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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Parker Elementary School

Basic Property Information: COD 7-Parker-12744 Elmira

Short Name:	Parker
Address:	12744 Elmira Street, Detroit, Michigan 48227
Year Built:	1927
Additions Built:	1973
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	365 feet x 140 feet
Square Footage:	55,363 sq. ft.
Number of Stories:	2
Building Height:	30 ft.
Current Ownership:	City of Detroit
City Council District:	7
SNF District:	NA

Structural Framing System:	■ Cast-in-Place Concrete ■ Brick Masonry ■ Structural Steel ■ Wood
Exterior Wall System:	■ Limestone ■ Granite ■ Brick
Window System(s):	■ Wood
Roofing System(s):	■ Built-Up Roof (assumed) ■ Internal Roof Drains

Assessment Summary

Assessment Date:	February 13, 2020
WJE Inspector(s):	Cheryl Early; Sarah Rush
Report Date:	November 16, 2020
Building Risk Index:	**81.37**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,764,000
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$4,429,040
Sub-Total	$7,093,040
Contingency (25%):	$1,773,260
Sub-Total	$8,866,300
Overhead and Profit (15-18%):	$1,329,945
Sub-Total	$10,196,245
Escalation (6% for 2 years)	$611,774
Sub-Total	$10,808,019
Architectural and Engineering Design Services (20%):	$2,161,603
TOTAL COST ESTIMATE:	$12,969,623

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelope and structure 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 facades from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. 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 interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

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

Limitations of Assessment

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

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

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

- Floor Plans (included with this report)
- Environmental Reports
- 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, original portion of the building is primarily rectangular in footprint, with a central wing minimally extending to the north. A single-story addition was constructed to the north, connected to the eastern end of the original building with a small connector link hallway.

The facade generally consists of multi-wythe clay brick masonry. Limestone accent pieces frame the entrances, window sills, coping, ornamental bands, and other localized ornamental features. Granite masonry is present within the alcove on the south facade. The original wood-framed window openings and exterior doors are currently boarded with plywood. The low-slope roofing was not accessed due to ladder limitations, but it likely consists of an internally drained, built-up roof or modified bitumen roofing that may be gravel-surfaced.

The structural system generally consists of reinforced concrete beams and columns supporting reinforced concrete floor and roof construction. The concrete tee joist-slab floor and roof decks are supported by the interior beam and column line and the perimeter mass masonry walls. The wood and metal forms for the concrete construction have been removed, potentially for reuse during original construction. The majority of the interior walls are non-load bearing partitions constructed of gypsum tile units and metal lathe-supported plaster. The north central portion of the building, housing the gymnasium and auditorium, is of brick masonry wall construction supporting structural steel trusses which support the wood plank roof deck.

A pre-fabricated, steel-framed addition is connected with a small, single-story, steel-framed corridor to the central north end of the main building. The pre-fabricated structural elements of the addition are nearly all that remain in place. All exterior walls and interior partitions, excepting a concrete masonry unit (CMU) core, are missing or damaged; suspended ceiling tiles and light fixtures are in place only in the northernmost bay.

Although initial appearances of the existing conditions are concerning based on the magnitude of the failure of the finishes, the main building is in a good condition. The roof and windows require replacement. Failed and missing roof drains and missing mechanical rooftop units are allowing a significant amount of water to collect on the top of the second-floor corridor and drain to the first-floor corridor. The extent of ponded water is leading to material degradation of the concrete roof and second floor structure, as well as deterioration of the interior finishes. The main structural frame, which is either conventionally reinforced concrete, or structural steel encased in concrete, is in good condition. The tee joist-slab system supported by the interior beams and perimeter masonry walls exhibits minor distress related to the water infiltration from the deteriorated condition of the roof system, primarily in the corridors. The plaster finishes are fully deteriorated and missing in the corridors; some plaster is present in the classrooms but is deteriorating and the wood flooring is buckled. Window barricades were missing in several locations, and at the time of our assessment, it was apparent that this building was actively utilized by others. Of note, a gas-like smell was noted in the north side of the west end of the building, and multiple deceased and live animals were found within the building. Further detail of the observed distress is provided below.

Facade

The mass masonry walls are in relatively good condition. Localized cracking and masonry displacement were observed, which is primarily attributed to water infiltration into the wall assembly and subsequent corrosion of the embedded steel lintels. Deterioration of the brick masonry mortar was frequently observed at the parapets, potentially due to water infiltration into the parapets due to deterioration of the roofing and/or parapet flashings. Mortar within the limestone and granite masonry joints is also frequently deteriorated. Rehabilitation of the building should include repair of these masonry elements to mitigate water infiltration within the wall assembly and building interior, and to mitigate further distress.

