

VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Crockett High School

Basic Property Information: COD 3-Crockett-8950 St Cyril

Short Name:	Crockett
Address:	8950 Saint Cyril Street Detroit, Michigan 48213
Year Built:	1925
Additions Built:	None
Outbuildings:	None
Year Vacated:	2012
Building Footprint:	200 feet x 365 feet
Square Footage:	108,457 sq. ft.
Number of Stories:	3
Building Height:	40 ft.



Current Ownership:	City of Detroit	Structural Framing System:	<ul style="list-style-type: none"> ▪ Cast-in-Place Concrete ▪ Brick Masonry ▪ Structural Steel ▪ Wood
City Council District:	3	Exterior Wall System:	<ul style="list-style-type: none"> ▪ Brick ▪ Limestone
SNF District:	NA	Window System(s):	<ul style="list-style-type: none"> ▪ Wood ▪ Aluminum
		Roofing System(s):	<ul style="list-style-type: none"> ▪ Built-Up Roof ▪ Internal Roof Drains ▪ Gravel Surfaced



Assessment Summary

Assessment Date: June 11, 2020

WJE Inspector(s): Sarah Rush; Andrew Lobbestael; Meredith Crouch

Report Date: November 20, 2020

Building Risk Index: 76.50

Cost Estimate

Base Rehabilitation Cost Estimate: \$1,808,950

Preparation for Rehabilitation Work: \$900,000

**Mechanical, Electrical, Plumbing,
Fire Protection (\$80/sq ft):** \$8,676,560

Sub-Total \$11,385,510

Contingency (25%) \$2,846,377

Sub-Total \$14,231,887

Overhead and Profit (15-18%): \$1,423,188

Sub-Total \$15,655,076

Escalation (6% for 2 years) \$939,304

Sub-Total \$16,594,380

**Architectural and Engineering
Design Services (20%):** \$3,318,876

TOTAL COST ESTIMATE: \$19,913,256

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 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. Portions of the basement were not accessible due to standing water. Localized areas of interior finishes are in a state of deterioration, exposing the structural framing systems in some 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:

- 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 footprint of the building is E-shaped in plan with the primary facade and entry at the west elevation, facing St. Cyril Street. The building facade generally consists of clay brick masonry laid in common bond with header courses every six units and concrete masonry (CMU) backup. Limestone units are present at the window surrounds, building entrances, horizontal belt courses, and crenellated parapet copings. Architectural metal panels are present within the spandrels at the punched openings at the gymnasiums. Aluminum replacement inserts were set within the original wood window frames, though the aluminum components are now missing. The entrances consist of conventional steel doors. The low-slope roofing generally consists of an internally drained, gravel surfaced, built-up roof (BUR), though the roofing over the pool consists of a modified bitumen roofing system. Vaulted mechanical spaces are located beneath the south courtyard. The waterproofing assembly over this region appears to consist of a bituminous system covered with asphalt pavement.

The structure consists of joist-slab systems spanning to interior concrete beams and columns and the exterior mass masonry walls. Clay tile and gypsum plank forms were observed at some elevated floor slabs, but the steel forms removed after construction were most common. Steel girders clad with plaster span over the gymnasiums and support the concrete roof slab of this area. Steel trusses span over the natatorium.

In general, the building is in serviceable condition with many of the interior finishes intact. The roofing is in good, serviceable condition with minor maintenance-type repairs recommended within the majority of the roof surface, though the roofs over the gymnasium and pool are in poor condition and are recommended for replacement. Significant masonry repairs are recommended to address corroded embedded steel elements and consequent masonry distress. The windows and exterior doors require replacement. Notable distress to the structure includes deteriorated concrete in the locker room showers which will require repair. Additional localized concrete repairs are anticipated in other areas of the floor framing as well. Localized corrosion of the steel trusses over the natatorium should be further evaluated, cleaned, recoated, with localized steel repairs, if needed. Further detail of the observed distress is provided below.

