

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	Structural Framing System:	<ul style="list-style-type: none"> ▪ Cast-in-Place Concrete ▪ CMU ▪ Structural Steel
City Council District:	7	Exterior Wall System:	<ul style="list-style-type: none"> ▪ Stone ▪ Brick ▪ Cast-in-Place Concrete
SNF District:	NA	Window System(s):	<ul style="list-style-type: none"> ▪ Aluminum
		Roofing System(s):	<ul style="list-style-type: none"> ▪ 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

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 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.

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 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.

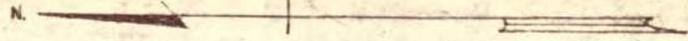
Miscellaneous

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.

2.60 Acres



PLOT PLAN
DR. OAKMAN SCHOOL
BOARD of EDUCATION
DETROIT
Dept. of Building & Grounds
Drawn by P.M. Jan. 14, 1929

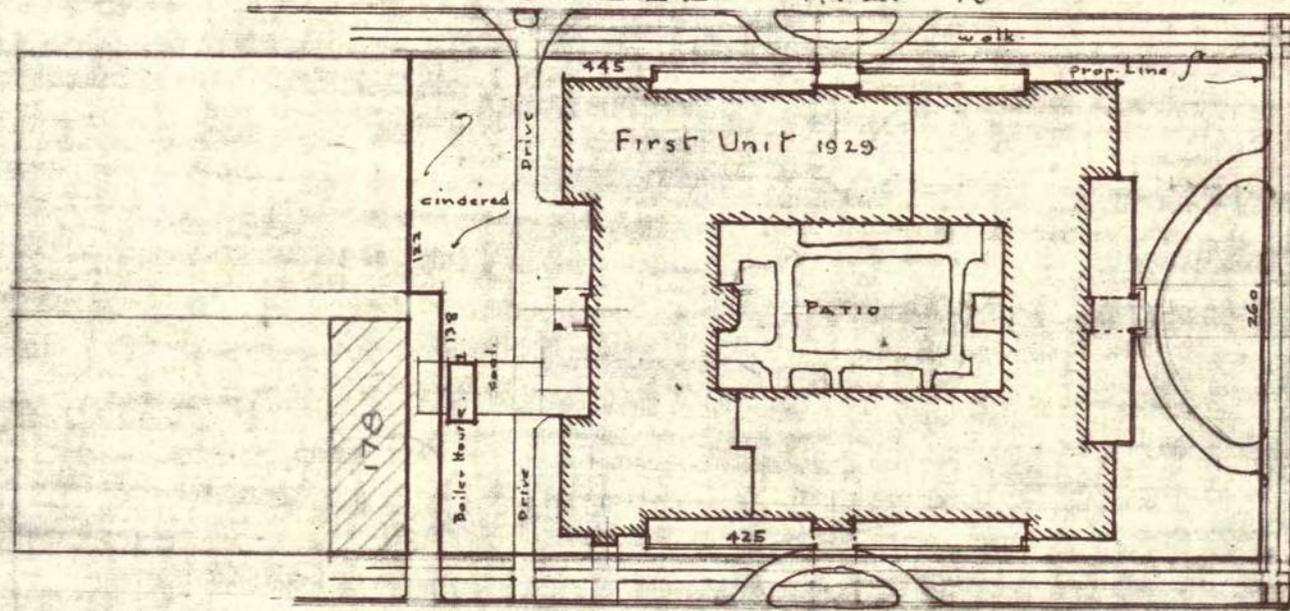
Scale 1" = 100'

CAPITAL AVE 50'

STEEL AVE. 75'

WADSWORTH AVE 50'