The wood windows and frames are significantly distressed or missing and require replacement. Several existing plywood coverings over the window openings are displaced or missing, which is permitting weather exposure to the interior elements and reduces building security. Such temporary window coverings should be maintained to mitigate further water infiltration-related distress and deter vandalism. Rehabilitation of the building should include replacement of the window assemblies.

Roofing

The low-slope roof levels were not accessed at the time of this assessment due to access ladder limitations. Drains and rooftop mechanical units are typically damaged or missing, resulting in bulk water infiltration into the roofing assembly and second floor corridors. At the lower roofs of the building entrances, holes in the roofing assembly were visible from below and significant water damage was present within the wood framing and decking elements. Rehabilitation of the building should include removal and replacement of the low-slope roofing assemblies and internal drain and pipe systems.

Structure

With the exception of isolated areas, the structure is in good condition. The interior finishes are in a state of deterioration, exposing the structural framing systems, especially in the primary corridor spaces.

The roof and second-floor concrete tee joist-slab systems are exposed on the underside in the corridor spaces and have localized areas of efflorescence and corrosion staining. Cracking is present in the underside of the slab between the joists and at each end of the beam framing the southern central entryway. A small hole in the floor of a second-floor bathroom space located east of the gymnasium is currently covered with debris; the hole is only visible from the underside. A relatively small area of the second-floor concrete tee joist-slab structure is exposed in the library space where there has been a fire event which has destroyed all the finishes in this room. The soot is recommended to be encapsulated or cleaned from the remaining concrete structure. The second-floor concrete structures are recommended to be further assessed up-close. Partial-depth concrete repairs are anticipated in some locations.

Above the second-floor corridor, an attic catwalk structure is minimally constructed with two wood planks supported on the metal ceiling system. Planks were visibly saturated with fungal growth on the underside. Replacement of the existing attic catwalk with an appropriate system for maintenance access is recommended.

The wood plank roof decking is visibly wet where exposed from the underside in the gymnasium and auditorium spaces. The wood decking is spanning between rolled steel sections supported on built-up steel trusses. Surface corrosion of the structural steel is visible but appears to be minor as observed from

floor level. Further, up-close assessment of the corroded structural steel members is recommended after the corrosion is cleaned, and prior to recoating of the steel framing. The wood decking should be replaced where deteriorated. Both the repairs to the wood decking and steel roof framing are recommended to be coordinated with the roofing repairs.

Vertical cracking in the brick construction of the east gymnasium wall is occurring where the north wall of the east wing intersects the east wall of the gym. A steel roof truss may be bearing at this location, and corrosion of the steel may have caused the initial cracking which allowed water to enter the crack and further develop the crack. The crack may also be related to movement of the north wall of the east wing, which may have induced the cracking to relieve restraint at the wall intersection. The movement of the east wing north wall could be related to settlement or shifting of the support of this wall in the flooded basement area below. Comparison of observations during the 2020 assessment and other photographs of this same area found on the internet indicate the crack has expanded both in width and length since the building has been vacated. Further investigation is appropriate to understand the cause of the observed cracking prior to implementing repairs.

Additional cracking was observed in the brick masonry at the north window of the east wall of the gymnasium. The mortar on the side of the key brick at the window arch above this opening is missing and appears to be related to a horizontal crack on the interior face of the brick occurring at the suspended ceiling elevation. Cracking below this window, previously repaired and re-cracking, is also present. The cracking below the window may be related to corrosion of the embedded steel lintel for the recessed radiator that was at this location and/or for piping related to this radiator.

Approximately three feet of ponded water was observed in the basement level preventing access to the basement spaces. The portions of the basement walls and underside of the first-floor structure visible from the point of access are in good condition with no distress observed. The basement should be dewatered allowing for assessment of the basement level prior to the implementation of the recommendations stated herein.

North Addition

The eight-bay, pre-fabricated steel-framed structure is fully exposed due to the missing finish elements. The steel roof structure is of C-shaped purlins spanning north-south to steel bents comprised of tapered steel beams and wide-flange columns. A metal roof deck spans between the purlins. As the structure currently stands, it is performing as an open-air structure without an apparent lateral restraint system in the north-south direction. Most likely, the pre-fabricated frame was not engineered for the wind loads generated by an open-air structure.

