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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:

- 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 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 BUILDING & GROUNDS
BOARD of EDUCATION ·
· DETROIT MICHIGAN ·

Drawn by —
SH. 3-13-35.

REV. 8-8-51

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

ADDITION #2
1951

FIRST UNIT

ADDITION #1

LAWN

525

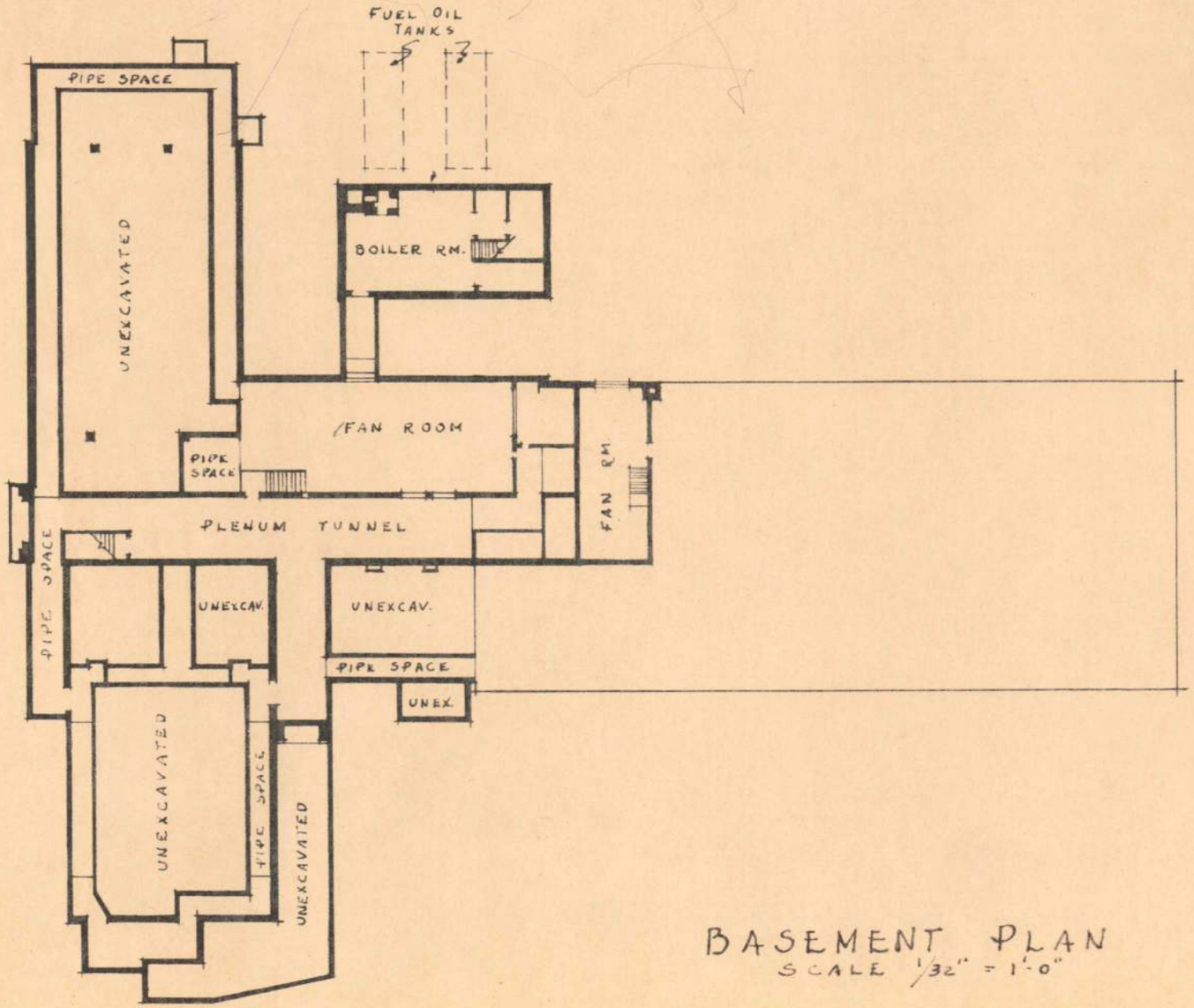
N.

