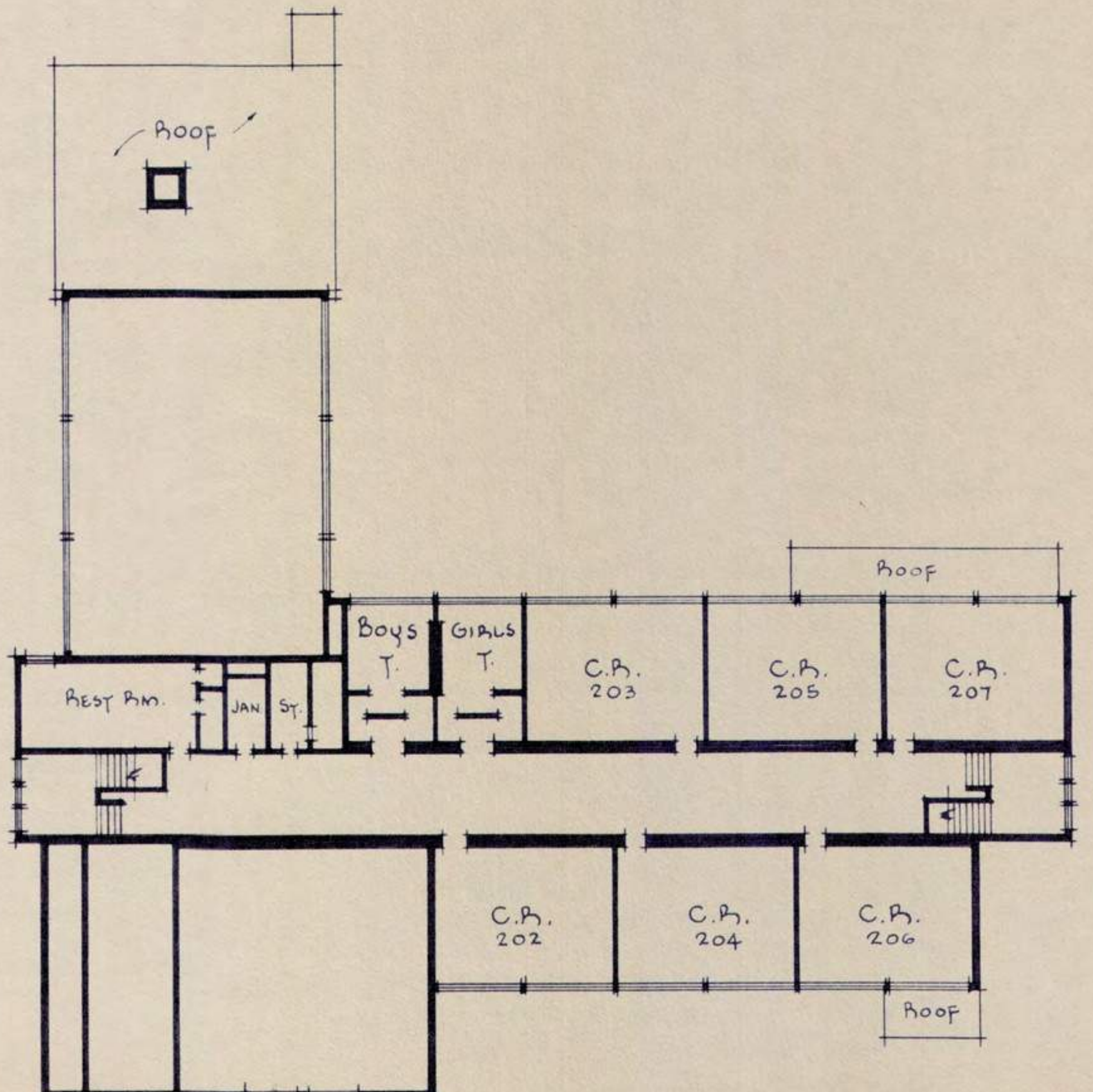
DRAWN	DATE	APPROV.	DATE	CHECKED	DATE
Moy	11-1-57	LANSING	1 NOV 57	"	"



WEATHERBY SCHOOL
SECOND FLOOR PLAN
SCALE 1/32" = 1'-0"

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT, MICH

DRAWN	DATE	APPROV.	DATE	CHECKED	DATE
Moy	11-1-57	LANSING	1 NOV 57	"	"



Wiss, Janney, Elstner Associates, Inc.
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Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Courtis

Basic Property Information: DPS 7-Courtis-8100 W Davison

Short Name:	Courtis
Address:	8100 West Davison Avenue Detroit, Michigan 48238
Year Built:	1965
Additions Built:	None
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	200 feet x 300 feet
Square Footage:	68,537 sq. ft.
Number of Stories:	2
Building Height:	16 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Structural Steel
City Council District:	7	**Exterior Wall System:**	▪ Brick Masonry ▪ Precast Concrete Panels
SNF District:	NA	**Window System(s):**	▪ Steel ▪ Aluminum replacement
		Roofing System(s):	▪ Built-Up Roofing (assumed) ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	July 21, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**24.53**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$525,200
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$5,482,960
Sub-Total	$6,908,160
Contingency (25%)	$1,727,040
Sub-Total	$8,635,200
Overhead and Profit (15-18%):	$1,295,280
Sub-Total	$9,930,480
Escalation (6% for 2 years)	$595,828
Sub-Total	$10,526,308
Architectural and Engineering Design Services (20%):	$2,105,261
TOTAL COST ESTIMATE:	$12,631,570

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a cursory visual review of the building facades to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a cursory visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. The roof level could not be accessed during WJE's assessment. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

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Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

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Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

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recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

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Overall

The building is rectangular in plan with two central courtyards. The central courtyards were not accessed during this assessment because the courtyard doors were locked. The building is two stories in height at the north, east, and west sides of the central courtyards and one story in height at the south and within the central wing that extends between the courtyards. The school building was constructed in 1965.

The building facades generally consist of clay brick masonry, oriented in a running bond, and precast concrete panels with concrete masonry unit (CMU) backup. The precast concrete panels have an exposed aggregate surface and are located at window spandrels and wrap around the top of exterior walls on all facades. Aluminum framed windows and steel framed doors are located within punched openings in the exterior walls, and steel framed windows with plexiglass face the central courtyards. The low-slope roofing was not reviewed because the access hatch was locked, but appears to consist of an internally drained, gravel-surfaced, bituminous built-up roofing system based on the review of aerial photographs.

The building is generally in serviceable condition. Localized repairs are recommended at the brick masonry exterior walls and precast concrete panels. The aluminum windows may be restored in place if desired but are recommended for replacement for improved thermal performance. The roofing assembly and drainage systems require maintenance repairs. Further investigation of the roof and inaccessible areas of the courtyard facade is also recommended.

Facade

The majority of distress observed within the facade elements is a result of prolonged water infiltration within the wall assembly and subsequent corrosion and freeze-thaw damage. Cracking and spalling of brick masonry units and cracking and bond separation of mortar joints were observed at the bearings for the embedded steel lintels above isolated windows and exterior entrances due to corrosion of the steel lintel. Corrosion of the lateral steel reinforcement was observed within the masonry bed joints at locations of debonded mortar on the west facade. Spalled brick masonry at the projecting elements adjacent to the windows was observed in localized areas likely caused by freeze-thaw cycles. Weathering, severe degradation, and cohesive failure of the sealant was observed at most of the masonry expansion joints and precast panel joints throughout the building. Rehabilitation of the building should include repair of the localized distressed masonry elements, including the replacement of localized, cracked, and spalled brick units, installation of flashing with a durable repair detail at the corroded lintels, repointing efforts at deteriorated mortar joints throughout all facades, and installation of new sealant and backer rod at the expansion joints.

The precast concrete panels are spalled in localized areas due to corrosion of the embedded reinforcing steel, caused by moisture penetration through cracks or joints in the panels or due to insufficient cover between the reinforcement and the surface of the precast panels. Repairs to the precast concrete panels should include removal of unsound concrete material, cleaning and coating of exposed steel reinforcement, and installation of concrete patch material.

The windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate the window framing, creating holes. Cracked and broken glass lites were observed at many of the window assemblies and the sealant at the perimeter joints typically exhibited weathering and bond failure. Surface corrosion and isolated areas of section loss of the steel frames was observed at some courtyard windows. The exterior metal doors are typically corroded, and the protective enclosure bars penetrate the doors, warranting replacement of the doors. The windows may be restored, including replacement of cracked and broken lites, installation of new sealant around the window perimeters and within the holes in the frame created by the fasteners, and cleaning and repainting the steel frames in the courtyard; however, replacement of the existing window assemblies should be considered as a cost-effective alternative and for improved thermal performance.

Roofing

The roof level could not be accessed during WJE's assessment. However, masonry distress including corroded lintels appeared to be related to issues with the roof. Rehabilitation of the building should include maintenance repairs of the existing roofing assemblies; however, a detailed assessment of the roof when accessible is recommended to determine the full extent of required repairs or potential for replacement.

COURTIS ES/MS
FIRST FLOOR

8100 W. DAVISON STREET
NOT TO SCALE

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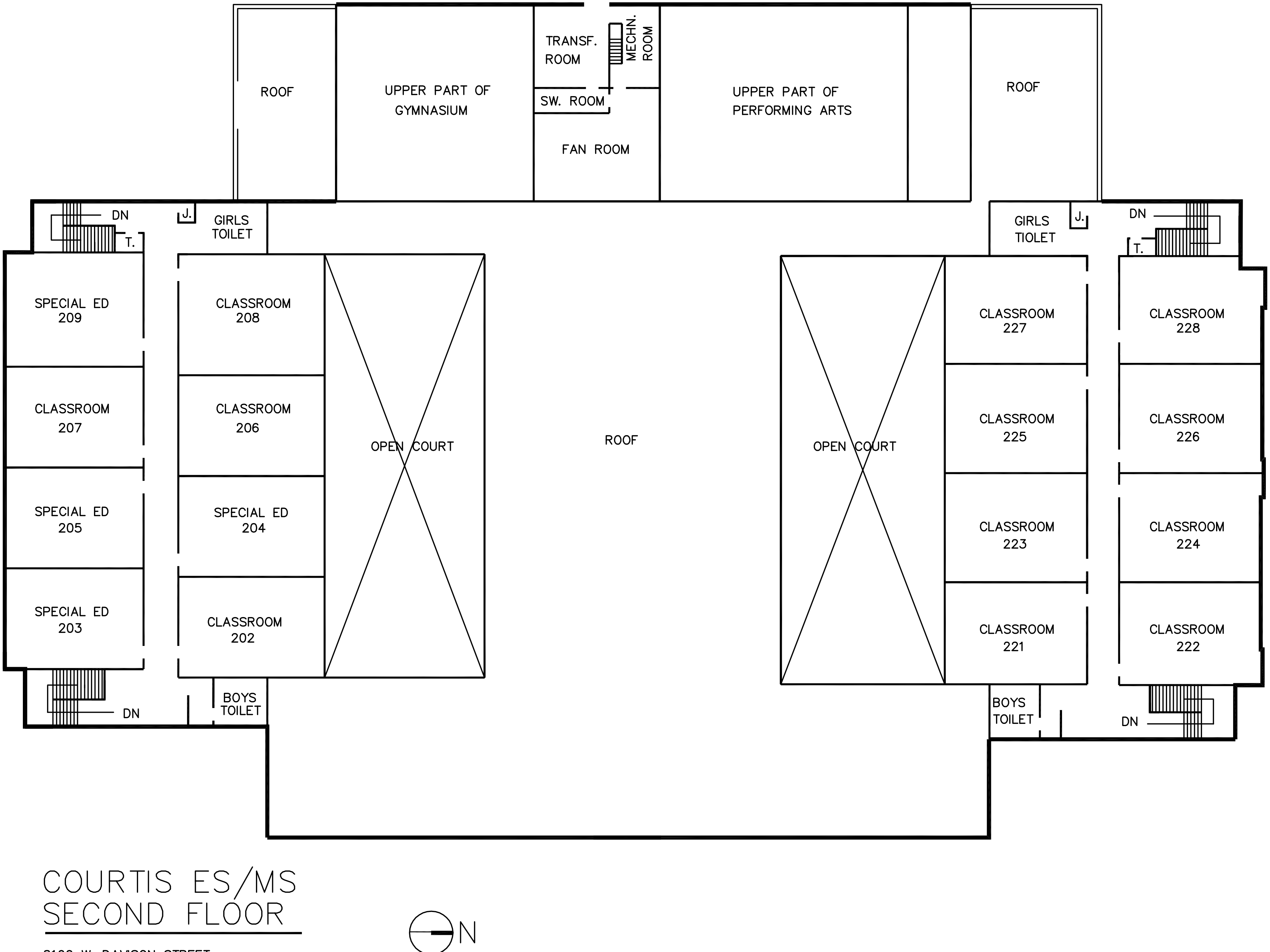
UPDATED JULY 2006