Facade

The facades of the building are in fair condition, though significant localized distress is distributed throughout. The observed masonry distress includes cracked, spalled, and displaced brick and limestone units primarily attributed to water infiltration and subsequent corrosion of the embedded steel window lintels and limestone anchors. Cracked and displaced areas of brick masonry are located near the top of the walls at building corners, which is attributed to unaccommodated movement of the masonry and corrosion of adjacent steel lintels; these areas of masonry should be rebuilt. Other localized areas of cracked, spalled and displaced or missing brick units distributed around the facades should be repointed or rebuilt as required. Vertical cracks are present within the brick masonry piers at the east wall of the gymnasiums and outward displacement is visible across some of the cracks. Steel columns encased within the masonry may be corroding. The cause of the distress should be further investigated as part of the facade repair work, but at minimum, the anticipated repairs include repointing, localized brick

replacement, and monitoring in conjunction with lintel repairs. Beyond these regions, the brick masonry in the field of the wall is in good condition. Previous repairs have been performed at the building, including rebuilding of localized areas of brick masonry, repairs to the steel lintels, and miscellaneous repointing, which generally appear in serviceable condition.

Many limestone units are distressed, including cracks, spalls, displacement or missing units. Header units are slotted on the backside for strap anchors, which are hung from the steel lintels above. Corrosion of these steel lintels and strap anchors is resulting in a majority of the observed limestone distress. Limestone units at the jambs do not appear to have mechanical anchorage to the surrounding masonry; several units are displaced as a result of, or following the removal of, the aluminum window assemblies. Repairs should include repair of distressed steel lintels with installation of a durable repair detail including through-wall flashing and repair or replacement of distressed limestone units. A limestone belt course at the base of the gymnasium wall is heaved upwards, which is attributed to cyclical freeze-thaw damage. These displaced units should be reset. Mortar at the limestone units, particularly at the water table, is cracked, eroded, debonded, or missing. Repointing should be performed at the water table mortar joints in addition to other miscellaneous repointing in other areas of distress.

Distress was observed in localized areas within the brick masonry chimney, including vertical cracks, step cracks, and sections of brick masonry that were cracked and outwardly displaced. These conditions are attributed to water infiltration and subsequent freeze-thaw damage and are generally more prevalent near the top of the chimney. Rehabilitation of the building should include crack repairs and rebuilding the displaced areas of masonry. New cap flashings should be installed to mitigate further water infiltration and the existing caps should be repaired or replaced.

The aluminum replacement windows are missing and the exposed original wood-framed window frames are significantly decayed, damaged, or missing. An aluminum window assembly at the conservatory is also missing. The exterior doors are also significantly damaged or are missing. Rehabilitation of the building should include replacement of all windows and exterior doors. The original architectural metal panels at the gymnasium spandrels are exposed and exhibit paint failure and minor corrosion, in some regions the panels are missing or displaced, exposing the brick infill. These original panels appear to have been covered with another material when the aluminum replacement windows were installed. Rehabilitation of the existing panels, or replacement of the panels in-kind, should be considered as part of the window replacement.

Roofing

The roofing assembly over the main building is generally in good, serviceable condition. Localized deterioration within the roof surface includes a few missing drain strainers and conductors, and isolated open seams. Minor maintenance-type repairs are recommended to extend the service life of the existing roofing assembly. However, the roofs above the pool and upper gymnasium are in poor condition and are recommended for removal and replacement. Observed distress within these areas includes water infiltration and associated damage to interior finishes and structural members, displaced and missing flashings, base flashings that are pulled away from the perimeter rising walls, and ponded water and vegetative growth on the roof surface and near failed drains.

The waterproofing above a small, raised vault within the south courtyard is cracked and delaminated. A large mechanical opening within the center of the vault is missing a cover, the steel mechanical curb is corroded through, and the concrete spandrel beam at the perimeter of the opening is deteriorated due to prolonged moisture exposure. Based on the size of the raised area, which is approximately 60 square feet in plan, and extent of distress, the vaulted slab and waterproofing are recommended for removal and replacement, though repairs to the existing concrete structure may also be warranted upon further investigation.

