

## VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

### City of Detroit RFP# 19BW2717

### Building Envelope and Structural Assessment Report

### Jamieson Elementary School

#### Basic Property Information: COD 5-Jamieson-2900 W Philadelphia

<b>Short Name:</b>	Jamieson
<b>Address:</b>	2900 West Philadelphia Street, Detroit, Michigan 48206
<b>Year Built:</b>	1961
<b>Additions Built:</b>	1964
<b>Outbuildings:</b>	None
<b>Year Vacated:</b>	2010
<b>Building Footprint:</b>	175 feet x 325 feet
<b>Square Footage:</b>	62,294 sq. ft.
<b>Number of Stories:</b>	2
<b>Building Height:</b>	24 ft.



<b>Current Ownership:</b>	City of Detroit	<b>Structural Framing System:</b>	<ul style="list-style-type: none"> <li>▪ CMU</li> <li>▪ Structural Steel</li> <li>▪ Open Web Steel Joists and Concrete Deck</li> <li>▪ Gypsum Roof Deck</li> </ul>
<b>City Council District:</b>	5	<b>Exterior Wall System:</b>	<ul style="list-style-type: none"> <li>▪ Brick</li> <li>▪ Precast Concrete Panels</li> <li>▪ Metal Panels</li> <li>▪ Curtain Wall</li> </ul>
<b>SNF District:</b>	NA	<b>Window System(s):</b>	<ul style="list-style-type: none"> <li>▪ Aluminum</li> </ul>
		<b>Roofing System(s):</b>	<ul style="list-style-type: none"> <li>▪ Built-Up Roof</li> <li>▪ Internal Roof Drains</li> </ul>



### Assessment Summary

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**Assessment Date:** May 19, 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:** 124.80

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### Cost Estimate

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**Base Rehabilitation Cost Estimate:** \$3,733,000

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

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**Mechanical, Electrical, Plumbing,  
Fire Protection (\$80/sq ft):** \$4,983,520

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**Sub-Total** \$9,616,520

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**Contingency (25%)** \$2,404,130

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**Sub-Total** \$12,020,650

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**Overhead and Profit (15-18%):** \$1,202,065

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**Sub-Total** \$13,222,715

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**Escalation (6% for 2 years)** \$793,362

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**Sub-Total** \$14,016,077

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**Architectural and Engineering  
Design Services (20%):** \$2,803,215

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**TOTAL COST ESTIMATE:** \$16,819,293

## ASSESSMENT METHODS

### Visual Survey

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

WJE performed a cursory visual review of the building envelope from grade and the second-floor structure, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the condition of the gypsum roof deck. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement areas, located in the corners of the original building, are flooded or access stairs removed, and thus, were not assessed. The structural system is mainly exposed throughout the building as part of the original design of the building. The walls are of painted concrete masonry unit (CMU) construction and a suspended ceiling allows for access to the underside of the roof and second floor structures. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

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

### Limitations of Assessment

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

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment.

The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

## Document Review

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

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

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

## Risk Characterization

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

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

- 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 1961 original building is square in footprint with an interior courtyard space. A second floor was constructed above the north wing of this original footprint. Three years later, a nearly identical single-story addition was constructed to the south, including a second courtyard space.

The facade consists primarily of a dark colored brick veneer with concrete masonry (CMU) back-up, metal panels, and precast concrete accent panels with an exposed aggregate surface. The presumed curtain wall system is missing at all fenestration locations. The low-slope roofing consists of an internally drained, smooth-surfaced, bituminous built-up roof (BUR).

The exposed structure consists of CMU walls infilling steel beam and column frame systems. Open web steel joists (OWSJ) span between the beams and support a draped concrete slab spanning the approximate twenty-four inch spacing between the OWSJ system of the second-floor structure. The OWSJ are spaced at a greater distance at the roof levels and support either a gypsum or metal roof deck, respective of the area of the building and corresponding date of construction.