COURTIS ES/MS
SECOND FLOOR

8100 W. DAVISON STREET
NOT TO SCALE

UPDATED JULY 2006

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Henderson Lower

Basic Property Information: DPS 7-Henderson-9600 Mettetal

Short Name:	Henderson
Address:	9600 Mettetal Street Detroit, Michigan 48227
Year Built:	1946
Additions Built:	Unknown
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	120 feet x 225 feet
Square Footage:	26,762 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete
City Council District:	7	**Exterior Wall System:**	▪ Brick Masonry ▪ Limestone
SNF District:	NA	**Window System(s):**	▪ Metal
		Roofing System(s):	▪ Built-Up Roofing (assumed) ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	August 04, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**23.47**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$433,400
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,140,960
Sub-Total	$3,474,360
Contingency (25%)	$868,590
Sub-Total	$4,342,950
Overhead and Profit (15-18%):	$781,731
Sub-Total	$5,124,681
Escalation (6% for 2 years)	$307,480
Sub-Total	$5,432,161
Architectural and Engineering Design Services (20%):	$1,086,432
TOTAL COST ESTIMATE:	$6,518,594

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a cursory visual review of the building facades to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the buildings, and Ms. Ross assessed the condition of the historic fabric of the buildings.

WJE performed a cursory visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. The roof level could not be accessed during WJE's assessment. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Floor Plans (included with this report)

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is

recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

Overall

The two-story building is L-shaped in plan and was constructed in 1946. The original building is rectangular with the primary entrance facing Mettetal Street to the west. An addition was constructed at the north section of the school that extends the original rectangular building footprint and another addition was completed at the south section of the school that forms the L-shape portion of the building footprint. The completion dates for these are additions are unknown.

The building facades generally consist of clay brick masonry veneer with stone masonry accents and concrete masonry unit (CMU) backup. The brick masonry units are typically oriented in a running bond with a header course every six courses, vertically. The brick units within the spandrels, between the first and second floor windows, are oriented vertically with every other brick projecting outward. The brick units at the parapets are laid in a manner creating arched, triangular, and sawtooth patterns. Limestone units are located at windowsills, at building entrance surrounds, and at parapet copings throughout all facades. The building entrances contain conventional steel-framed doors. The original window configuration was modified as a part of a previous building improvement project, resulting in removal of the original windows and infill with small metal-framed windows and synthetic stucco with an exposed aggregate surface. The low-slope roofing was not reviewed, because the access door was locked, but appears consist of an internally drained, gravel-surfaced, bituminous built-up roofing system based on the review of aerial photographs.

The building is generally in serviceable condition. Localized repairs are recommended at the brick masonry and roofing. The windows may be restored in place if desired but are recommended for replacement for improved thermal performance. Further investigation of the roof is also recommended.

Facade

Cracking and spalling of brick masonry units at the lintels bearings was observed at window heads and above building entrances due to corrosion of the steel lintel caused by prolonged water infiltration and failure of the existing flashing, if present; cracking of the CMU was also viewed on the interior window heads in some locations. Brick masonry cracking was observed at localized areas throughout the facade, particularly at areas below crenels at the parapet, likely due to differential movement between the brick cladding and substrate material. Cracking and bond separation of the mortar joints was also observed throughout the facade. Weathering, severe degradation, and cohesive failure of the sealant was observed at most of the masonry expansion joints. Replacement of localized, cracked, and spalled brick units, installation of flashing with a durable repair detail at the corroded lintels, grinding and repointing deteriorated mortar joints, and installation of new sealant and backer rod at the expansion joints is recommended.

Cracking and spalling of the limestone coping units was observed at the lower roof on the east facade, and indications of failed previous repair attempts were visible. Limestone units at the base of the main building entrance surround exhibited erosion and delamination due to cyclical freeze-thaw deterioration and potential exposure to de-icing salts. Repair or replacement of the distress limestone units is recommended.

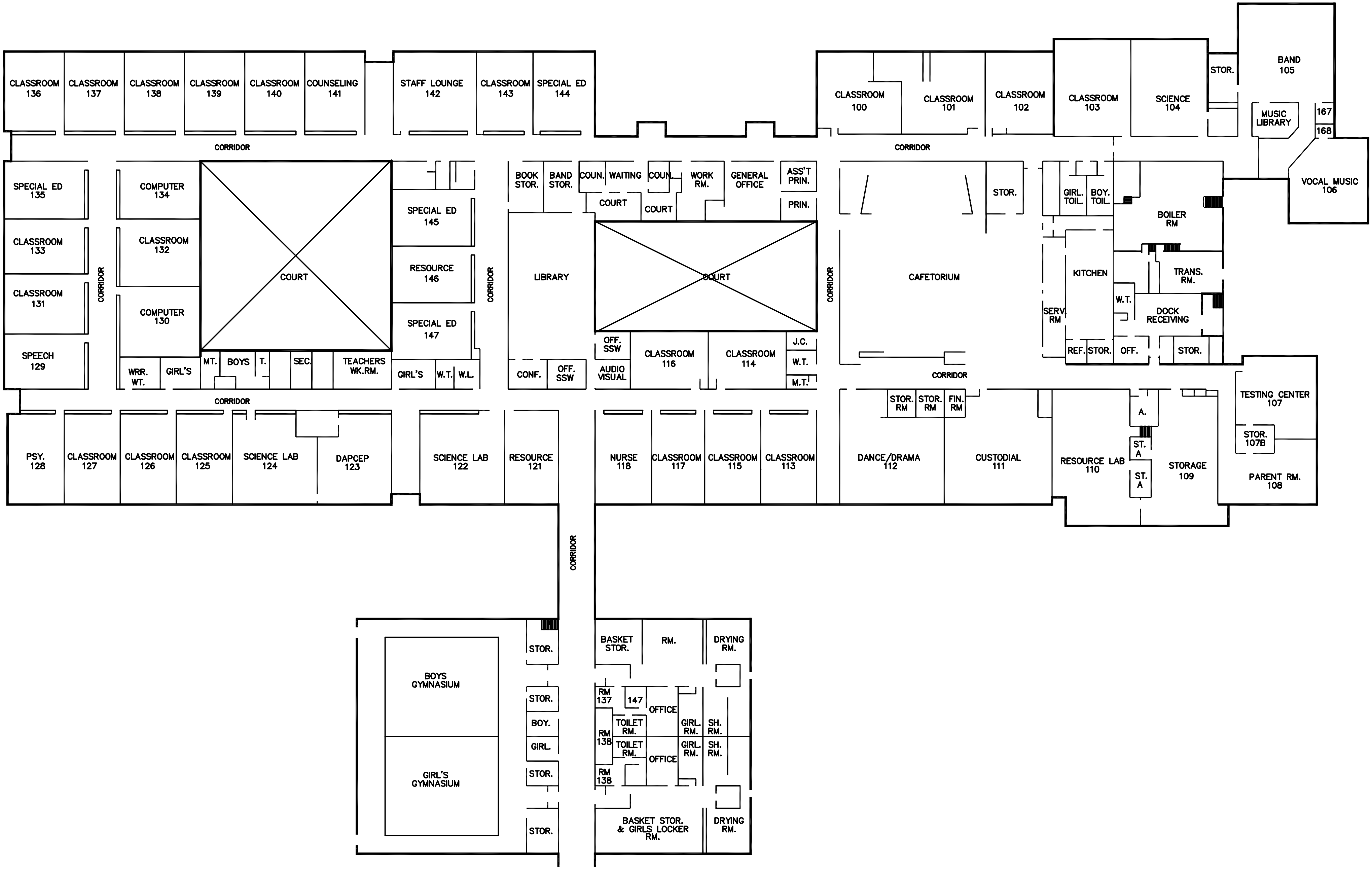
The windows are generally intact. Cracked and broken glass lites were observed at some of the window assemblies and the sealant at the perimeter and synthetic stucco panel joints typically exhibited weathering and bond failure. Surface corrosion typically exists at the exterior doors with localized areas of section loss, and the doors are dented and deformed. Rehabilitation of the building should include restoration of the window assemblies, including replacement of cracked and broken lites and the installation of new sealant around the window perimeters; however, replacement of the existing window assemblies, to match the original historic assemblies, is recommended for an improved aesthetic and thermal performance. The conventional steel doors are significantly damaged and deteriorated, requiring replacement.

Roofing

The roof level could not be accessed during WJE's assessment. However, indications of roofing deterioration and localized water infiltration were visible from the building interior at locations of roof drains and at the transition joint between the original building and north addition, suggesting significant damage to the base of wall flashing between the two roof levels. Water ponding is visible from aerial photographs. Based on a lack of water intrusion below the field of the low-slope roofing, the roof appears to be performing well and requires only maintenance related repairs to extend the service life of the existing roof assembly in conjunction to the more significant repair work to the drainage system and between the building additions.