Structure

Overall, the structure is in serviceable condition with localized areas of distress. Because the interior finishes, typically plaster over lath, were generally intact with only localized missing or distressed areas, only limited portions of the structural frame corresponding to these damaged finishes were accessible for review. The damaged interior finishes and structure are generally due to roof leaks or missing storm conductors and open roof drains.

The most severe distress to the structure is the deteriorated concrete floor framing supporting the boy's and girl's showers at the locker rooms. This deterioration includes efflorescence and cracking of the slab as well as moderate to severe corrosion of the longitudinal steel reinforcement of the joists, including areas of debonded and exposed reinforcing steel. Concrete repairs will be required in these areas.

WJE also observed localized areas of concrete distress to select areas of the roof slab due to long-term exposure to water. This includes the southwest corner of the gymnasium and above the cafeteria. Such localized concrete deterioration typically occurred near roof drains. Concrete repairs in these areas should be anticipated as well. The source of the water infiltration should be addressed to prevent additional deterioration in these areas.

There are three exposed steel trusses supporting the roof of the natatorium. The trusses are composed of double angle chords and webs with gusset plates and riveted connections. All three trusses exhibit failing paint and surface corrosion. Additionally, where the trusses intersect the masonry walls, moderately more severe steel corrosion is present with localized areas of pack rust and an unknown extent and severity of steel section loss. The water intrusion through the roof should be addressed and the truss members should be cleaned and coated. The extent of truss corrosion at the masonry wall should be investigated further and repaired as necessary.

The steel girders in the gymnasium exhibit surface corrosion due to water infiltration through the roof above. These areas are exposed in regions where the plaster cladding has failed. The water intrusion through the roof should be addressed so the girders can be cleaned and painted with a corrosion inhibiting paint. Cracks exist in the brick masonry interior walls of the gymnasium where corroded steel stair elements are embedded. The corroded steel should be cleaned and coated and the cracks should be repointed.

The steel lintel above the door at the top of the stairs from the corridor to the Boy Scout Room on the third-floor mezzanine is corroded. The corrosion is due to an active roof leak at a missing roof drain. The roof drain should be reinstalled, and the steel lintel should be cleaned and painted.

