

**GREENWICH BOARD OF EDUCATION  
GREENWICH PUBLIC SCHOOLS  
Greenwich, CT**

**Board of Education Meeting Agenda Document Cover Sheet**

<b>Meeting Date:</b>	October 21, 2021	<b>Information Only</b>	<input type="checkbox"/>
	Revised &	<b>First Read</b>	<input type="checkbox"/>
	Approved June	<b>Action Requested</b>	<input checked="" type="checkbox"/>
	21, 2023	<b>Consent</b>	<input type="checkbox"/>
	Revised &	<b>Written</b>	<input type="checkbox"/>
	Approved March		
	12, 2024		

**Policy #:**

**Agenda Item Title:** Old Greenwich School Education Specifications

**Submitted by:**  
**Name:** Dr. Toni Jones  
**Title:** Superintendent

**Document Purpose/Highlights:** (Max 475 Characters)

This packet contains the full OGS Education Specifications document.

Please see pages 8-18 for the program components and pages 35-36 for the OGS Infrastructure breakdown from the master plan.

**Recommended Motion (if applicable):** (Max 350 Characters)

Approve the Old Greenwich School Education Specifications as presented.

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• Project Estimate Updated 03/12/2024 by Downes Construction	
• Infrastructure Reports from Master Plan For reference only	



## INTRODUCTION

Old Greenwich Elementary School was constructed in phases starting in 1902 with additions in 1950, 1957 & 1995. Some renovations were also completed in 1993. No significant capital projects have been completed at this campus in 25 years. The building currently comprises approximately 72,000 gross square feet with a current enrollment that varies between 360 and 400 students in grades Pre-K – 5. The most recent demographic report projects that the highest probable enrollment will not exceed 438 students. The campus is in a prominent location in the Old Greenwich section of Town and plays an important role in defining the traditional appearance of the broader community that it serves.

## Executive Summary

The issues or key concerns that need to be addressed are summarized by category below:

- Educational Adequacy
  - Provision of an adequate number of grade level classrooms that meet the District's recommended minimum size standards.
  - Pre-Kindergarten, Kindergarten and 1<sup>st</sup> Grade Classrooms are all required to be located on the Ground Floor.
  - Support Spaces (i.e. Speech and Psychologist) are in under-sized spaces.
  - Nurse's suite is undersized and does not meet current demands.
  - Spaces for Next Generation Learning approaches (listed as Goal spaces in Model Program) are not currently provided.
- Security
  - Absence of a secure vestibule for visitor management.

- Main entrance not visible by office or security personnel.
  - Main office is remote from main entrance.
  - All outdoor spaces are exposed to the public.
  - Kindergarten Classroom is in a potentially vulnerable location next to the main driveway.
- Accessibility
  - There is no elevator in the building and it has 6 different floor levels.
  - The main entrance is not accessible.
  - The gym / auditorium public entrance is not accessible.
  - Student toilet rooms are not fully ADA compliant on all levels.
- Health & Safety
  - At least two of the ground floor classrooms are located below a level identified as a flood plain and have experienced water intrusion. Based on existing documentation provided by the District this lowest floor level is at elevation 12.00. A survey by Redniss and Mead dated 10/31/95 lists the 100 year flood elevation at 11.50. Online FEMA flood maps, updated on 7/8/13 show a flood zone (AE) at elevation 13.00. The main (1902) portion of the Ground Floor is at elevation 13.41 and the later south wing of the Ground Floor is at elevation 14.59.
  - Powered ventilation systems are not present in older parts of the building and as a result do not meet current codes for school buildings.
  - Classrooms are partially air conditioned with window units which are not energy efficient, are damaging the window frames and masonry and are noisy.
  - Windows are not energy efficient and are difficult to operate.
  - A number of building systems have significantly exceeded their expected useful life and as a result require replacement including roofing, communications, fire alarm and emergency lighting.
  - An emergency generator is needed to maintain basic services and to operate sewage and storm water pumps.