Structure

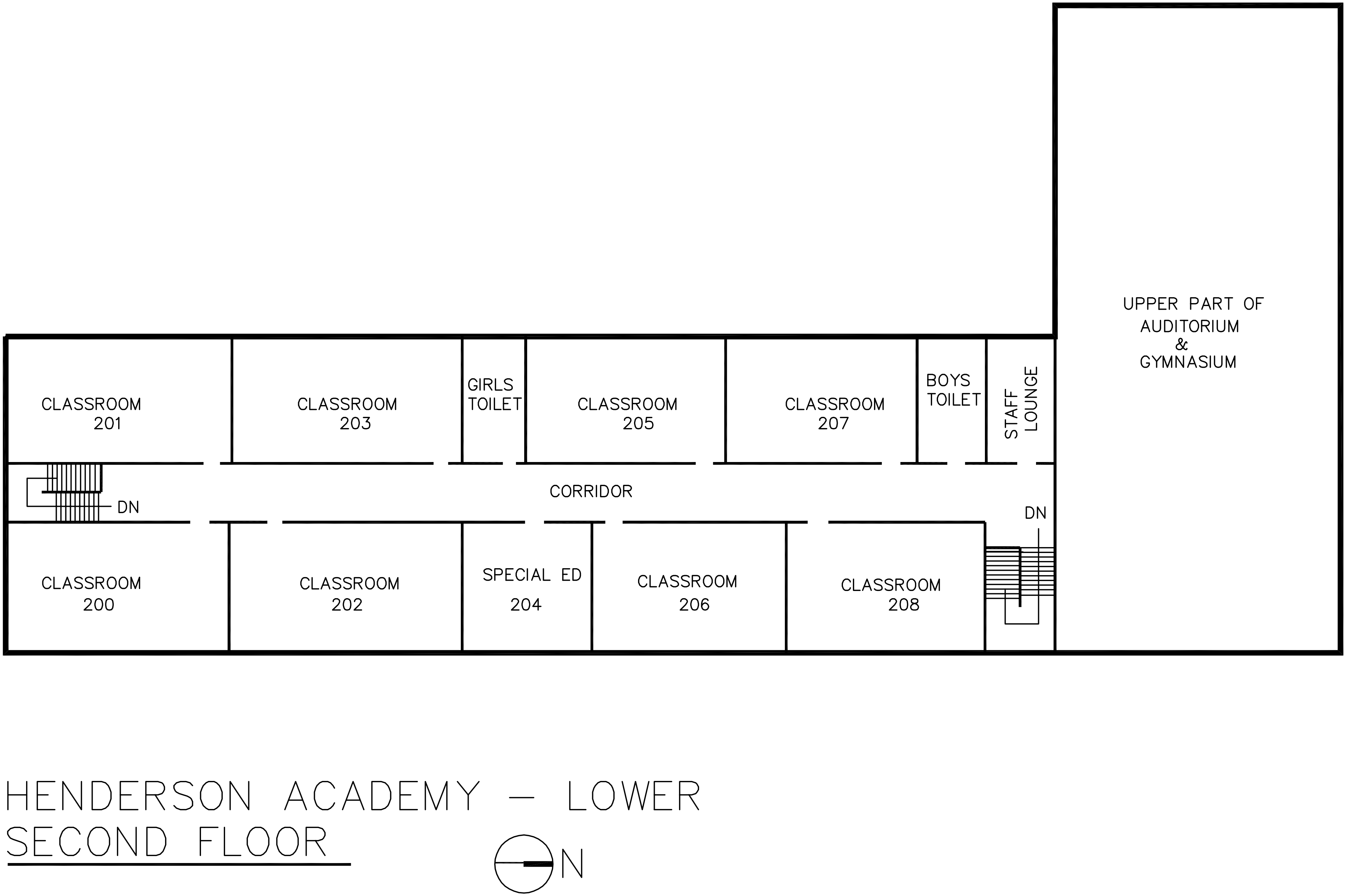
WJE's assessment was limited to the building envelope. However, significant distress at the transition joint between the original building at the north addition was observed during our cursory building walkthrough. The distress includes wall cracking and uneven slab surfaces between the floors on each side of the joint. Further investigation of the structural components within this region is recommended.



HENDERSON ACADEMY– UPPER
FIRST FLOOR

16101 W. CHICAGO STREET
NOT TO SCALE

UPDATED JULY 2006



HENDERSON ACADEMY – LOWER
SECOND FLOOR

9600 METTETAL STREET
NOT TO SCALE

UPDATED MARCH 2006

WJE

Wiss, Janney, Elstner Associates, Inc.
30700 Telegraph Road, Suite 3580
Bingham Farms, Michigan 48025
248.593.0900 tel
www.wje.com

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

S. James Herman School

Basic Property Information: DPS 7-Herman-16400 Tireman

Short Name:	Herman
Address:	16400 Tireman Street Detroit, Michigan 48228
Year Built:	1944
Additions Built:	1948, 1955
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	355 feet x 330 feet
Square Footage:	106,482 sq. ft.
Number of Stories:	2
Building Height:	30 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Wood Framing
City Council District:	7	**Exterior Wall System:**	▪ Brick Masonry ▪ CMU ▪ Cast-in-Place Concrete ▪ Limestone
SNF District:	WCR	**Window System(s):**	▪ Wood
		Roofing System(s):	▪ Built-Up Roof ▪ Gutters ▪ Internal Roof Drains

Assessment Summary	
Assessment Date:	August 04, 2020
WJE Inspector(s):	Justin Barden
Report Date:	November 18, 2020
Building Risk Index:	**58.88**

Cost Estimate	
Base Rehabilitation Cost Estimate:	$3,218,500
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$8,518,560
Sub-Total	$12,637,060
Contingency (25%)	$3,159,265
Sub-Total	$15,796,325
Overhead and Profit (15-18%):	$1,579,632
Sub-Total	$17,375,957
Escalation (6% for 2 years)	$1,042,557
Sub-Total	$18,418,514
Architectural and Engineering Design Services (20%):	$3,683,702
TOTAL COST ESTIMATE:	$22,102,217

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- <u>System</u> (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- <u>Building Performance Impact</u> (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- <u>Size/Distribution</u> (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- <u>Consequence of Failure</u> (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The majority of the two-story school building at the southeast portion of the site was constructed in 1944 with small additions constructed to the west in 1948, and to the north and northwest in 1955. A community building that later served as a part of the school is located at the northwest portion of the site and is connected to the northwest 1955 addition. A powerhouse, which was constructed at a later date, is connected to the north side of the community building.

The original school building facade generally consists of polychromatic clay brick masonry and limestone accents at window sills, horizontal bands, and entrance surrounds. The brick masonry units are typically oriented in a running bond with a header course every seven courses vertically and areas of ornamental brick patterns at the southeast (main) facade. Two octagonal brick masonry clad towers are present at the main facade adjacent to the two building entrances, which extend above the main roof level. Projecting concrete overhangs are present at the top of the exterior walls at the majority of the original school building facades, and projecting concrete canopies are located above the first-floor windows on the main facade. Steel framed doors are located within punched openings in the exterior walls. The windows are typically wood framed and appear to be original to the building construction.

The community building facade generally consists of clay brick masonry with limestone accents at window sills, horizontal bands, and copings. The brick units are typically oriented in a running bond with a header course every seven courses vertically. The exterior entrances consist of conventional steel doors. Windows are located within punched openings in the exterior walls and generally consist of a combination of aluminum framed windows, set within original wood frames, and glass block infill.

The powerhouse facade consists of painted concrete masonry units (CMU) oriented in a running bond. Glass block infill and steel doors are located within the punched openings in the exterior walls.

The roof was accessed on the school building and consists of an internally drained, gravel-surfaced, bituminous built-up roofing system. The roofing on the other buildings was viewed from a distance and appears to consist of a similar roofing system to the school building. The central community building roof area is slightly pitched in two directions to external gutters and downspouts that eject at the adjacent low-slope roof areas.

Overall, the school and powerhouse buildings are in good, serviceable condition, but the community building is in poor condition. Masonry and stone repairs are recommended throughout the facades, with more extensive repairs recommended at the community building. The window assemblies are typically damaged or missing and require replacement. The low-slope roofing assemblies exhibit damage throughout, and removal and replacement should be considered.

Facade

School Building and Powerhouse

Localized brick masonry cracking was observed intermittently throughout the facade of the school building. In addition, displacement of the brick masonry was observed at the southwest entrance due to corrosion of the embedded steel lintel and potential failure of the lateral anchors for the outer wythe of masonry; previously failed repair attempts were observed at this location. Replacement of localized cracked brick units throughout the facade and rebuilding of the displaced masonry is recommended.

The exterior concrete canopies above the first floor windows at the main facade of the school building and the concrete projecting overhangs at the top of the school building are cracked and spalled in localized areas, exposing the steel reinforcement in isolated regions. The distress is related to long-term moisture penetration through cracks and/or joints at the upward facing surface of the canopy, as well as potentially insufficient concrete cover between the reinforcement and the surface of the concrete. At canopies where the concrete is intact, the paint on the underside was blistered and failed. Concrete repairs are recommended at the canopies, which should involve removal of unsound concrete material, cleaning and coating of exposed steel reinforcement, installation of an appropriate concrete repair material, and repainting the exterior surfaces (if desired) with an appropriate coating.

Localized step cracks in the CMU were noted at the powerhouse adjacent to and above the glass block window heads due to corrosion of the steel lintels. In addition, adhesive failure of the sealant was noted at vertical control joints in the power house CMU exterior walls. Repointing efforts, repairs to the corroded lintels, and installation of new sealant and backer rod at the CMU control joints is recommended.

The wood windows at the school building are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate many of the window framing, creating holes. Cracked, broken, or missing glass lites was observed, and the sealant at the perimeter joints typically exhibited weathering and bond failure. Areas of decay were observed on the original wood framed windows on the school building, especially near the sills, and the exterior paint was typically failed. The glass block windows on the power house building appeared to be in serviceable condition with only localized cracked block units. The glass block windows may be restored, but replacement of the existing wood window assemblies is recommended. The steel framed doors in place are typically corroded and barred shut with steel barricade bars going through the steel doors, warranting replacement of the doors.

Community Building

Extensive cracking, bulging, and displacement of the brick masonry was observed at all parapets. The parapet distress is likely due to a combination of corrosion of the embedded steel supports, deterioration of the masonry backup due to moisture infiltration and freeze/thaw cycling, and a lack of control joints. Complete rebuild of the parapets (full depth) or significant repair work is recommended.

Cracking, spalling, and displacement of the brick masonry was observed at window heads due to corrosion of the embedded steel lintels. Severe corrosion and deflection was observed at most exposed steel lintels. Due to the widespread masonry distress and lintel corrosion/deflection at window heads, repairs should include removal and replacement of brick masonry above the lintels, cleaning and painting the existing steel or replacing if significant deflection and/or section loss are encountered, and installation of through-wall flashing.

Many stone units are spalled, cracked, or displaced throughout the facade. Repair or replacement of the stone elements, as well as repointing efforts, is recommended to mitigate further distress.

The community building aluminum replacement windows are currently covered with temporary protective enclosures, and the enclosure fasteners penetrate many of the aluminum replacement framing. Cracked, broken, or missing glass lites was observed, and the sealant at the perimeter joints typically exhibited weathering and bond failure. Localized area of decay was observed on the original wood frames, in which the aluminum replacement sash set are typically placed within. Many of the glass block units are cracked or broken. Steel frames are present below the glass block units in the theater, which are corroded in localized areas, and the lower operable lites are generally missing. Due to the deteriorated condition of the windows and extent of broken glass block units, replacement of the window assemblies is recommended. The steel framed doors in place are typically corroded and barred shut with steel barricade bars going through the steel doors, warranting replacement of the doors.