SCALE 1" = 60'

LESLIE SCHOOL

DEPT. OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
T.J.T.	8/3/51				



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

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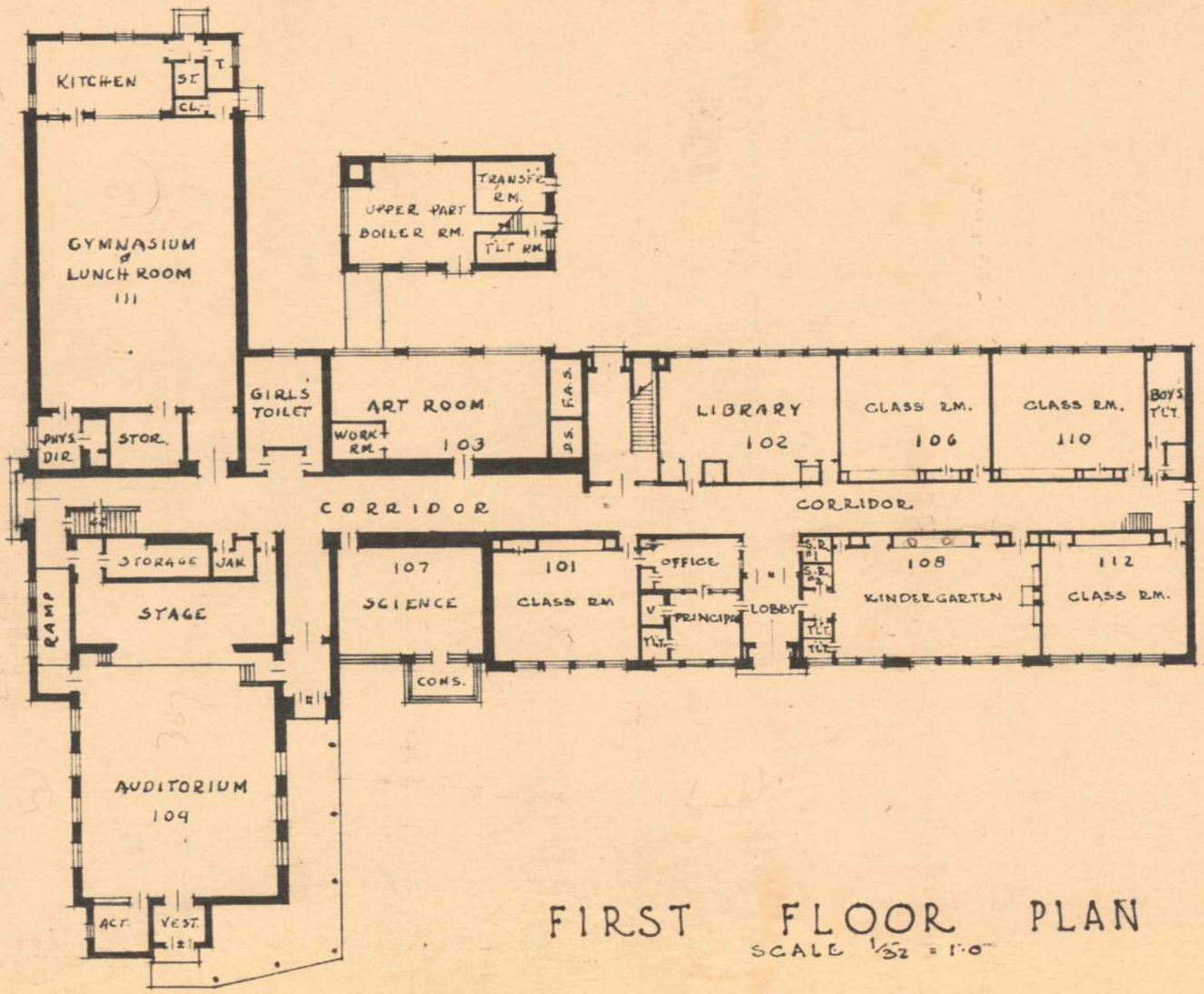
BOARD of EDUCATION
DETROIT, MICHIGAN

DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.A.F	5-13-26	A. L. S.	5-14-26		