The full exposure of the interior of the original portion of the building to the elements is affecting the structural members. The gypsum roof deck is considered unsafe to walk upon; corrosion of the structural steel elements, including the OWSJ system, is present, and the minimal depth of the second-floor concrete slab and observed water infiltration through the slab makes the structural capacity of the concrete suspect. Full replacement of the curtain wall system and roofing are required. The building can be rehabilitated but will most likely require demolition of all but the original steel frame and CMU walls of the original, northern portion. Localized repairs of the southern, single-story addition are required, but are more feasible in scope and quantity.

### **Facade**

The brick masonry veneer is generally in good, serviceable condition. Mortar deterioration was observed at the top of the brick masonry chimney, which should be repointed. The precast aggregate panels are generally in serviceable condition, though the sealant materials between the panels are deteriorated and require replacement.

The majority of the aluminum windows and curtain walls are missing. Where localized elements remain, damage and deterioration was observed, such as bent frames, missing glass, and failed sealant. Rehabilitation of the building should include full replacement of the curtainwall assemblies. The sheet metal panels are distressed including missing and displaced elements, dented panels, and localized areas of peeling paint and corrosion. These panels are recommended for replacement in conjunction with curtainwall replacement work.

### **Roofing**

The roofing is in poor condition and requires full replacement. Several areas of the roofing have blown off, including a large area of adhesive failure over the upper second story portion based on a review of aerial photographs. This upper roof area also contains evidence of ponded water and large vegetative growth. The aluminum fascia along the building perimeter as well as other localized aluminum flashing elements

have been removed, exposing and damaging the edge of the roofing assembly. Cracking and seam failures were observed throughout, in addition to organic growth and ponded water near drains. The expansion joint between the original building and addition was cracked. Deterioration of the roofing assembly, and the open nature of the exterior walls due to the missing curtain wall, are resulting in significant deterioration of the structural systems.

## Structure

With minimal finishes throughout the original building and the addition, the structure is readily visible. In the northernmost wing of the building, the two-story segment of the original 1961 building contains ponding water on the second-floor structure and presumably on the upper roof based on the amount of water infiltration observed through the gypsum roof deck. The roof deck is visibly failing, and moss growth is prevalent on the second-floor structure indicating a sustained presence of water. Corrosion is evident at nearly every structural steel beam to column connection at the upper roof level. The second-floor concrete slab is relatively thin, and due to the continued water ponding, is vulnerable to potential freeze-thaw damage. Further assessment, potentially including concrete cores and petrography of the concrete, is recommended to determine the extent of damage of the second-floor deck. All of the gypsum roof deck is recommended to be replaced with metal roof deck, and all of the structural steel, including the OWSJ, should be cleaned of the corrosion byproduct (rust), assessed, reinforced if necessary, and recoated.

Based on the detailing of the structural steel beams and columns, the steel frames are not moment frames resisting lateral loads; the steel is intended to only support the gravity loads of the structure. The lateral loadings due to wind and seismic activity are intended to be resisted by the CMU infill walls. At the end walls at the north wing, the CMU is vertically cracked and visibly displaced inward. The cracking may be related to water infiltration, restrained thermal or volumetric changes in the materials, or relative stiffness of the walls within the steel frame. These cracks may recur after rehabilitation and remain an ongoing maintenance item unless the underlying cause of the cracking is further assessed and mitigated.

At the west wing corridor of the original building, adjacent to the courtyard space, a beam supporting the OWSJ roof members has been removed. The OWSJ in this area appear to be suspended from the gypsum roof deck system. This area of roof is recommended to be shored as soon as possible to mitigate the potential for a localized roof collapse and associated collateral damage to adjacent connected elements of the building. The temporary shoring can be replaced with a new support system if the building is to be re-used.