Roofing

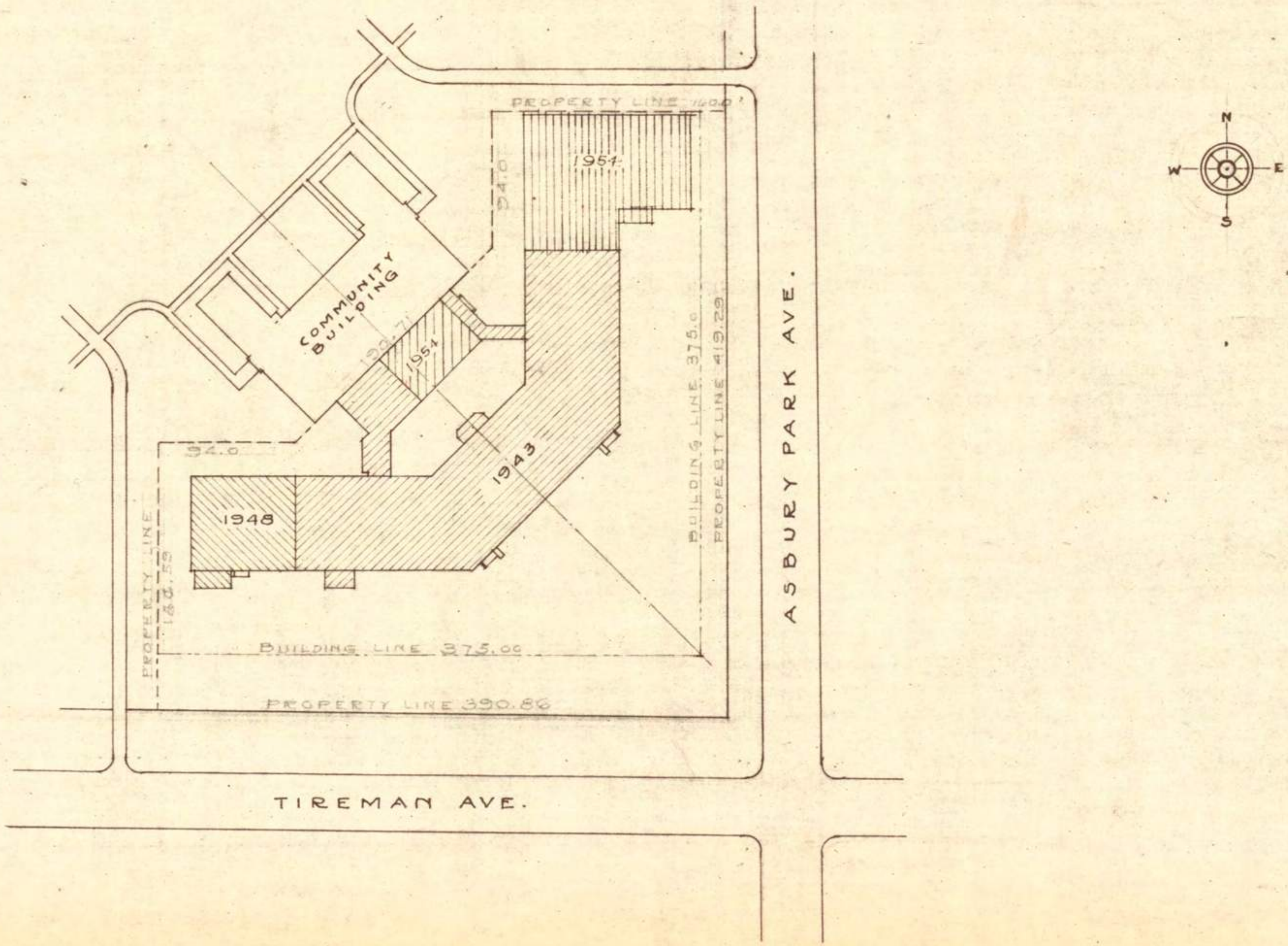
The roofing assemblies exhibited deterioration and damage including widespread cracking of the roofing surface, localized seam failures, and displaced perimeter flashings. On the school building, deterioration and crushing of the roof insulation was noticed underfoot in several areas. Ponded water vegetation growth were observed on the roof of the school and community buildings. Localized signs of water infiltration were observed at the interior of the school building, including moisture staining along the walls of the main facade of the school building. Active leaks and indications of prolonged water infiltration, including peeled paint, moisture staining, and damage to the interior finishes, were observed at the interior of the community building in multiple locations. Rehabilitation of the building should consider removal and replacement of the existing roof assemblies and drainage systems on all buildings.

HERMAN SCHOOL
PLOT PLAN

ARCHITECTURAL PLANNING DEPT
BOARD of EDUCATION
DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
J.J.	11-1-48				

SCALE 1" = 100'-0"

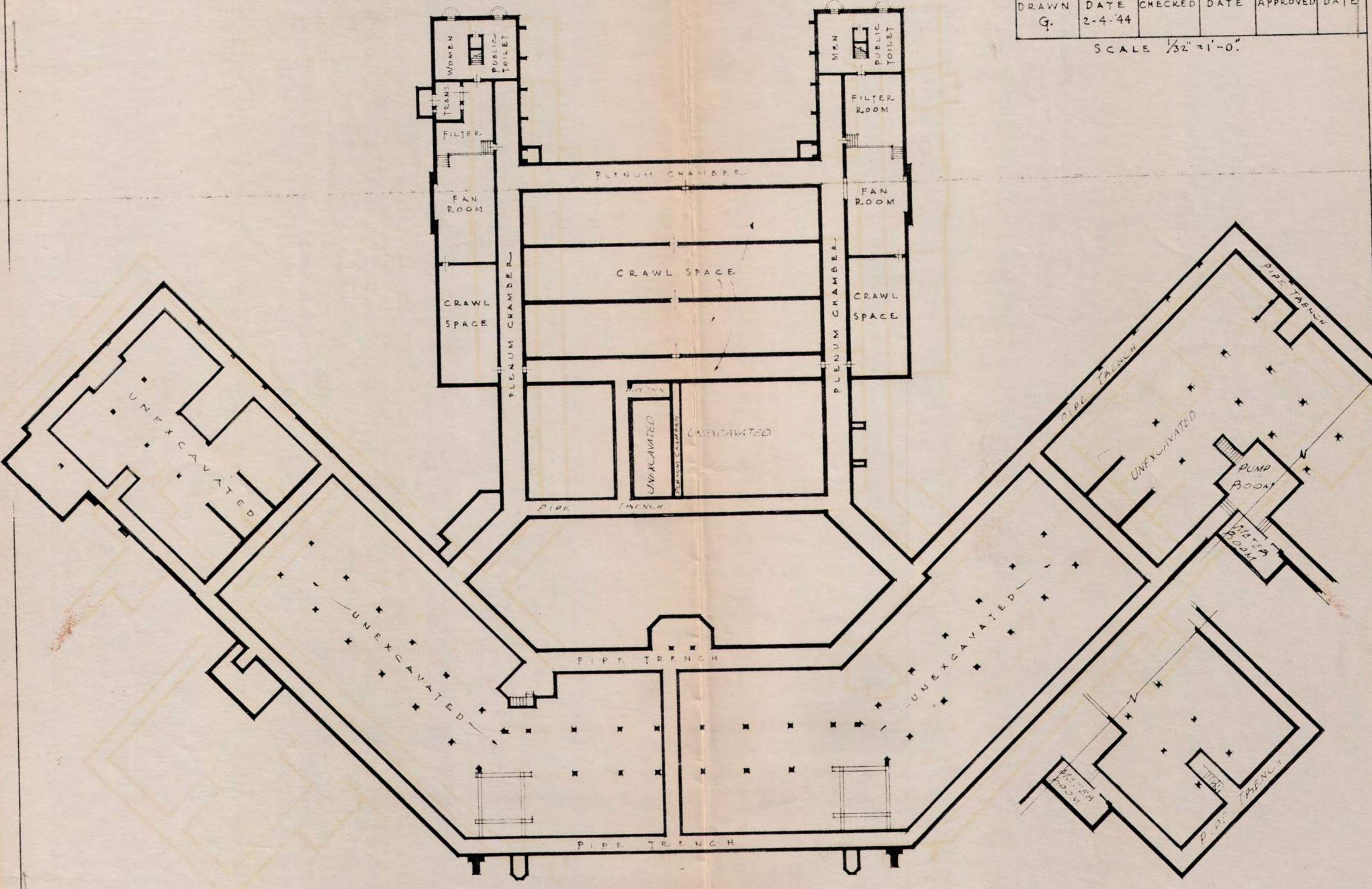


HERMAN
BASEMENT PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	2-4-'44				

SCALE 1/32" = 1'-0"

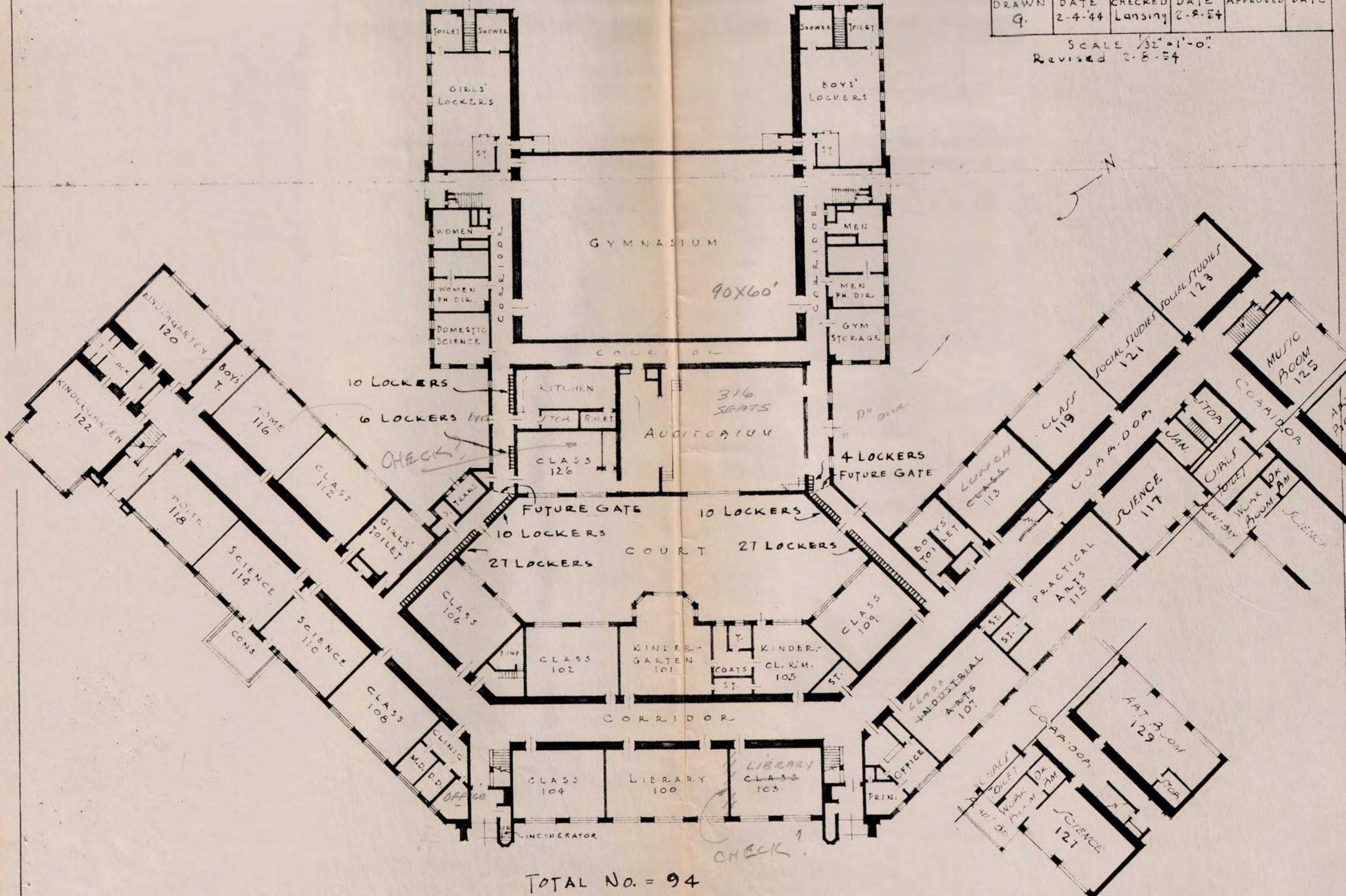


HERMAN
FIRST FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	2-4-'44	Lansing	2-8-54		

