

## 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

<b>Short Name:</b>	Macomb
<b>Address:</b>	12051 Evanston Street, Detroit, Michigan 48213
<b>Year Built:</b>	1928
<b>Additions Built:</b>	None
<b>Outbuildings:</b>	None
<b>Year Vacated:</b>	2009
<b>Building Footprint:</b>	140 feet x 150 feet
<b>Square Footage:</b>	26,243 sq. ft.
<b>Number of Stories:</b>	2
<b>Building Height:</b>	28 ft.



<b>Current Ownership:</b>	City of Detroit	<b>Structural Framing System:</b>	<ul style="list-style-type: none"> <li>■ Cast-in-Place Concrete</li> <li>■ CMU</li> </ul>
<b>City Council District:</b>	4	<b>Exterior Wall System:</b>	<ul style="list-style-type: none"> <li>■ Brick Masonry</li> <li>■ Cast Stone</li> <li>■ Limestone</li> </ul>
<b>SNF District:</b>	NA	<b>Window System(s):</b>	<ul style="list-style-type: none"> <li>■ Wood</li> <li>■ Aluminum Replacement</li> </ul>
		<b>Roofing System(s):</b>	<ul style="list-style-type: none"> <li>■ Built-up Roof</li> <li>■ Asphalt Shingles</li> <li>■ Gutters</li> <li>■ Internal Roof Drains</li> </ul>



### Assessment Summary

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**Assessment Date:** May 21, 2020

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**WJE Inspector(s):** Cheryl Early; Sarah Rush

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**Report Date:** October 28, 2020

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**Building Risk Index:** 47.72

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### Cost Estimate

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**Base Rehabilitation Cost Estimate:** \$501,050

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**Preparation for Rehabilitation Work:** \$900,000

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**Mechanical, Electrical, Plumbing,  
Fire Protection (\$80/sq ft):** \$2,099,440

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**Sub-Total** \$3,500,490

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**Contingency (25%)** \$875,122

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**Sub-Total** \$4,375,612

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**Overhead and Profit (15-18%):** \$787,610

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**Sub-Total** \$5,163,222

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**Escalation (6% for 2 years)** \$309,793

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**Sub-Total** \$5,473,016

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**Architectural and Engineering  
Design Services (20%):** \$1,094,603

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**TOTAL COST ESTIMATE:** \$6,567,619

## 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 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 is flooded, and thus, was not accessed. The structural elements are painted serving as a majority of the interior 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.

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 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.

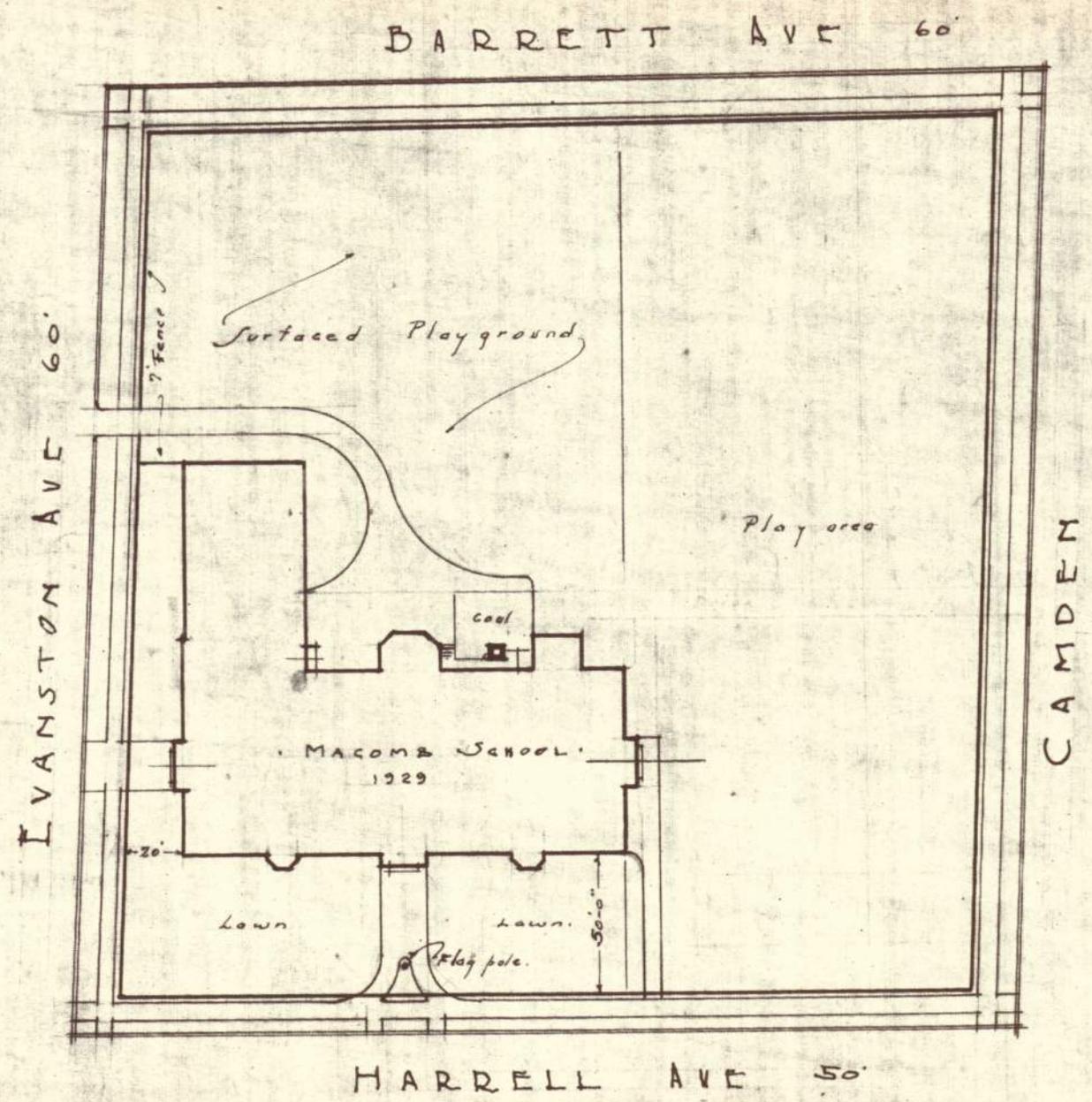
Unique cracking patterns were observed in the CMU walls in Playroom 105 at the southeast corner of the building. An approximate 1/8 inch wide horizontal crack was observed in the masonry pier between the windows in this room at the bottom corners of the windows. No displacement or other distress was 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.

