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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
City Council District:	3
SNF District:	CDB

Structural Framing System:	■ Cast-in-Place Concrete ■ Precast Concrete ■ Brick Masonry ■ Structural Steel ■ Wood ■ Gypsum and Tectum Roof Decks
Exterior Wall System:	■ Brick ■ Stone
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.

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 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

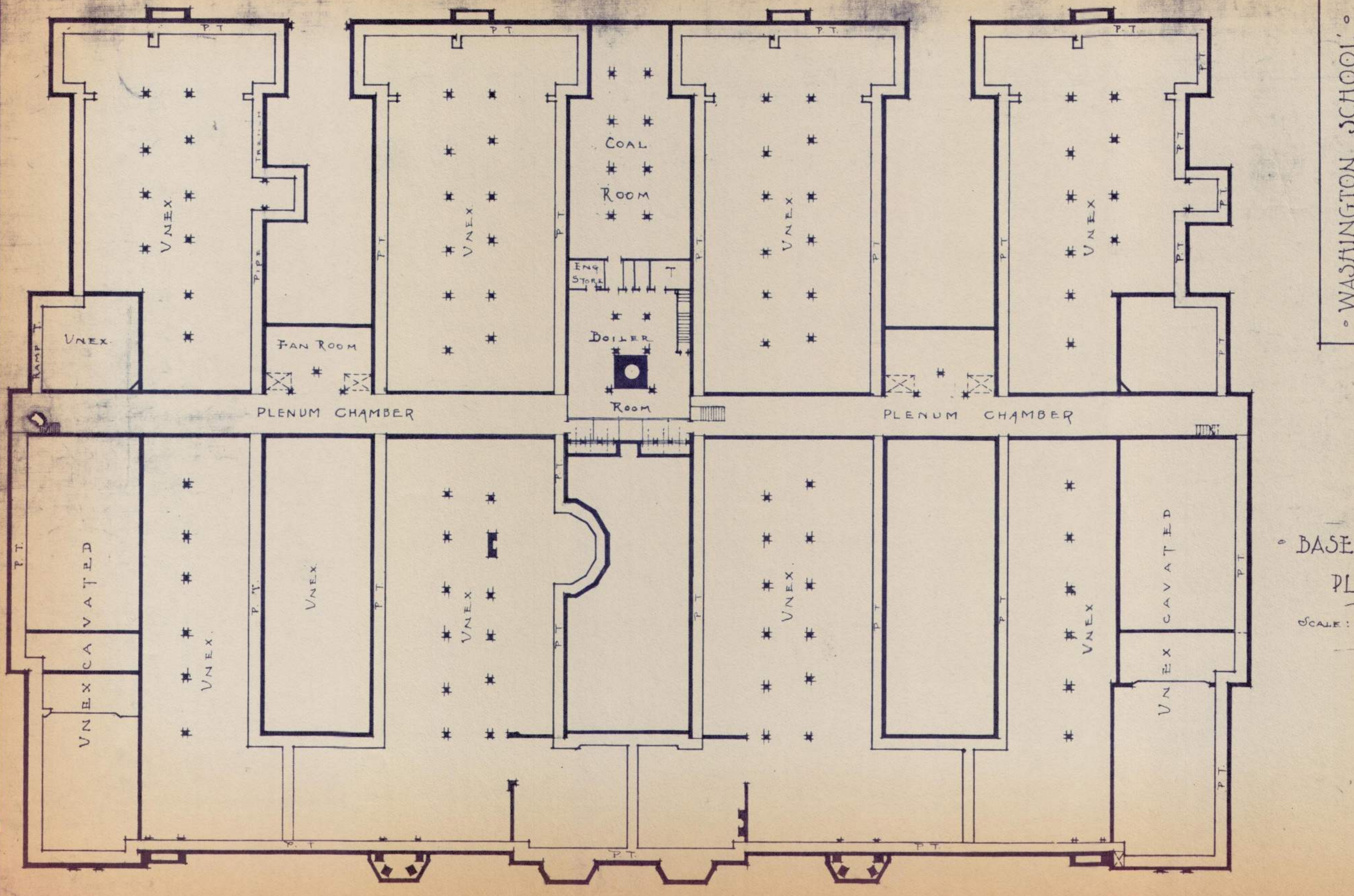
The structural systems are in serviceable condition. The roof structural systems are experiencing the greatest distress as a result of the various failures to the roofing systems. The roof decking of the low-slope roofs consists of materials particularly prone to water-related deterioration such as gypsum 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.



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DETROIT, MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
[signature]	9/27/29				

BASEMENT PLAN

SCALE: 1'-0" = 32'-0"

WASHINGTON SCHOOL

FIRST FLOOR PLAN

SCALE: 1'-0" = 32'-0"

CORRECTED 10-14-'42

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C.R. 155
C.R. 153
C.R. 149
C.R. 147
PLAY ROOM 141
CORRIDOR
SCIENCE 151
CONS
SCIENCE 145
SPECIAL 143
CLASS RM. 125
CLASS RM. 121
CLASS RM. 117
CLASS RM. 113
CORRIDOR
CLASS ROOM 127
CLASS RM. 123
CLASS RM. 119
CLASS RM. 115
CORRIDOR
CLASS ROOM 158
ARC WELDING SHOP 152
CORRIDOR
CLASS RM. 160
AUTOMOBILE SHOP 154
ST.
DRAFTING ROOM 148
MATH 144
MATH 140
CORRIDOR
RAMP
ENG CLASS R. 150
146
CRIB
INSPECTION
142
DRAFTING 138
CORRIDOR
CORRIDOR
CORRIDOR
GYMNASIUM
139
PHYS. DIRECTOR
STAGE
133
AUDITORIUM
CORRIDOR
GIRLS
SPECIAL 111
LITERATURE 137
SPECIAL 107
105
LITERATURE 135
SPECIAL
CORRIDOR
CORRIDOR
BOYS
KINDERGARTEN 109
COATS
K'DERGARTEN 103
BOYS
ST.
KITCHEN
LUNCH ROOM 106
CORRIDOR
110
HOME MAKING
WR
PHYS
TOOL
LUMBER
MANUAL TRAINING 108
WOMEN
STORAGE
METAL BENCH SHOP 134
CORRIDOR
MACHINE SHOP 136
CRIB
STAGE
BLUE PRINT READING 132
CORRIDOR
131
MUSIC
129
ART
WTING RM. 101
CLERKS
PRIN
100
LIBRARY
102
CHILDREN'S LIBRARY
104
TEACHERS ROOM
128
BLUE PRINT READING
OFFICE
ST.
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JGS	9-22-24				

Sh. Rm.
Sh. & D. Rms.
Girls Locker Room
B. L. R.
Storage
Gymnasium Upper Part
Storage
Auditorium Upper Part
P. B.
ROOF
COURT
F. A. S.
S. S.
ROOF
COURT
COURT
ROOF
COURT
S. S.
F. A. S.
ROOF
COURT
Sh. & D. Rms.
Sh. Rm.
G. L. R.
B. L. R.
Storage
Gymnasium Upper Part
Auditorium Upper Part
P. B.