All of the exposed steel is shop-painted, with localized areas of minor surface corrosion occurring. The concrete coverings at the base of the columns are broken or damaged above grade level, however the anchor bolts and column appear to be in sound condition. The concrete slab-on-ground appears to have heaved in relation to the top of the column foundations where debris was cleared away from the column bases.

The structural steel is salvageable for re-use, potentially in place with potential replacement of the slab-on-ground depending upon its condition once exposed, or the steel structure can be relocated to a new foundation system. Regardless if the structure is to remain or be relocated, the steel structure is

recommended to be cleaned and re-coated, then re-enclosed with perimeter wall and new roofing systems to make the building weathertight. The connector link between the addition and the main building can be treated in a similar fashion.

Miscellaneous

Many of the finishes of the classroom walls oriented perpendicular to the exterior walls and the stairwell walls are cracked vertically or diagonally along the length of the walls. Repairs have 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 these non-structural walls restrained within the structural frame 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.

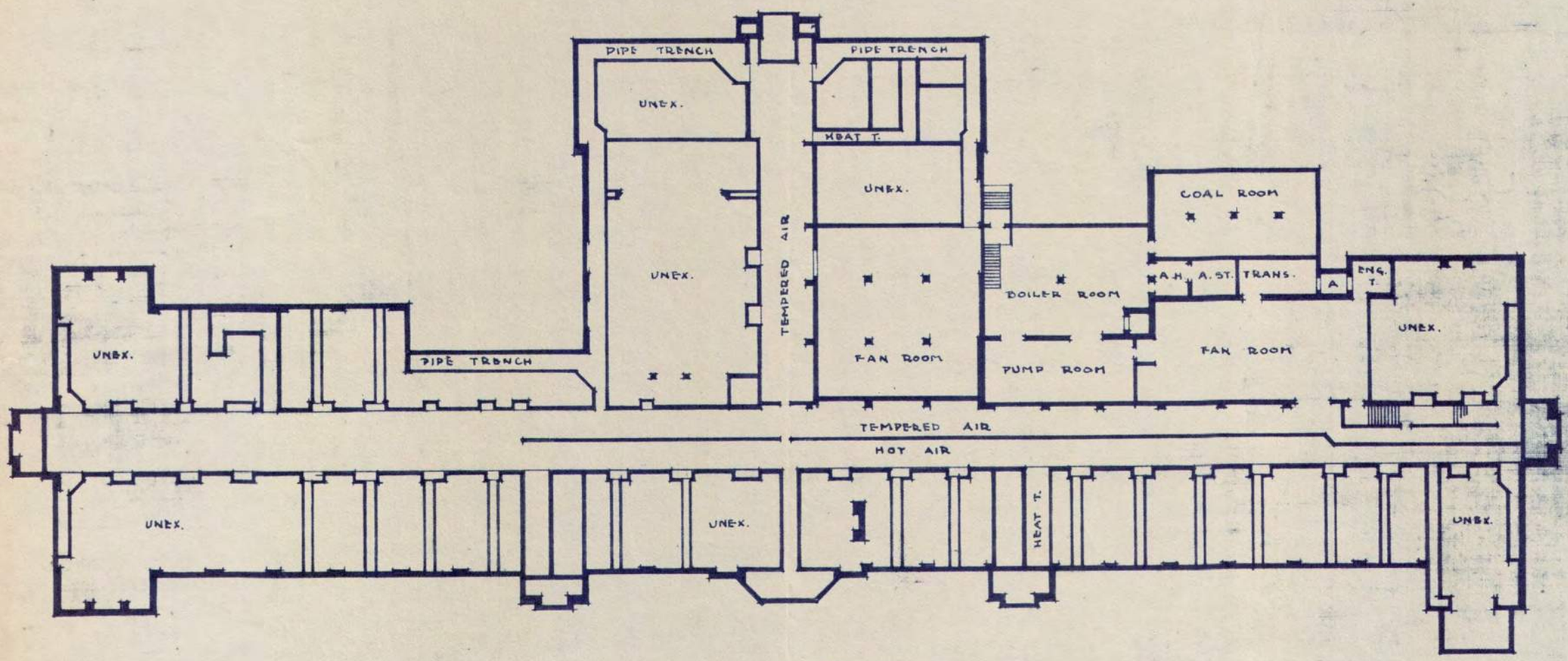
Some localized masonry infill areas and partition walls are damaged from vandalism during the removal of plumbing and heating elements. Repair of these partition walls is recommended as appropriate for potential new use of the spaces.

Steel-framed stairs located in the north wing and up to the projection room of the auditorium are heavily corroded on their surface. Cleaning of the stair framing and further structural investigation is recommended to assess the remaining capacity of the stairs and, if appropriate, make repairs. Planning to replace the stair systems is a conservative budgetary approach.