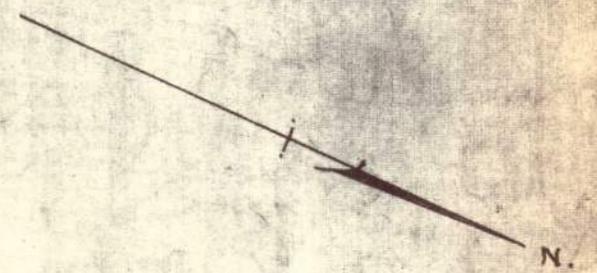
### **Miscellaneous**

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 J.H. March 4, 1929.



SCALE 1" = 60'  
2.13 Acres.

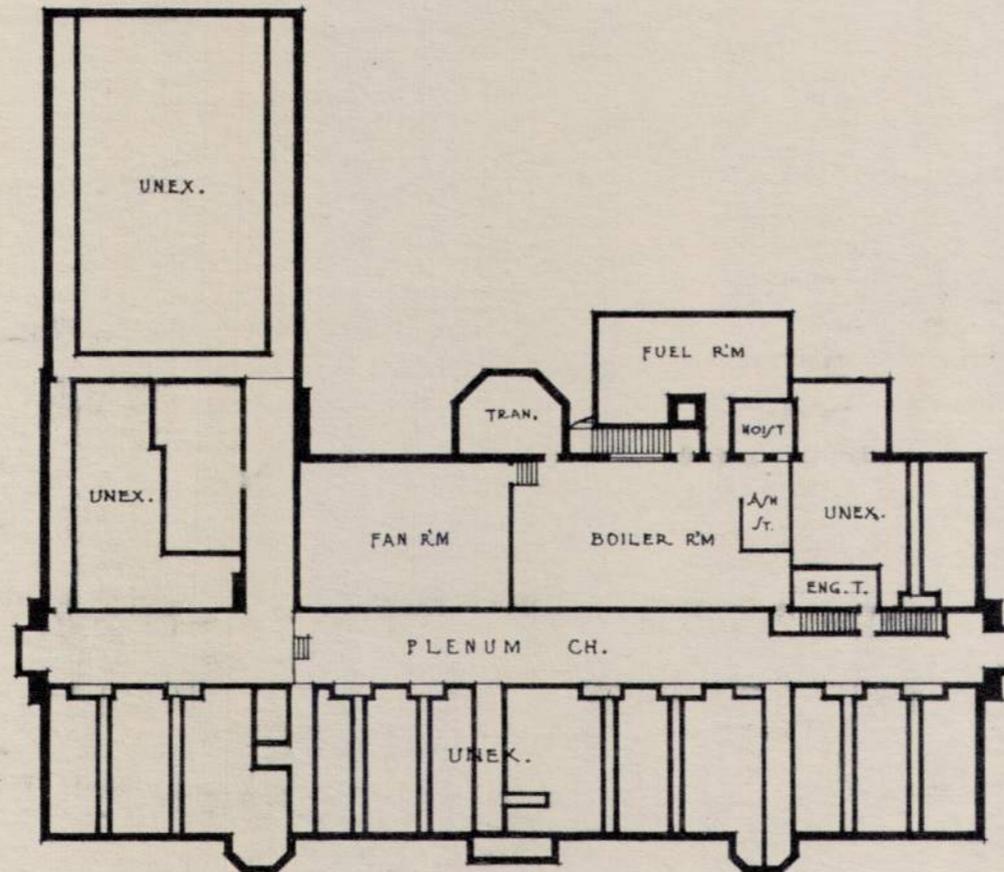


MACOMB SCHOOL  
BASEMENT PLAN

DEPT OF BUILDINGS & GROUNDS  
BOARD of EDUCATION  
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	12-28-25	J. O. B.	1/10/29		