REV 9.2.41



FIRST FLOOR PLAN

SCALE 1/32 = 1'-0"

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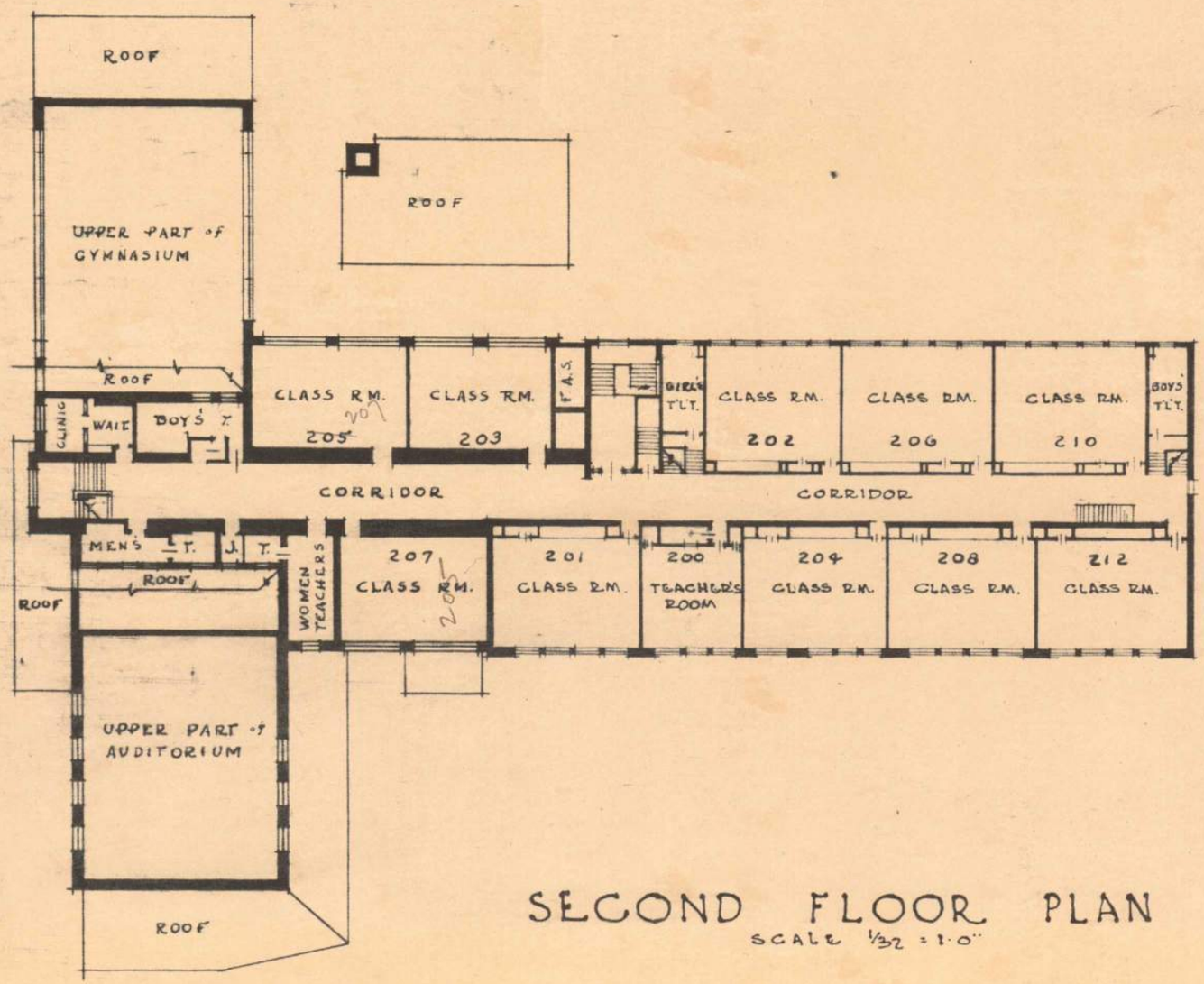
DRAWN	DATE	CHECKED	DATE	ADDITION	DATE
O.H.F.	3-13-26	G.L.S.	5-14-26		

Rev. 8/4/51



SECOND FLOOR PLAN

SCALE 1/32 = 1'-0"