Miscellaneous

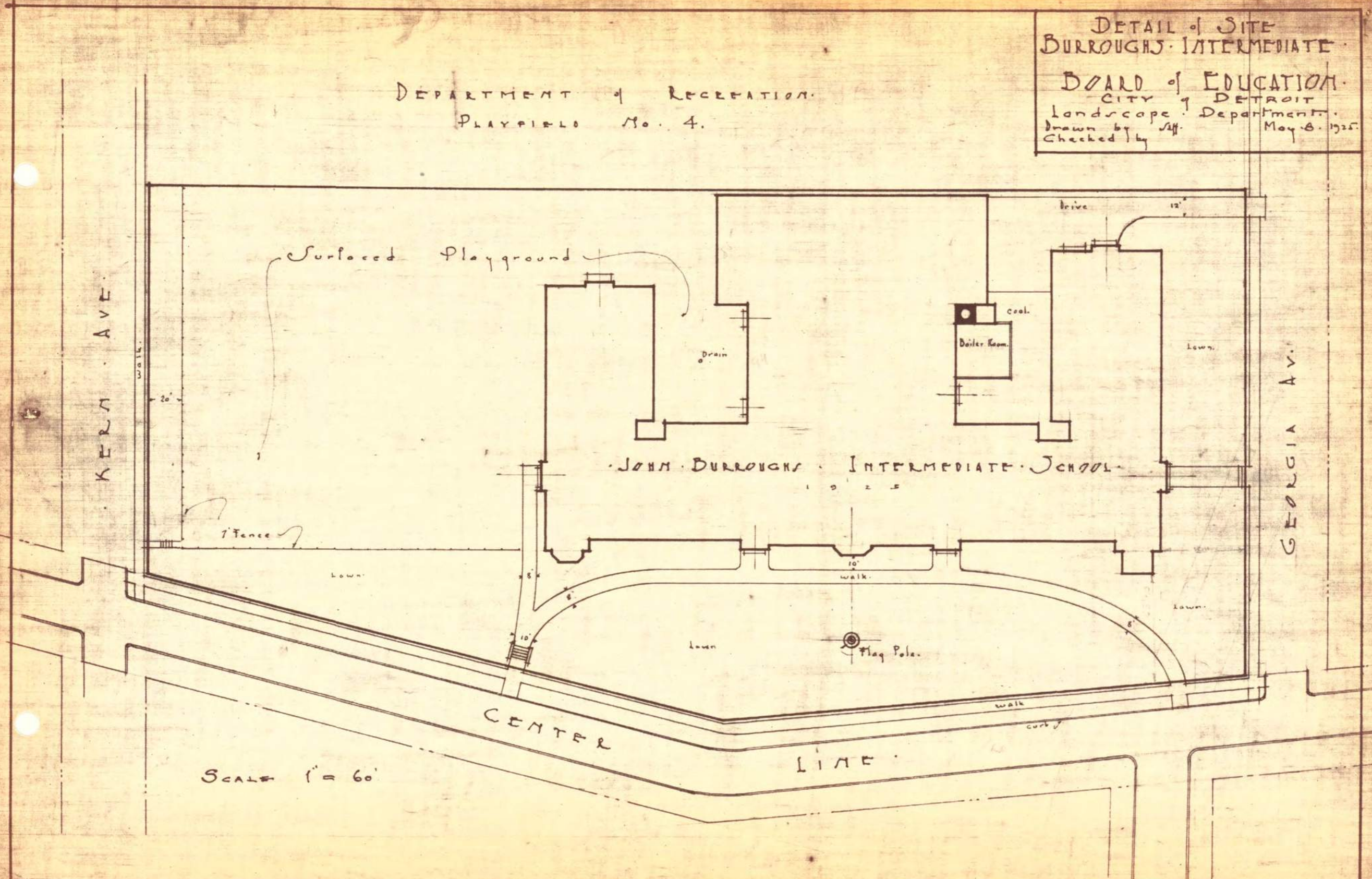
The plaster ceiling and ornamental grilles in the auditorium are deflected and precariously supported. The ornamental grilles should be removed to mitigate the potential falling object hazard. The plaster at the walls and ceiling was cracked in several locations. The interior finishes should be removed in these locations to expose the structure for further investigation.

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.

Portions of the basement were not accessible due to standing water. This includes the boiler room, fan rooms, pump room, transformer room and ash storage room. Basement flooding should be addressed prior to a recommended follow-up assessment of the structure supporting the first floor.

DEPARTMENT of RECREATION
PLAYFIELD No. 4.

DETAIL of SITE
BURROUGHS INTERMEDIATE
BOARD of EDUCATION
CITY of DETROIT
Landscape Department
Drawn by S.H.
Checked by
May 8, 1925.