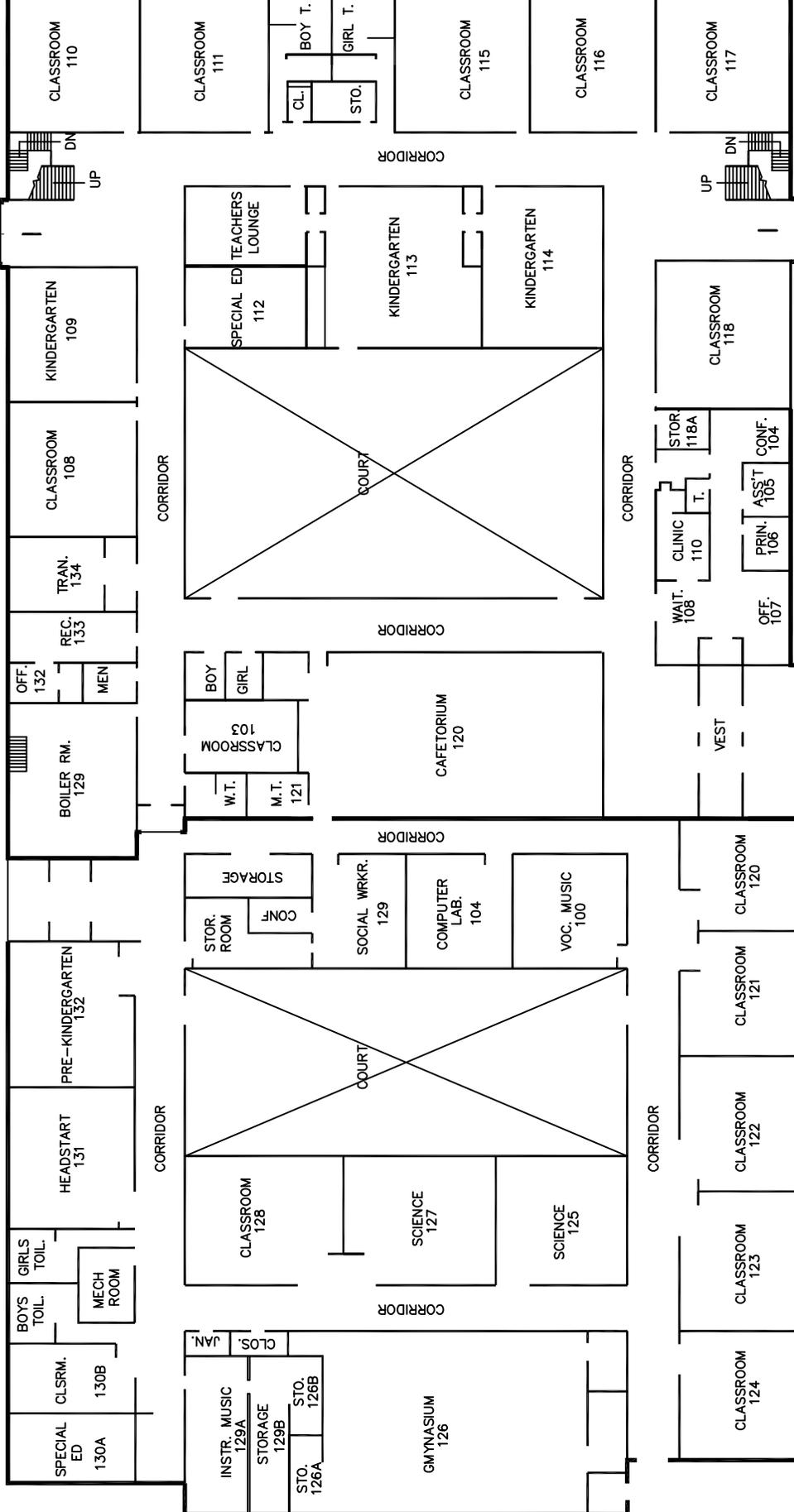
The southern addition is in better condition compared to the original building. The curtain wall system is missing, but the metal roof deck and structural steel are in better condition. The structure is sloped to accommodate the roof drainage, however localized corrosion of the roof deck is visible in multiple locations which may require localized reinforcement or replacement of the roof deck. The CMU walls are cracked in multiple locations throughout this addition, which may reflect water infiltration, restrained thermal or volumetric changes in the materials, or relative stiffness of the walls within the steel frame. Cracking of the CMU in a Janitor's Closet in the southwest corner of the building is extensive, but it can be repointed and monitored if the walls are to remain with a potential new use. Corrosion staining on the

CMU at the OWSJ bearings should be further evaluated to assess the bearing condition of the OWSJ on the CMU.