The recommended solution is to construct a one story, approximately 7,300 gross square foot, four classroom addition, provide a new, secure, ADA accessible main entrance at the front plaza, and selectively renovate portions of the existing building. This proposal does not solve or remedy all of the shortcomings in this facility but does address the highest priority needs in an integrated approach. Key upgrades to building systems are also proposed including; completely new Heating, Ventilating and Air Conditioning systems for all areas that are not currently served, a fully compliant fire protection system and selective roof and window replacements, installation of an emergency generator and upgrades to building Communications, Fire Alarm and Emergency Lighting Systems. Refer to the DD estimate dated 03/12/2024 for latest project budget.

## Study Process

This Feasibility Study is the result of a response to a Request for Proposals (RFP) issued by Greenwich which is to include the delivery of:

- Educational specifications for the reconstruction or expansion of Old Greenwich Elementary School.
- Identification and analysis of one or more site options consistent with land use and other relevant regulations and statutes, conceptual building plans including site plans showing parking and access.
- Cost estimates for the construction / renovation project (soft and hard) which will be used as the basis of the next capital budget funding request.
- Preliminary phasing and implementation strategy.

This document comprises the deliverables listed above. The National School Boards Association describes the purpose of ed. specs. as follows:

*“The purpose of educational specifications (“Ed Specs”) is to define the programmatic, functional, spatial, and environmental requirements of the educational facility, whether new or remodeled, in written and graphic form for review, clarification, and agreement as to scope of work and design requirements by the architect, engineer, and other professionals working on the building design.”*

There is no current standard format for Educational Specifications in the State of Connecticut. This document and the referenced attachments meet the definition recited above and serve as the Educational specifications for this project for Old Greenwich.

Typically an educational specification focuses on the “What and Why” of the project and the subsequent design phases will develop “How” it should be best accomplished. For new or replacement buildings the quantity and sizes of spaces included in an ed. spec. can be more or less fully realized while for renovation and re-construction projects it is typical that it serves more as a guideline because it is more challenging to fully realize due to the constraints provided by the existing facility. It makes sense for renovation projects to include a conceptual approach as part of the Ed. Specs. to best describe how the project’s goals are to be realized in the specific context of an existing school building. The conceptual design at this stage serves as a “proof of concept” and one possible way to meet the highest priority needs. This approach is also necessary in order to begin the development of a reasonable budget for the proposed improvements.

The goal of this process for Greenwich is to reach consensus on the scope of the project so that it can be approved by the BOE and moved to the next step of the budgeting and design process.

In accordance with the RFP this process was guided by a group of stakeholders listed below:

- Committee Members
  - Dr. Toni Jones, Superintendent
  - Jennifer Bencivengo, OGS Principal
  - Dan Watson, Director of Facilities
  - Karen Kowalski, BOE Member
  - Jennifer Webb
  - Tiffany Vaccari
  - Todd Mickel
  - Joe Dowling
  - Frank DeLuca
  - Carolyn Petersen
  - Erica Lucas (10/4/21 meeting only)

The process was completed through an interactive series of meetings summarized below:

8/24/20 – Introduction to Process & Key Concerns  
9/14/20 – Review of Key Concerns and Earlier Studies  
9/30/20 – Preliminary Discussion of Possible Approaches & Prioritization  
10/8/20 – Review of Three Options  
10/15/20 – Finalization of Selected Approach  
12/17/21 – Review of Ed. Spec. with Admin.  
3/5/21 – Review of Ed. Spec. with Admin.  
10/4/21 – Review of Two Options



During the process the group provided specific input on the prioritization of items to be included in the proposed project. The results of that input are summarized in the attached chart.