SCALE 1/32" = 1'-0"
Revised 2-8-54



TOTAL NO. = 94

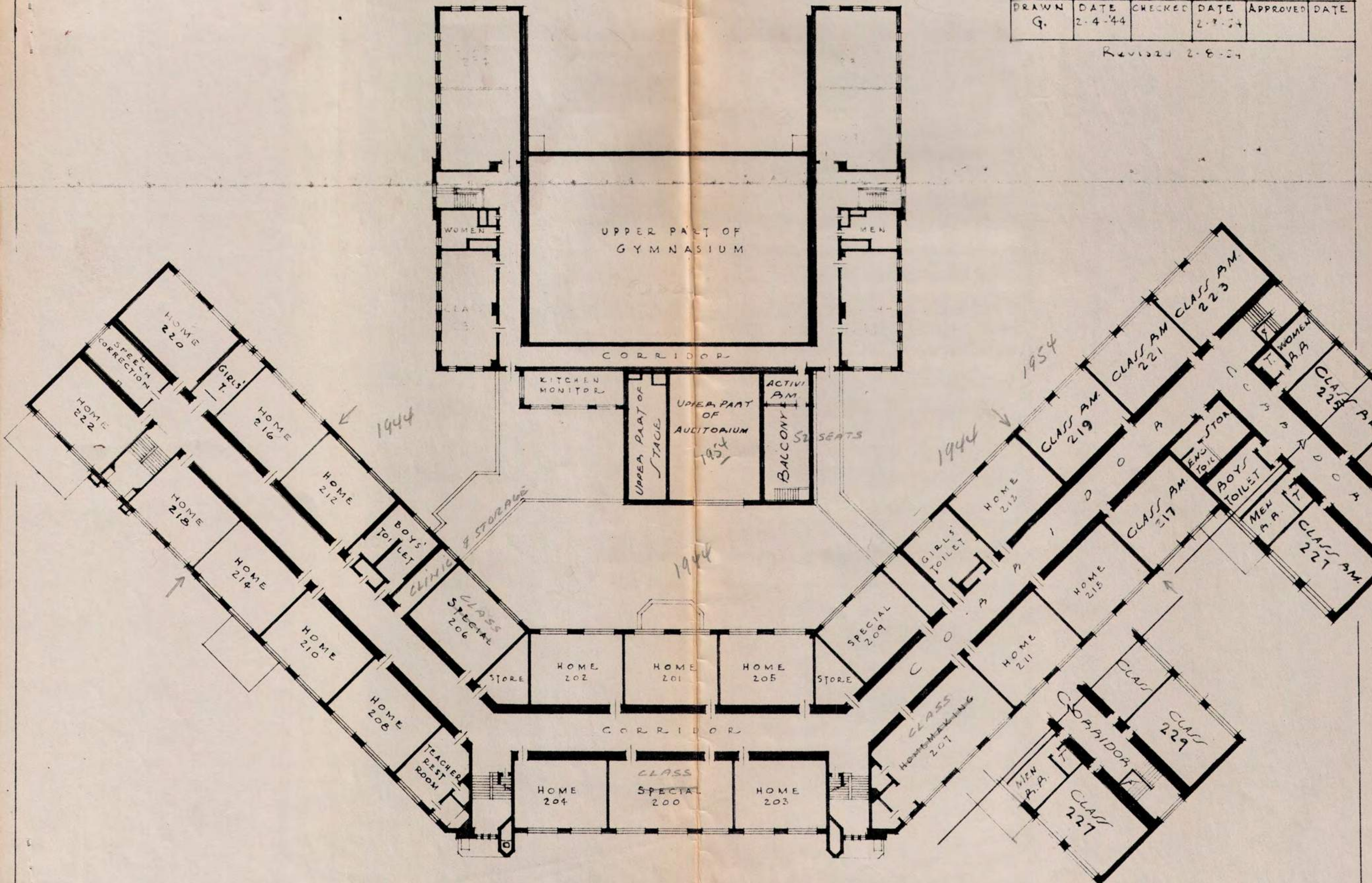
LOCKERS SHALL BE 15" x 15" x 60"
ON CLOSED METAL BASES & SHALL
MISS OR CLEAR ALL SWITCHES, VAC. OUTLETS, & PANEL BOX, ETC.

HERMAN
SECOND FLOOR PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
G.	2-4-'44		2-8-54		

Revised 2-8-54



Wiss, Janney, Elstner Associates, Inc.
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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

McColl Elementary

Basic Property Information: DPS 7-McColl-20550 Cathedral St

Short Name:	McColl
Address:	20550 Cathedral Street Detroit, Michigan 48228
Year Built:	1949
Additions Built:	None
Outbuildings:	None
Year Vacated:	2010
Building Footprint:	195 feet x 190 feet
Square Footage:	28,505 sq. ft.
Number of Stories:	1
Building Height:	19 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	■ Cast-in-Place Concrete ■ CMU ■ Prestressed Masonry
City Council District:	7	**Exterior Wall System:**	■ Painted stucco
SNF District:	WCR	**Window System(s):**	■ Metal-framed
		Roofing System(s):	■ Built-Up Roof ■ Internal Roof Drains ■ Gutters

Assessment Summary

Assessment Date:	August 06, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 18, 2020
Building Risk Index:	**29.44**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,615,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$2,280,400
Sub-Total	$4,795,400
Contingency (25%)	$1,198,850
Sub-Total	$5,994,250
Overhead and Profit (15-18%):	$899,137
Sub-Total	$6,893,387
Escalation (6% for 2 years)	$413,603
Sub-Total	$7,306,990
Architectural and Engineering Design Services (20%):	$1,461,398
TOTAL COST ESTIMATE:	$8,768,388

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building facades to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the building.

WJE performed a visual review of the building facades from grade, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition; however, roof access was not obtained. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building facades. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The one-story building is U-shaped in plan. The facade assembly generally consists of a painted stucco finish that is directly applied to the concrete masonry (CMU) exterior walls. Projecting vertical wall elements are located on either side of window openings and entrances, aesthetically breaking the wall surface into segments. These vertical projections extend above the roof level at the main building entrances. The fenestration consists of original steel-framed windows in punched window openings. The building entrances contain conventional steel-framed doors.

The low-slope roofing was not accessed, but likely consists of an internally drained, gravel-surfaced, bituminous built-up roof based on aerial photographs. The roof eaves project over the exterior walls on all facades, including the courtyard walls, except on the south facade where the walls extend above the roof creating a short parapet. A small sloped roof area on the north side of the building is drained over edge and does not contain gravel surfacing. Three vaulted mechanical spaces are present within the south courtyard. The waterproofing assembly over these regions consists of a slag-surfaced, bituminous system.

Overall, the building is in serviceable condition. Stucco repairs are appropriate in several localized regions and the building exterior should be repainted to mitigate additional distress to the stucco finish. The roofing, waterproofing, and drainage systems require replacement. The original windows can be restored, though the conventional steel doors are recommended for replacement.

Facade

The stucco cladding is generally in serviceable condition with localized distress that should be repaired. The observed stucco distress is largely concentrated within the headers and projecting elements above the entrance roofs, though unsound material was found at a few window sills and the stucco was completely missing around an entrance on the north facade. Distress within the headers and around the north entrance is primarily attributed to bond failure of the stucco, while the distress above the entrances' roofs and at the window sills is largely attributed to water infiltration and subsequent freeze-thaw damage. At the skyward surfaces of the projecting elements above the entrance roofs, spalls within the CMU substrate will require concrete patch repairs prior to replacement of the stucco finish. Sheet metal caps, or an alternative water management detail, should also be considered to mitigate further distress. We recommend that the stucco repairs follow durable repair practices such as having squared edges and using a bonding agent.

In some regions, cracks within the CMU substrate have propagated through the stucco and paint materials. Mortar materials that are found to be deteriorated or friable should be repointed prior to repairing the stucco finish. As observed from grade, it is unclear if the chimney surfaces located above the roof level have a stucco finish or if paint has been directly applied to the CMU. If a stucco finish is not present and the chimney mortar is sound and only debonded or cracked, it may be possible to paint the chimney with an appropriate coating material without needing to repoint the debonded mortar joints. Near the base of the chimney, decorative sheet metal accents are displaced and should be replaced in-kind, if historically significant.

Unsound coating materials should be removed and the entire building exterior should be repainted to mitigate further stucco distress. Distress within the painted surfaces revealed multiple colors and layers of paint on the stucco. A study of the historically significant paint colors may be considered prior to repainting efforts. The existing coatings should also be tested to determine appropriate abatement measures for hazardous materials.

The original steel-framed windows are typically intact, though several of the glass units are missing or cracked; glazing, putty, and perimeter sealant materials are failed; and the paint is failing with minor corrosion exposed in some locations. The windows may be restored, though replacement windows may be a cost effective alternative and provide improved thermal performance. The conventional steel doors are significantly damaged and deteriorated, requiring replacement.

Roofing

The roof level could not be accessed during WJE's assessment; however, indications of roofing deterioration, such as deteriorated flashing terminations and localized water infiltration were visible from grade and from the building interior. Vegetation growth and water ponding is also readily visible in aerial photographs. Given the condition of the roofing removal, replacement of the roofing is recommended to be included as part of a building rehabilitation. Maintenance repairs to localized areas of the main roof assembly may be possible to extend the service-life of the existing roof assembly.

The roof deck consists of a proprietary DoxPlank-type system, which spans between the interior and exterior load-bearing CMU walls. This system uses modular concrete block units and post-tensioning to create precast beams that, when keyed together, create a structural deck assembly. This structural system was popular in the 1950s and 1960s. Localized water infiltration and staining was observed between joints of the roof deck assembly; however, the extent of distress does not appear structurally significant and repairs to the roof deck are not anticipated at this time. Further investigation is recommended following removal of the existing roofing assembly.

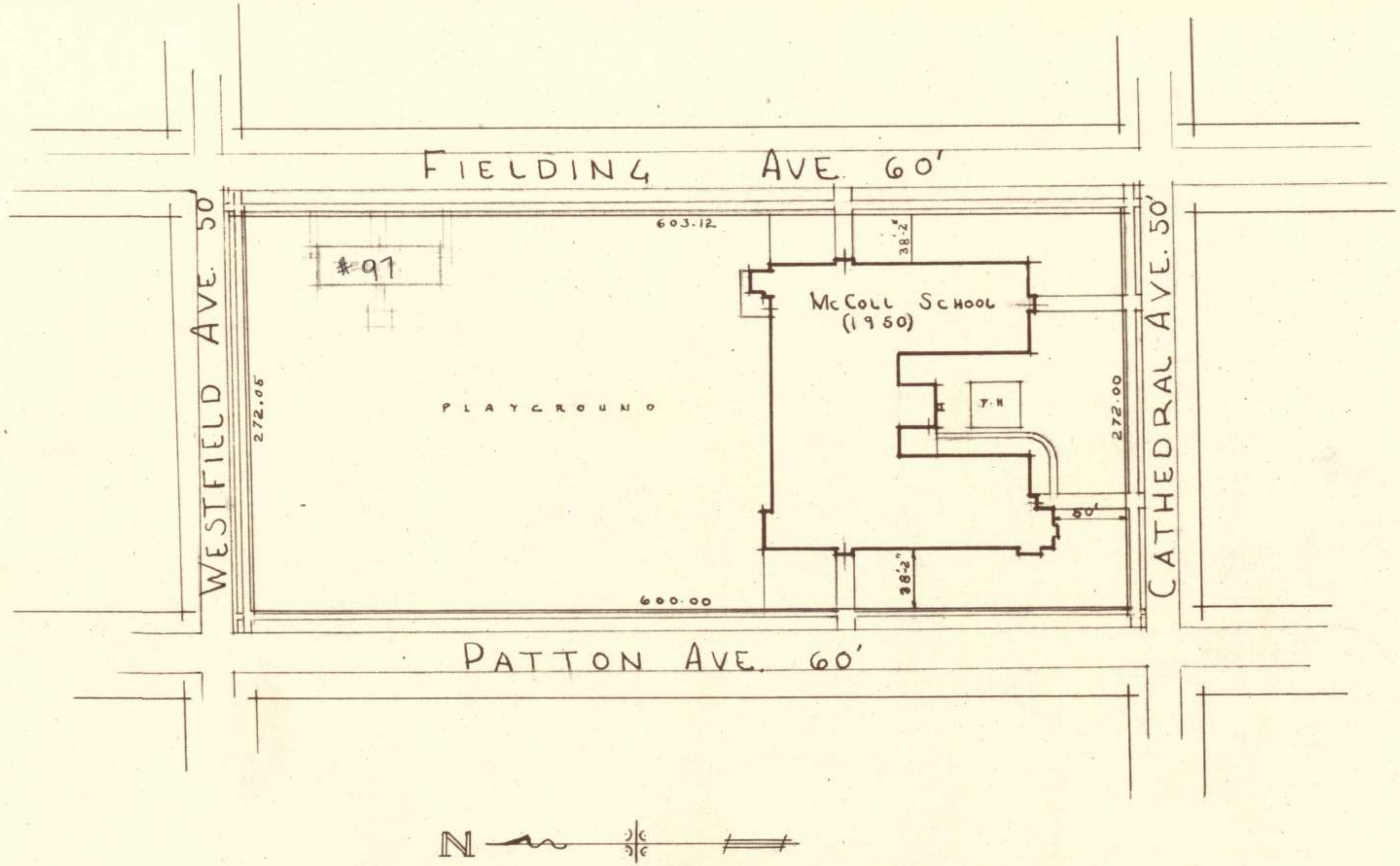
The waterproofing assemblies at grade over the vaulted mechanical spaces are significantly deteriorated and require replacement. The basement was flooded and could not be accessed, though based on the distress observed within the waterproofing materials, and our experience with similar structures, repairs to the elevated concrete slab are anticipated.