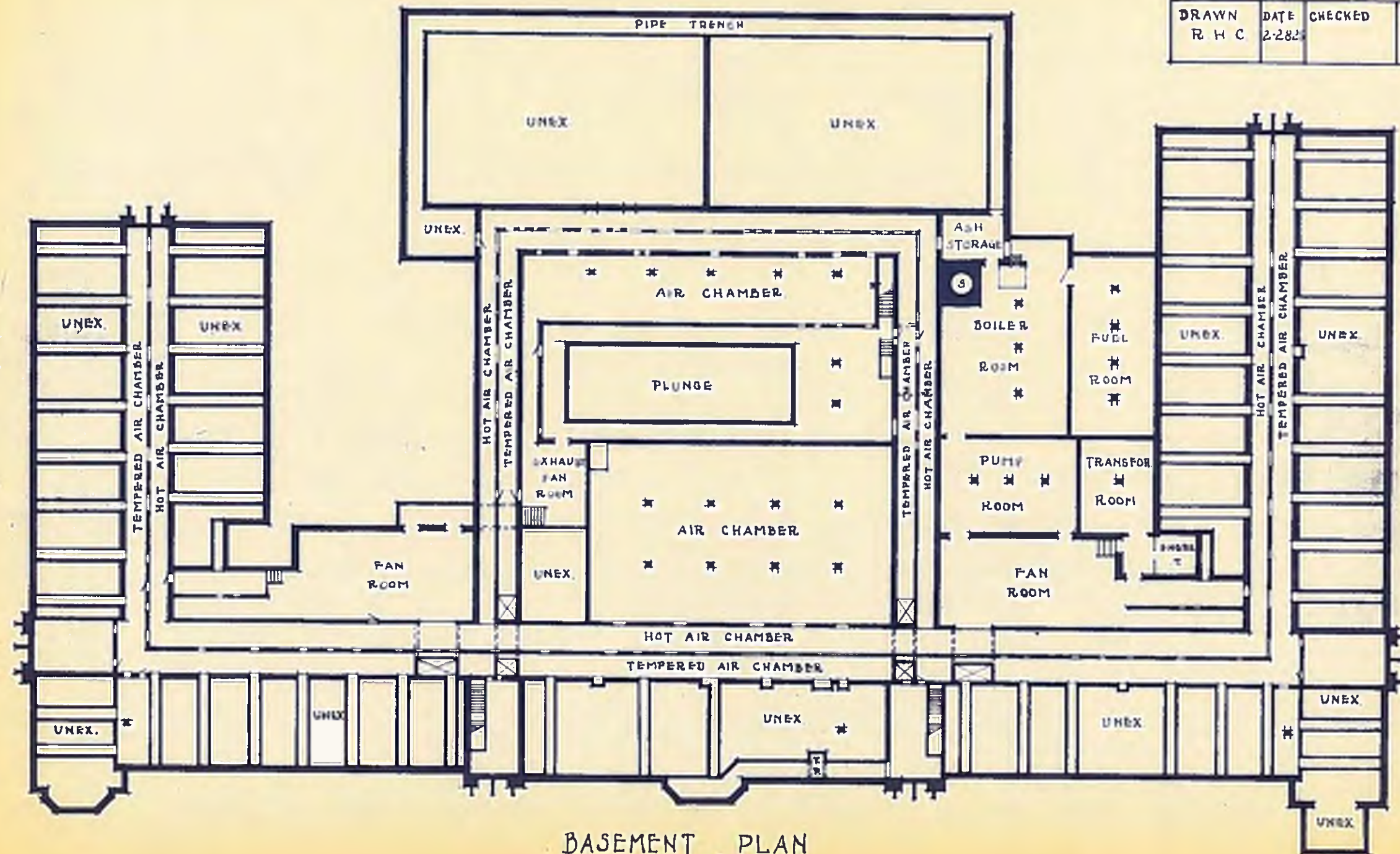


SCALE 1" = 60'