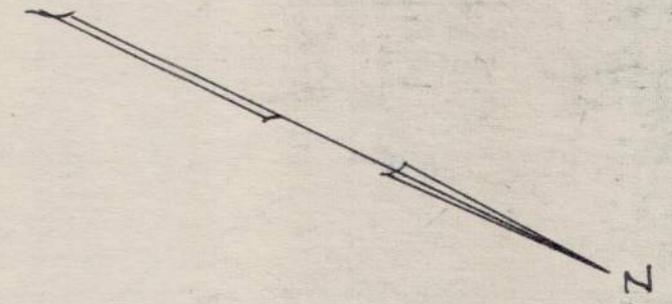
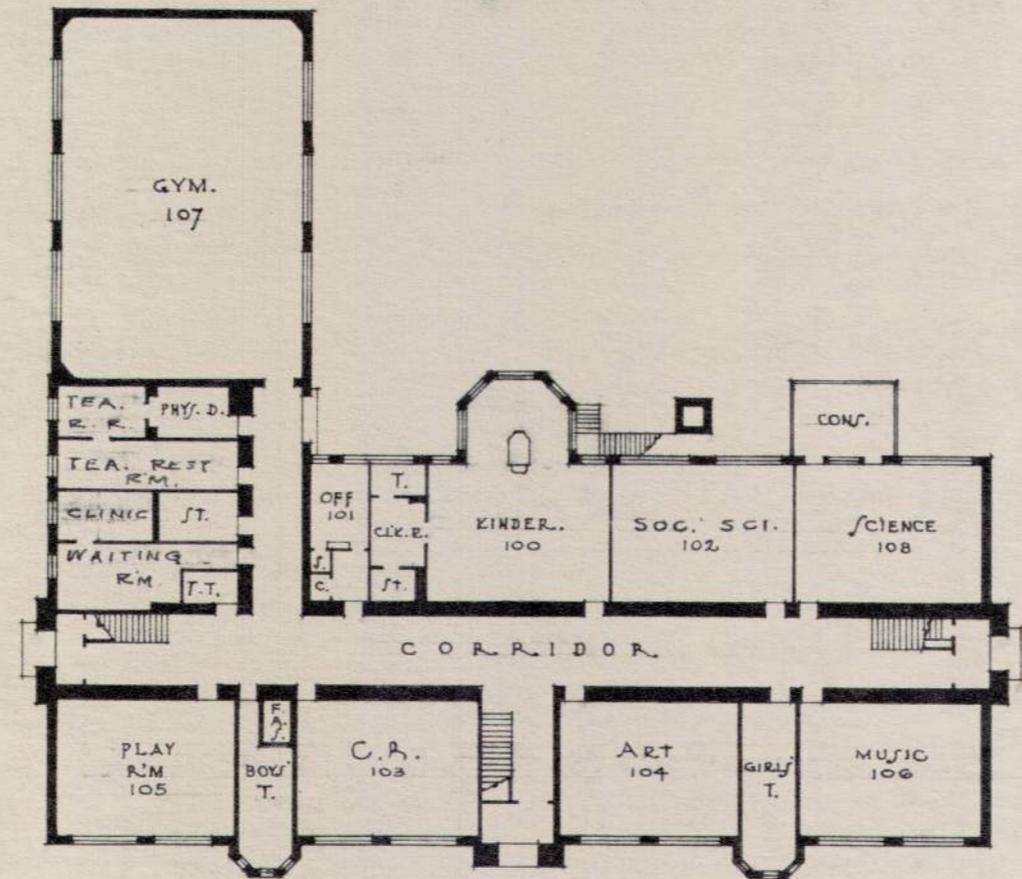
REVISED 9/19/46 G.H.M.



MACOMB SCHOOL  
FIRST FLOOR PLAN

DEPT OF BUILDINGS & GROUNDS  
BOARD OF EDUCATION  
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	12-28-'28	F. L. L.	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	12-28-29	F.A.B.	1-10-29		
REVISED		9/17/46		G.H.M.	