JAY R. McCOLL
PLOT PLAN

ARCHITECTURAL PLANNING DEPT.
BOARD OF EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
L.C.	8/2/50				

SCALE 1"=100'

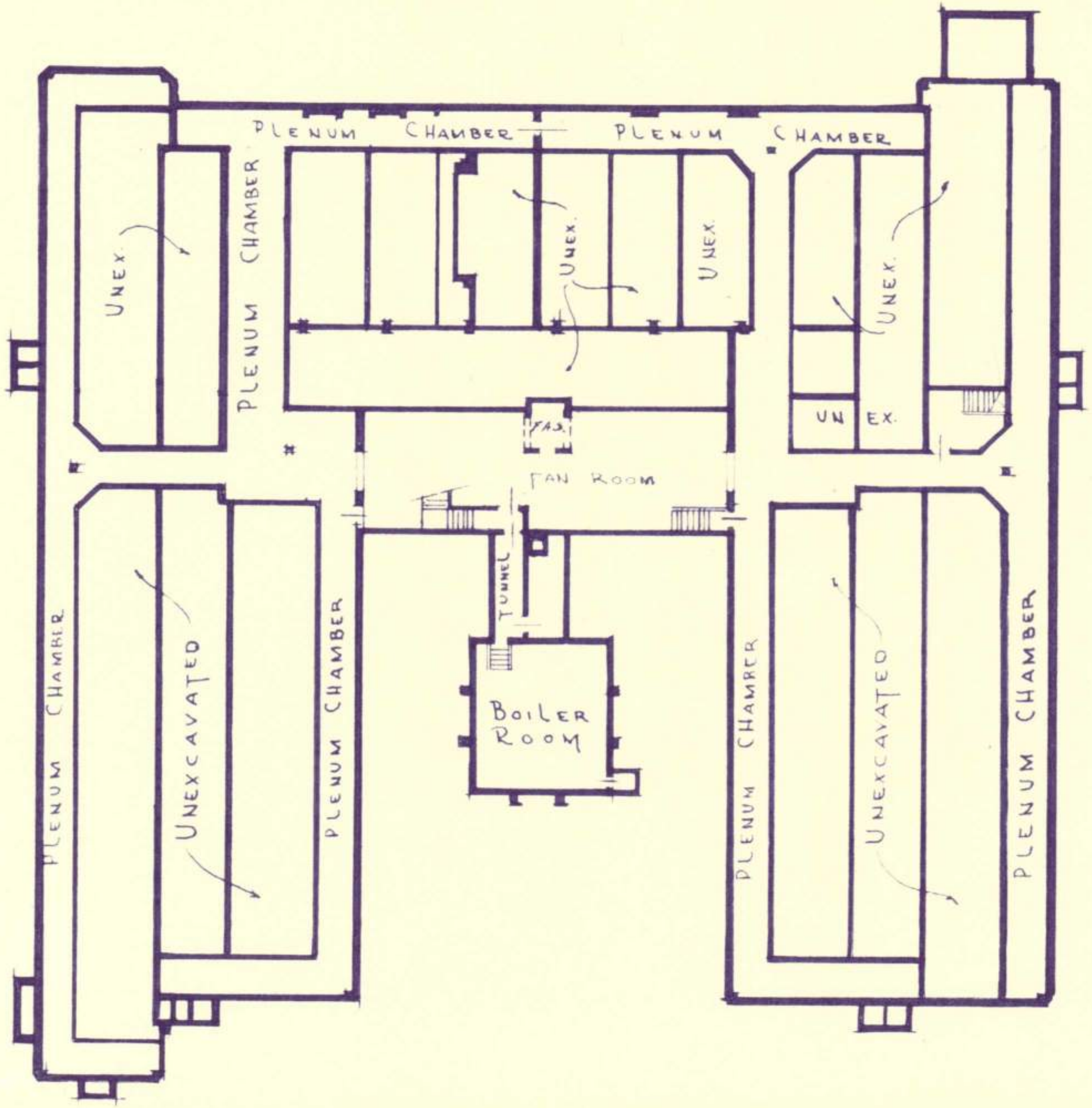


JAY R. McCOLL
BASEMENT PLAN

ARCHITECTURAL PLANNING DEP'T.
BOARD OF EDUCATION
DETROIT~MICHIGAN

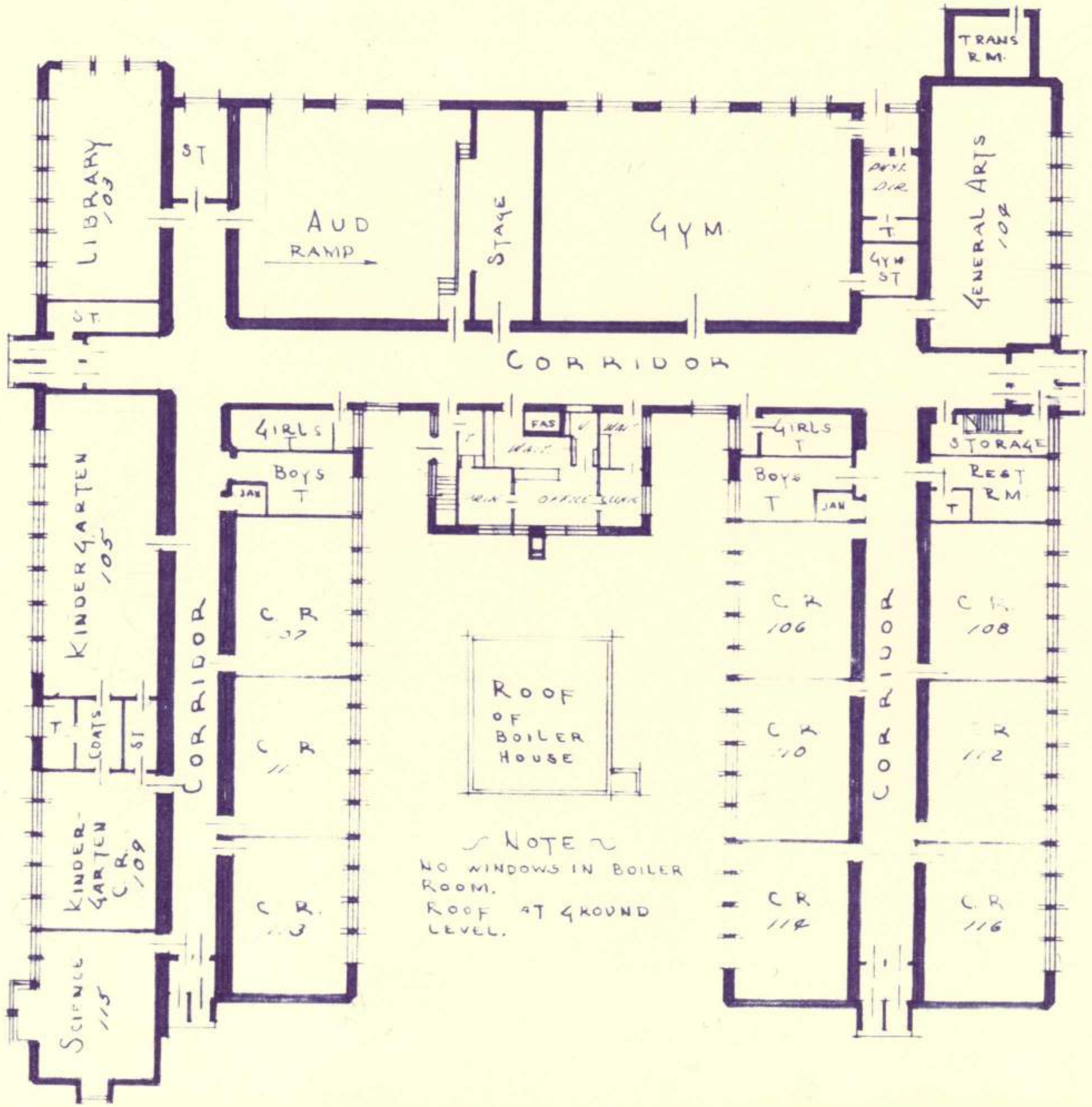
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
L. C.	8/1/50				

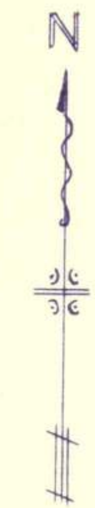
SCALE 1/32 = 1'-0"



JAY R. McCOLL FIRST FLOOR PLAN					
ARCHITECTURAL PLANNING DEP'T. BOARD OF EDUCATION DETROIT~MICHIGAN					
DRAWN	DATE	CHECKED	DATE	APPROV'D	DATE
L.C.	8/1/50				

SCALE 1/32 = 1'-0"





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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Cody 9/Ruddiman

Basic Property Information: DPS 7-Ruddiman-7350 Southfield

Short Name:	Ruddiman
Address:	7350 Southfield Freeway Detroit, Michigan 48223
Year Built:	1922-1924
Additions Built:	1955, 1962
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	355 feet x 380 feet
Square Footage:	85,814 sq. ft.
Number of Stories:	2
Building Height:	28 ft.