PARKER SCHOOL

DEPARTMENT OF BUILDINGS & GROUNDS
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-29-27				



BASEMENT PLAN

SCALE $\frac{1}{32}$" = 1'-0"

PARKER SCHOOL.

DEPT OF BUILDING & GROUNDS
BOARD of EDUCATION.
DETROIT.

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FIRST FLOOR PLAN.
SCALE 1/32" = 1'-0"

PARKER SCHOOL

DEPT OF BUILDING & GROUNDS
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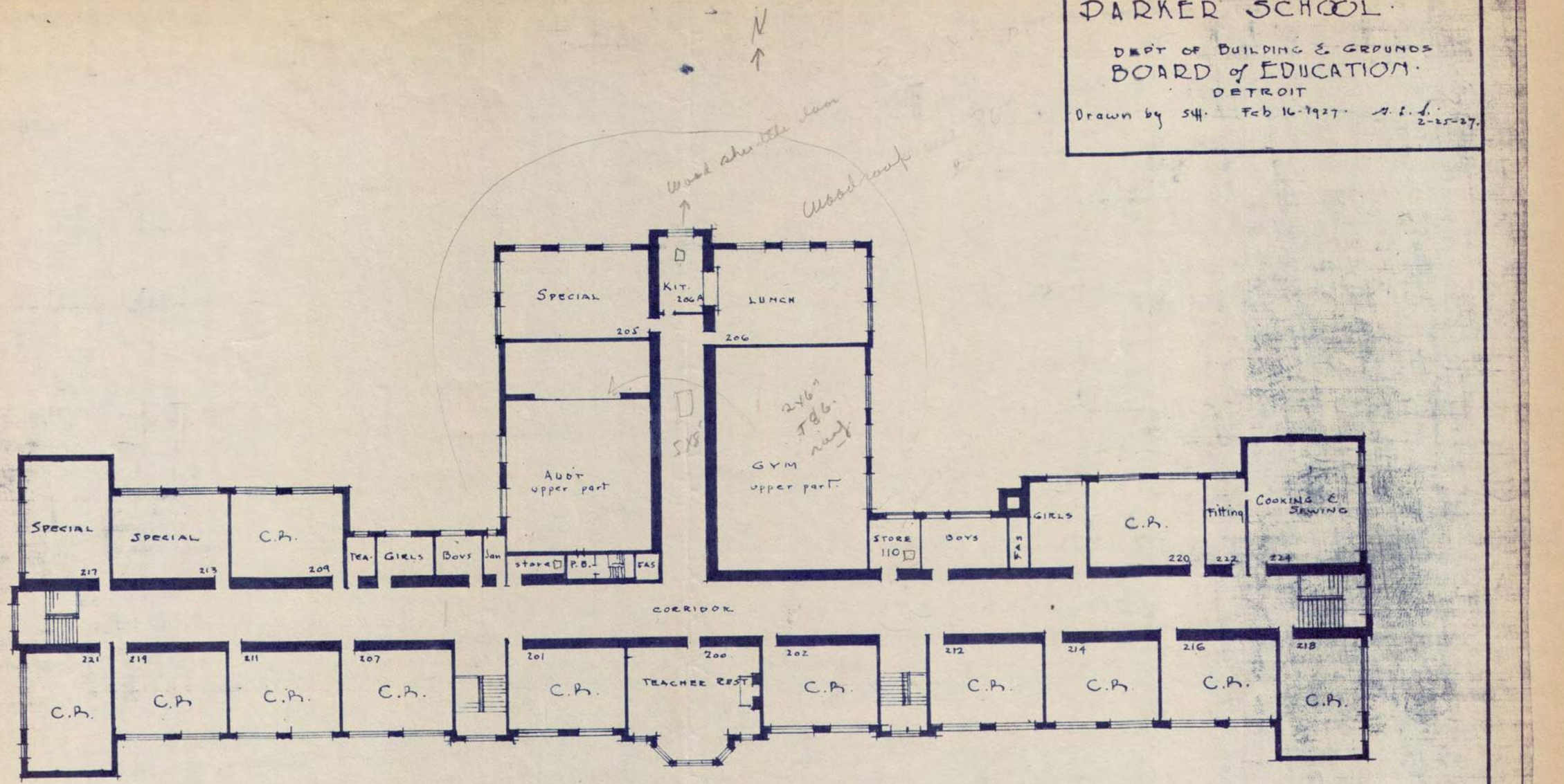

SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"