BURROUGHS INTERMEDIATE

DEPT OF ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R. H. C.	2-28-21				

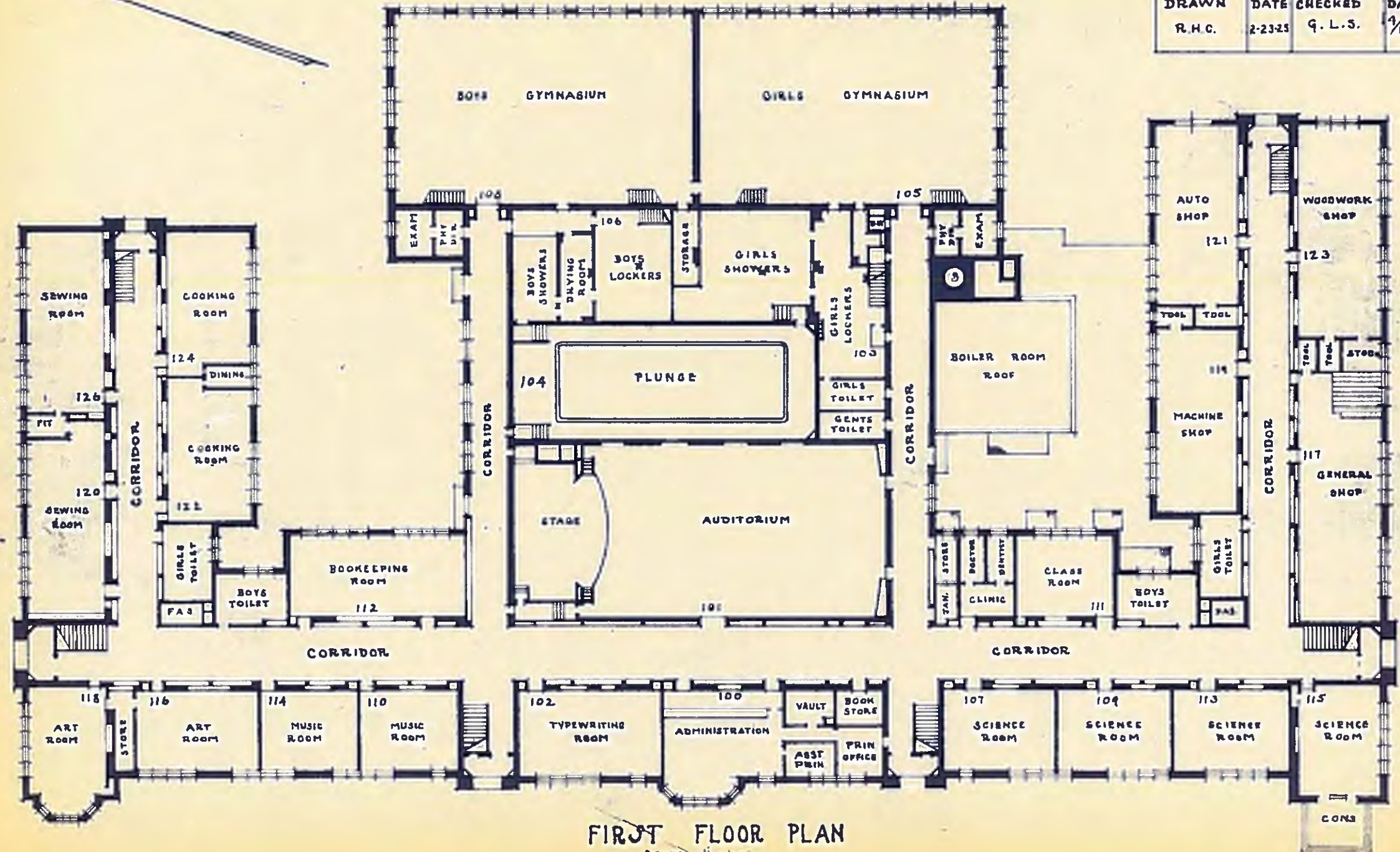


BASEMENT PLAN
SCALE 1/32" = 1'-0"

BURROUGHS · INTERMEDIATE

DEPT OF ARCHITECTURAL ENGINEERING
BOARD OF EDUCATION
 DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	2-23-25	G.L.S.	4/15/25		