Current Ownership:	Detroit Public Schools	**Structural Framing System:**	▪ Cast-in-Place Concrete ▪ Precast Concrete ▪ Brick
City Council District:	7	**Exterior Wall System:**	▪ Brick ▪ Limestone ▪ Cast Stone
SNF District:	WCR	**Window System(s):**	▪ Aluminum Replacements
		Roofing System(s):	▪ Built-Up Roof ▪ Slag Surfaced ▪ Granulated Cap Sheet Base Flashing ▪ Internal Roof Drains ▪ Gutters

Assessment Summary

Assessment Date:	August 06, 2020
WJE Inspector(s):	Sarah Rush
Report Date:	November 22, 2020
Building Risk Index:	**92.37**

Cost Estimate

Base Rehabilitation Cost Estimate:	$3,583,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$6,865,120
Sub-Total	$11,348,120
Contingency (25%)	$2,837,030
Sub-Total	$14,185,150
Overhead and Profit (15-18%):	$1,418,515
Sub-Total	$15,603,665
Escalation (6% for 2 years)	$936,219
Sub-Total	$16,539,884
Architectural and Engineering Design Services (20%):	$3,307,976
TOTAL COST ESTIMATE:	$19,847,861

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross assessed the condition of the historic fabric of the buildings

WJE performed a visual review of the building envelope from grade and roof levels, using binoculars as needed. WJE did access the interior of the building for general knowledge of the building layout and condition. Up-close examination of building elements and destructive inspection openings involving the removal of building materials to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

WJE visually assessed the exposed portions of the building envelope. Recognizing the limitations on visually detecting distress from afar and only the exterior portions, and the limitations on detecting concealed distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified facade conditions that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Roofing, Facade, Other)
  Conditions affecting the roofing are assigned a higher rating than those affecting the facade systems. Other includes items such as exterior steps and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, repointing of weathered mortar joints may be a minor distress, but a displaced parapet is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of steel lintels throughout a building.
- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other Detroit Public School Owned properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work
- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the *Secretary of Interior's Standards for The Treatment of Historic Properties*.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The original two-story Ruddiman School building occupies an "H" shaped footprint and faces west onto what was once Southfield Road. The original building was constructed in 1922 in phases with a core section in 1922, a northern classroom wing in 1923, and a southern wing, containing an auditorium and gymnasium, in 1924. A large, two-story addition was constructed to the north and east in the mid-1950s and includes an attached powerhouse and chimney. A second, single-story expansion was added to the east end of the first addition in the early 1960s. Two interior courtyards were created by the additions.

The 1920s construction consists of dark brown, Flemish bond brickwork and cast stone detailing. Stone units are present at horizontal belt courses, window sills, copings, window spandrels, and arched, second floor window heads. Punched wall openings contain aluminum replacement windows. The structural system generally consists of concrete tee joist-slabs spanning to mass brick masonry walls.

The two-story 1950s addition is clad with orange stretch bond brick and concrete masonry (CMU) backup. Limestone copings, sills, and accent units decorate the facade. Sheet metal fascia is present at some previously repaired roof areas in lieu of stone copings. Ribbon windows are infilled with aluminum windows that replaced original glass block infill. The structural system generally consists of a cast-in-place concrete frame with floor and roof structures that consist of concrete tee joist-slab construction with long span steel deck forms.

The tall, one-story 1960s addition has brick cladding similar to the 1950s era, though painted precast elements surround the windows, the copings are sheet metal. Punched wall openings are infilled with aluminum replacement windows. The structural system consists of precast concrete double-tee beams supported by precast concrete beams, girders, and columns.

The low-slope roofs throughout the current building consists of slag surfaced, built-up roofing (BUR) system with granulated cap sheet base flashing. The majority of the roof assembly is internally drained, though some perimeter sheet metal gutters and downspouts are present.

Overall, the building is in fair condition. The roofs are significantly deteriorated or damaged and are recommended for replacement. Masonry and stone repairs are recommended throughout the facades with the majority of significant distress concentrated within the original building and 1950s addition. The windows and exterior doors are largely missing and require replacement. Isolated areas of structural repairs are anticipated as a result of fire damage and water penetration into the building interior, particularly within the 1950s addition; further investigation is required.

Facade

Corrosion of the steel lintels was generally observed, with some areas containing significant masonry distress and lintel displacement due to the development of pack rust. The observed masonry distress includes cracked, spalled, and displaced brick, cast stone, and limestone elements. These regions require masonry repairs with improved flashing details and potential replacement of the steel elements to mitigate further distress to the masonry elements. Localized displaced areas of brick masonry should be rebuilt, and displaced cast stone units should be reset. Where water penetration has resulted in corrosion or freeze-thaw related damage to the reinforced cast stone elements, these units should be replaced in-kind or with alternative materials that maintain the historic aesthetic of the facade. The observed distress includes the ornate cast stone units over the arched windows and horizontal bands. Patch repairs are not recommended for these units as a durable repair solution. Limestone units that are missing or contain significant fire damaged require replacement. Localized spalls in limestone units at corroded steel anchors may be repaired. Spalled and fire damaged regions of brick veneer on the north facade of the 1950s addition require replacement.

A majority of the sheet metal and limestone copings on the 1950s addition are missing due to vandalism; and those remaining on site are damaged and not salvageable. At these locations, the roofing base flashing is generally pulled away from the masonry substrate or otherwise damaged, exposing the interior to water penetration.

The cast stone window surrounds at the 1960s addition contain isolated spalls and corrosion stains, and the perimeter sealant is typically failed. These elements should be repaired and repainted with installation of new perimeter sealant. Sealant within the control joints of the 1950s and 1960s addition is also typically failed and should be replaced.

A steel-framed canopy projects from the east facade of the 1960s addition. Paint has failed on the exposed steel frame and areas of corrosion and pitting are visible. Brick veneer is cracked at bearing areas. The exposed steel should be cleaned and painted with removal and replacement of isolated bricks to repair the bearing areas as needed.

The majority of the existing aluminum replacement windows and exterior doors are missing or are significantly damaged, warranting replacement.

Several of the building entrance steps and landings are damaged or deteriorated and require replacement with consideration of improved egress and accessibility. A steel fire escape on the south facade of the original building is also significantly corroded and requires removal or replacement.

Roofing

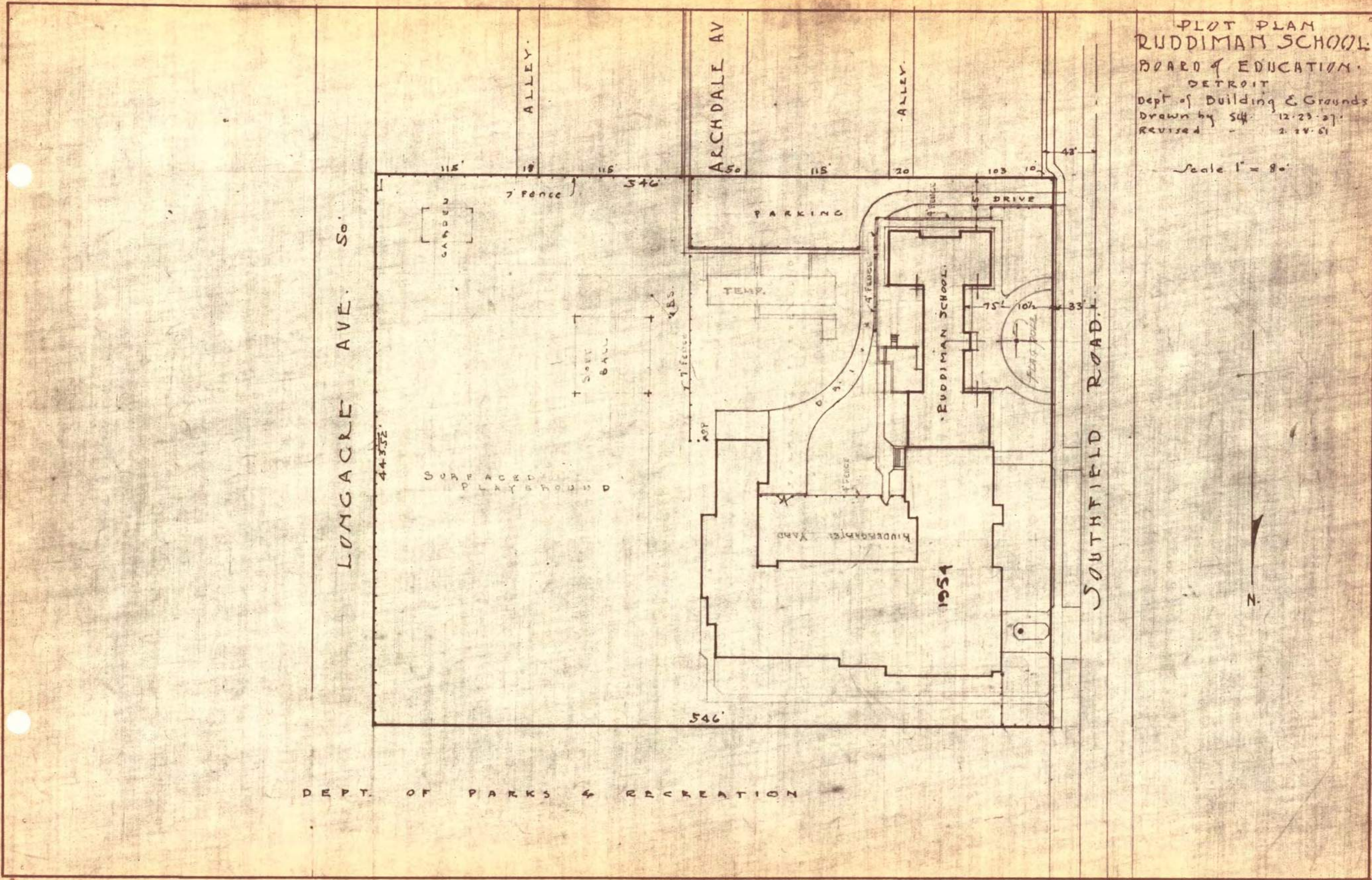
The roofing assemblies are in poor condition, largely due to the missing coping stones, missing flashing elements, and damage to the internal drains. Cracking and seam failures were observed throughout, base flashings are pulled away from the masonry substrate at areas of missing copings and flashings, vegetation growth and ponding were observed at failed drains, and the roof surface was soft underfoot in some areas. Water infiltration through the roofing is also apparent within the interior spaces of the 1950s addition. Removal and replacement of the roofing assembly, drains, and drain conductors is recommended.

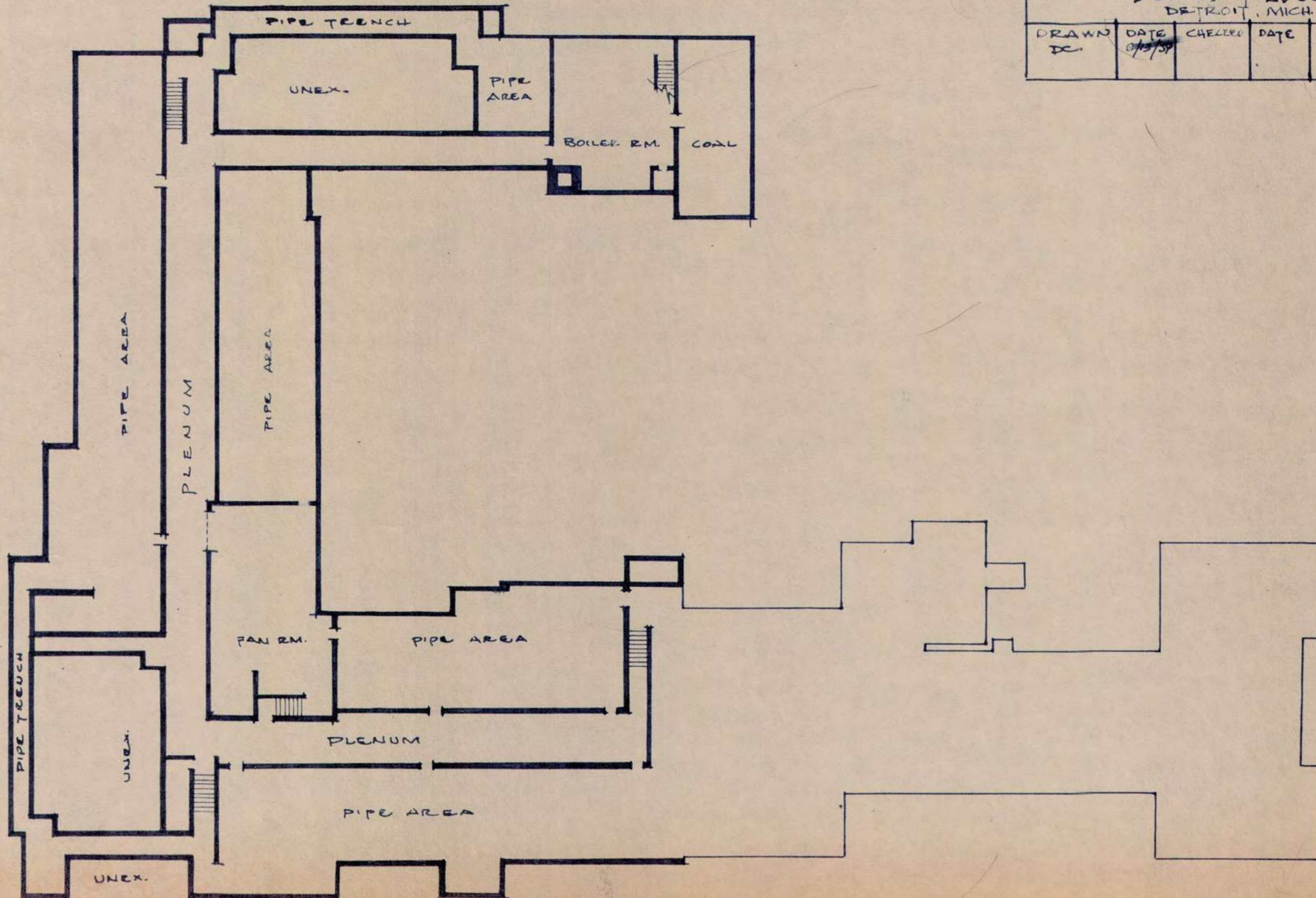
Structure

WJE's assessment was limited to the building envelope; however, WJE made the following additional observations of structural conditions in the course of assessing the building enclosure elements.