10/8/2020

Old Greenwich Elementary School  
Prioritization Matrix

Name (optional)	PRIORITIZATION			Notes
Please place an "X" in one of the three prioritization choices for each row indicating your prioritization of that item.				
	Must Have	Should Have	Like to Have	
<b>Safety &amp; Security</b>				
Provide a secure vestibule at main entrance	8	1		Highly recommended in School Security Standard
Main office adjacent to main entrance	6	3		
Provide electromagnetic locks at all exterior doors	4	5		
Add cameras to increase coverage overall	4	4	1	
Provide a means of enclosing all or part of the campus	2	4	3	
<b>Accessibility</b>				
Provide an accessible main entrance on Ground Floor	8	1		
Provide an accessible entrance to the Gymnasium / Auditorium	7	2		
Provide an Interior Accessible Route to all areas - Elevator, Ramps & Lifts	7	2		
Provide an interior Accessible Route to most areas - Elevator & Ramp	5	3	1	This would exclude access to 2 of the 3 Kindergarten Rooms
Modify all Toilet rooms to be fully compliant and accessible	5	2	2	
Provide new single user handicapped accessible toilet rooms.	4	4	1	
<b>Educational Program Spaces</b>				
Update Classroom Furniture - Next Generation Learning Environments	1	4	3	
Replace Under-sized classrooms with full size rooms	4	4	1	
Replace 2 classrooms that are the lowest in elevation due to flooding issues	7	1	1	
Provide one "flex" classroom (capacity 24) as an innovation space on each floor.		3	6	
Provide one larger "flex" or STEAM space for a full grade level (+/-75).		2	7	
Provide some smaller group instruction (SGI) spaces for speech, math intervention & special education resource rooms	2	5	2	
Increase the size of the support areas behind the stage		3	6	
<b>Infrastructure</b>				
Update Ventilation Systems to current standards in older sections of the building.	9			
Central Air Conditioning for all Classrooms	8	1		
Central Air Conditioning for the Gymnasium / Auditorium	6	2		
Install Automatic Fire Protection System for entire building (sprinklers)	6	3		not mandated by code for buildings of this age but would be required for a new building of this size and construction
Provide an Emergency Generator for the full electrical load of the building	3	2	4	
Replace Interior Casework that is in poor condition	4	4	1	
Replace plumbing fixtures that are beyond their expected useful life	6	2	1	
Replace portions of roof that are beyond their expected useful life	6	2	1	
Repair masonry to preserve exterior of older building	5	3	1	
Provide dedicated staff toilets on each floor	4	2	3	
Provide an interior courtyard for protected outdoor space	2	3	4	
Upgrade all playground areas to provide age-appropriate play structures for all age groups	3	2	3	3 Parks & Recreation input needed

The contents of this document largely reflect the input of this group and their feelings that the proposed solution is necessary to meet the minimum requirements for sustaining Old Greenwich Elementary School for future generations of students. In later 2020 and through 2021 there was a less costly alternative explored with a reduced scope of work. At the October, 2021 meeting it was confirmed that the original proposal is still the preferred approach by the Committee.

The Schematic Design Package was completed on June 20, 2023. The Schematic Design Package and revisions to the Educational Specifications were approved by the Board of Education on June 21, 2023. The Schematic Design and expected project schedule was submitted to the US Department of Education's Office for Civil Rights (OCR) on July 5, 2023 as per the April 2021 Resolution Agreement; OCR approved the Schematic Design and project schedule on October 30, 2023. The Design Development Plans are complete dated January 19, 2024.

## EDUCATIONAL GOALS & OBJECTIVES

### Elementary Learning Objectives

The District recently completed a Master Plan that established a Model Program of spaces for each size grouping of Elementary Schools. Old Greenwich Elementary School is in the 3 section per grade level group and so that document was utilized as the starting point for this review. During that process spaces were identified as “Core” or must-have spaces to minimally accommodate the educational program and “Goal” spaces that would be preferred to have to more fully offer the full range of educational programs.

During the Master Plan Architects and Planners engaged the Educational leadership of the District to review how instruction is projected to be delivered. A range of approaches were explored including traditional “homeroom” classroom styles and more innovative approaches broadly defined as “next generation learning” styles. With the latter more focused on project-based learning and self-guided instruction through the use of individual devices it seems to require additional or different and less formal types of learning spaces. The outcome of that process resulted in adoption of a sensible “hybrid” approach for the elementary levels that still relied on the fundamental grade level classroom approach with some additional spaces to support the “next generation learning” initiatives. That approach was confirmed during the earlier discussions for this specific project for Old Greenwich.