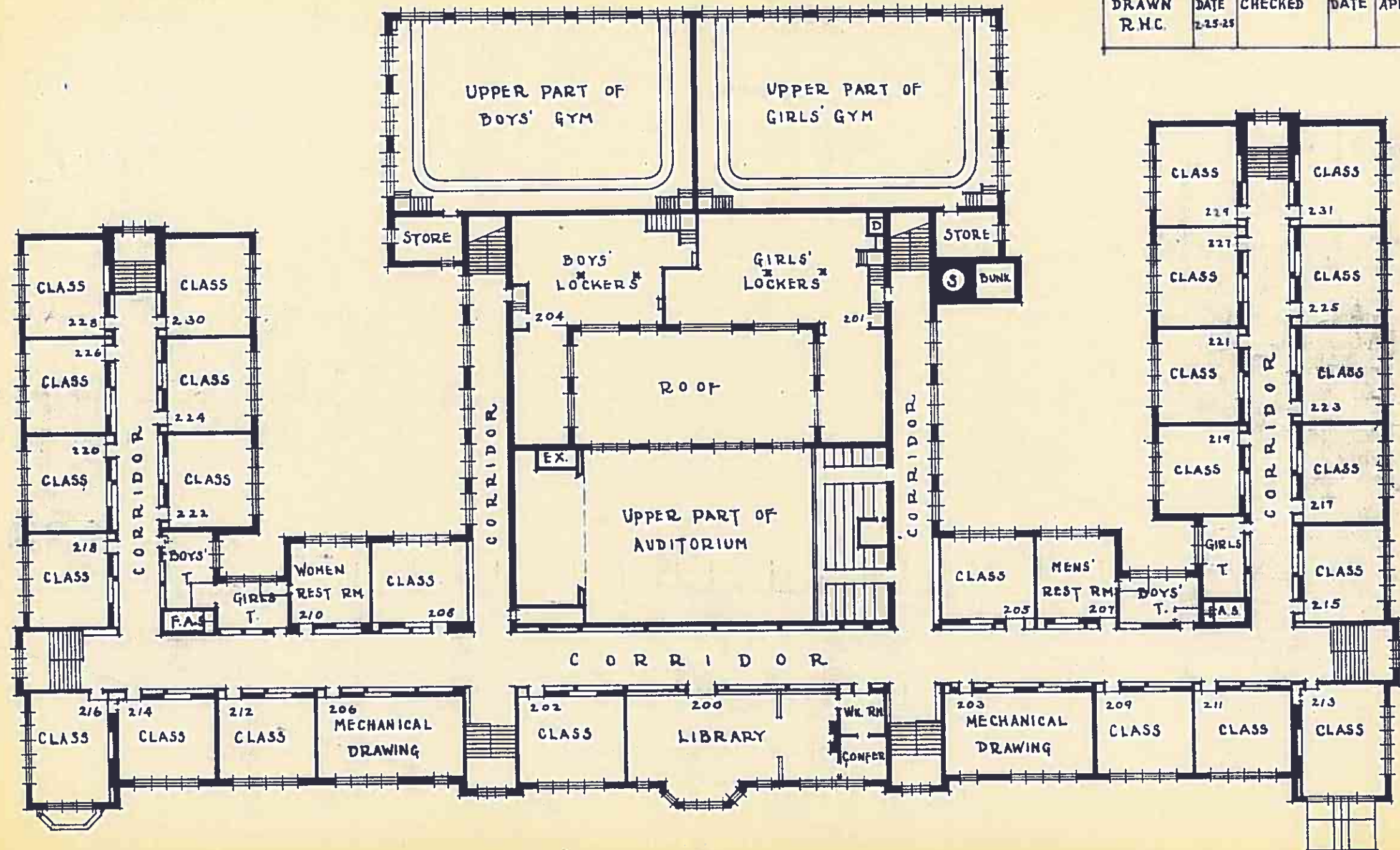


FIRST FLOOR PLAN
 SCALE 1/32" = 1'-0"

BURROUGHS INTERMEDIATE

DEPT. OF ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
 DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	2-25-25				