Structural damage was noted in several regions of the 1950s addition due to fire and water infiltration, including spalled concrete, corroded reinforcing bars, cyclic freeze-thaw damage, corrosion of the steel pan roof deck assembly including isolated areas of complete section loss and warped areas of the steel pan assembly due to heat exposure. A non-technical, marketing brochure of the 1950s era long span metal deck system was noted to advertise the decking as a “composite” concrete floor system. Corrosion of the metal deck is not a structural concern if it was used as a form deck but could be a structural concern if it is behaving compositely with the concrete or if the concealed concrete is deteriorated. Additional investigation would be required to determine the condition of the concrete and if the deck is composite.

The roof structures of the original building portion and 1960s generally appear in good condition with only isolated deterioration near missing mechanical units or failed drains, though some areas of the second floor of the original building are suspect due to the extent of vegetative growth within the building interior and water ponding from the failed drains. Assessment of the structure is recommended.


PLOT PLAN
RUDDIMAN SCHOOL
BOARD of EDUCATION
DETROIT
Dept of Building & Grounds
Drawn by SCH 12·23·27·
Revised - 2·24·61
Scale 1" = 80'
LONGACRE AVE. So.
ALLEY
ARCHDALE AV
ALLEY
SOUTHFIELD ROAD.
115'
18
115'
546'
50
115'
20
103
10
43'
7' Fence
GARDEN
PARKING
DRIVE
TEMP.
SOFT BALL
RUDDIMAN SCHOOL
75'
10½
33'
FLAG POLE
443.52'
SURFACED PLAYGROUND
KINDERGARTEN YARD
1954
546'
N.
DEPT. OF PARKS & RECREATION



RUDDIMAN SCHOOL

BASEMENT PLAN

SCALE 1/32 - 1'0"

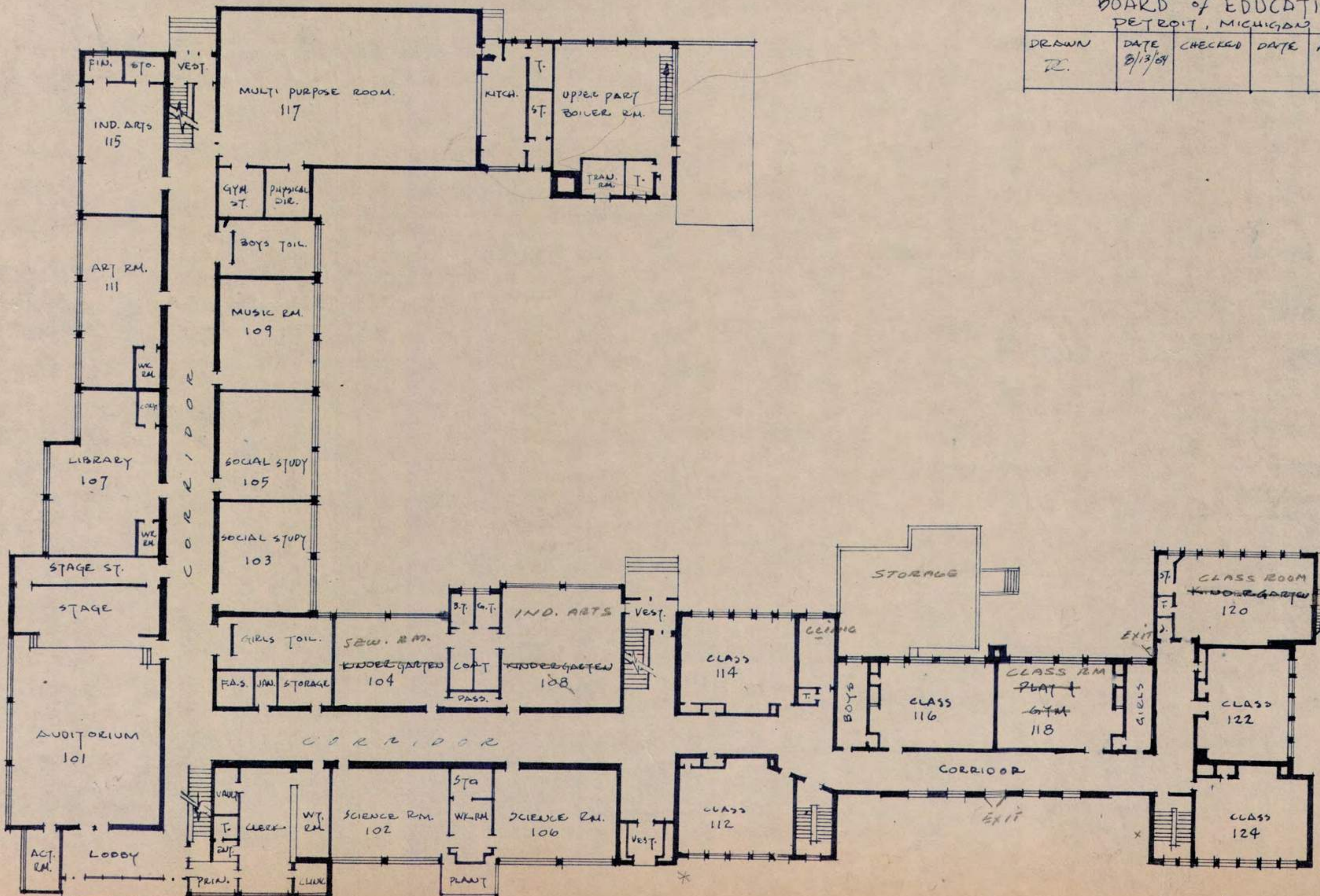
ARCHITECTURAL PLANNING DEPT.
BOARD of EDUCATION
DETROIT, MICH.

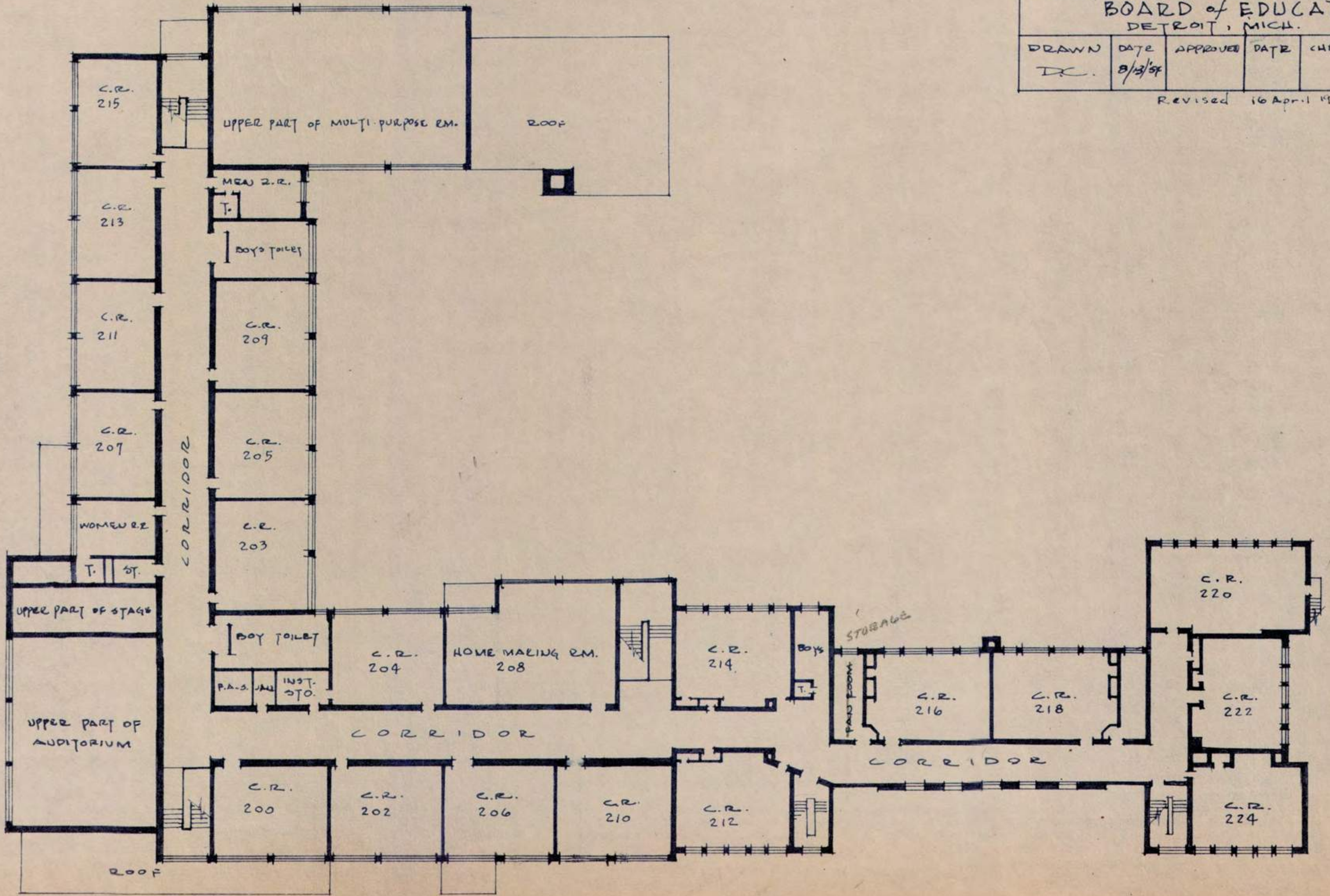
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
DC	0/13/39				

RUDDIMAN SCHOOL
FIRST FLOOR PLAN
SCALE 1/32"=1'0"

ARCHITECTURAL PLANNING DEPT.
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.	8/13/54				





RUDDIMAN SCHOOL

SECOND FLOOR PLAN

SCALE 1/32" - 1'0"

ARCHITECTURAL PLANNING DEPT.

BOARD of EDUCATION

DETROIT, MICH.

DRAWN	DATE	APPROVED	DATE	CHECKED	DATE
D.C.	8/13/54				

Revised 16 April 1956