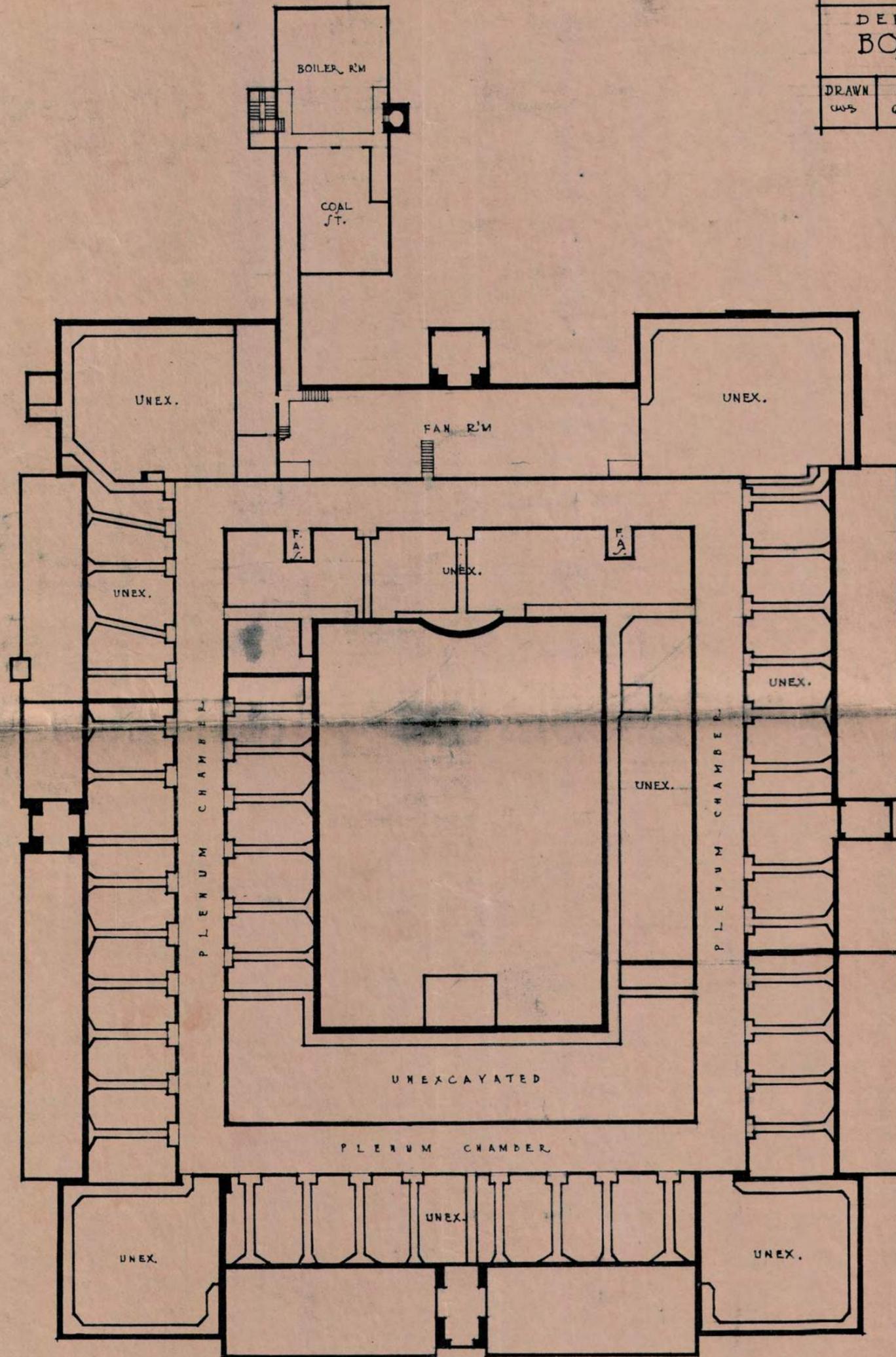
SORRENTO AVE. 75'



OAKMAN SCHOOL
BASEMENT PLAN

DEPT OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT-MICH

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
CWS	6-11-29	R.F.V.	6-17-29		



OAKMAN SCHOOL
GROUND FLOOR PLAN

DEPT OF BUILDINGS & GROUNDS
BOARD OF EDUCATION
DETROIT MICH.

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
C. A. ...	4-25-29	A. J. ...	6-17-29		