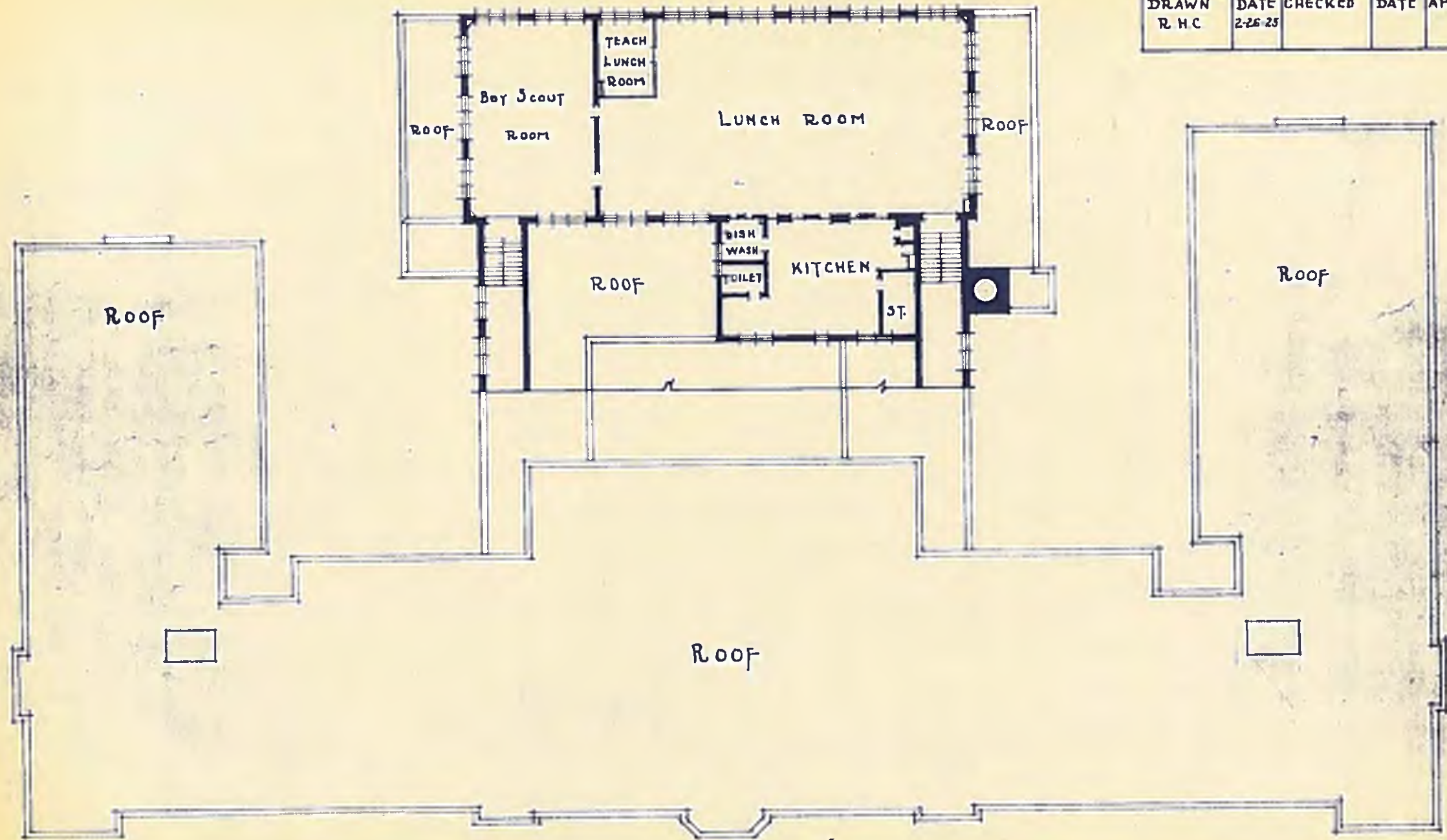
SECOND FLOOR PLAN

SCALE 1/32" = 1'-0"

BURROUGHS INTERMEDIATE

DEPT OF ARCHITECTURAL ENGINEERING
BOARD of EDUCATION
DE TROIT MICHIGAN

DRAWN	DATE CHECKED	DATE APPROVED	DATE
R. H. C.	2-26-25		



THIRD FLOOR & ROOF PLAN
SCALE 1/32" = 1'-0"