## **Miscellaneous**

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

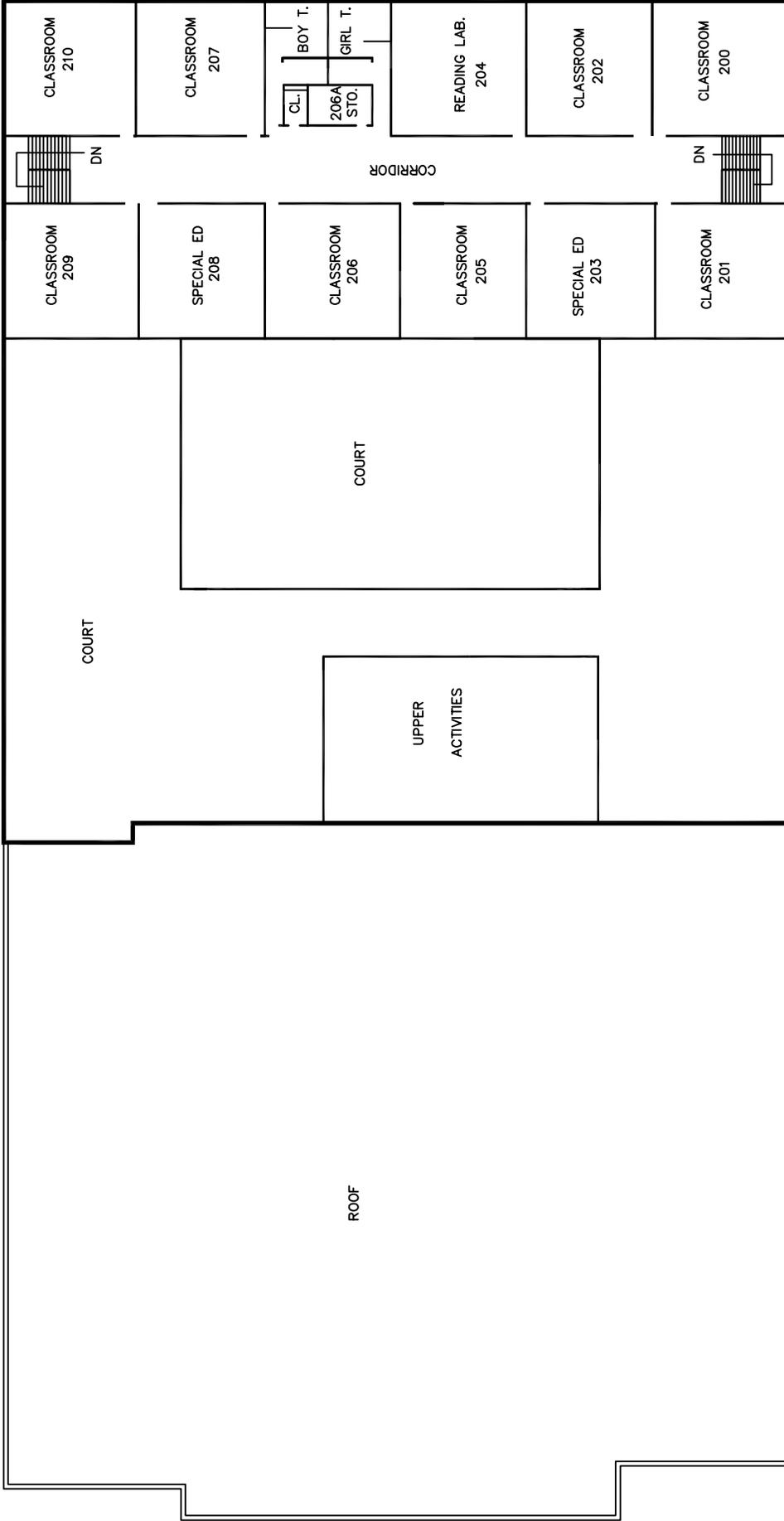
Similarly, dewatering and providing access into the basement spaces of the original building are recommended to allow for assessment of these portions of the building prior to the implementation of the recommendations stated herein.



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