### Enrollment Data

Significant changes in enrollment are not expected at Old Greenwich Elementary School and so they are not the prime generators of need for changes to the facility. The demographic report completed concurrently with the Master Plan (Statistical Forecasting, 2017) identified historic enrollments in the range of 430 students. Current enrollments are somewhat skewed by the pandemic but are reported in the range of 360 - 400 students. The Connecticut State Department of Education (SDE) supports planning facilities for the highest enrollment that is projected to be in place in the next 8 years. The highest probable enrollment for Old Greenwich Elementary school is projected to be 438 students in 2025 – 2026. This total enrollment still keeps Old Greenwich in the 3 section per grade level grouping with an occasional year where one grade level (most often Kindergarten or 1<sup>st</sup> grade) requires a 4<sup>th</sup> section.

### Building Capacity Analysis

Similar to the programming effort in the Master Plan there was also a detailed analysis of the capacity of the buildings to fully accommodate the enrollment and the Model Program. The use of each space was updated during the course of the current study and it was found that the building is adequate for approximately 408 students. There are several areas, primarily in the Goal category of spaces that are missing from the school but the prime reason for the capacity figure falling below the enrollment is the size of the classrooms used for grade level instruction.

There are many grade level classrooms for grades 2 and above in Old Greenwich Elementary School with a net (useable) square footage (NSF) in the 675 – 710 range. The Model Program developed for Greenwich set the size requirements for these rooms at 850 nsf based on the new buildings that have been recently constructed in the District (i.e. Glenville & New Lebanon). It is interesting to note that Connecticut SDE supports a size of 900 nsf for these types of classrooms utilized for grades 2 – 5. While the discrepancy may not seem that large it accumulates to an overall 10% shortage of space for grade 2 – 5 alone.

## Educational Program Requirements

The chart included in the Appendix to this narrative summarizes the Model Program of spaces, existing space use and what is being proposed to be provided in these Ed Specs and conceptual design. While this describes the quantities involved in the provision of space it does not address qualitative issues which are equally if not more important to the provision of an adequate learning environment.

Some of the key quantitative issues include:

- Core Spaces
  - Undersized Pre-kindergarten Rooms
  - Undersized Grade level Classrooms for grades 2 – 5
  - Lack of Small Group Instruction Rooms
  - Undersized Special Education Resource Classroom
  - Lack of a Commons or Large Group Instruction Room
  - Undersized Cafeteria
  - Undersized Teacher's Lounge
  - Underprovided space for Specialists
  - Undersized Nurse's Suite
  - Lack of a Secure Vestibule
- Goal Spaces – Not Currently Provided
  - Commons / Transition Area
  - Small Group Instruction Rooms
  - Activity Commons
  - Project / Idea Lab
  - Flex Lab
  - Flex Special Programs Rooms
  - Sensory Room
  - Reflection / Small Group Room
  - After School Program Room
  - Separate Copy and Mail Rooms

The chart in the appendix highlights all of the areas where changes are realized as a result of this proposal. The total shortage of useable square footage represented by the existing deficiencies outlined above is over 12,000 nsf or 22% smaller than the full model program. The proposed additions and renovations would decrease this shortfall to 8,791 nsf or 16% smaller than the full model program.

Qualitative Issues include not only the condition of each space but also its location including its adjacency (or lack thereof) to related instructional spaces. Perhaps the most important adjacency issue is the requirement that all Pre-Kindergarten, Kindergarten and First Grade Classrooms be located on the ground floor of an elementary school. Further it is desirable to have all classrooms for a single grade nearby to each other and on the same floor of the building.

The other significant location or adjacency issue is the location of the main office on the opposite side of the corridor from the main entrance. This results in the undesirable situation of admitting visitors to the building and trusting that they will find their way to the office. It also does not allow for a direct visual connection to visitors by main office staff or security personnel.



## PROGRAM COMPONENTS – SPECIFICATION REQUIREMENTS

The proposed building addition and renovations relocates and creates new uses through the comprehensive renovation of existing areas. The listings below provide preliminary, general specifications for each space which should be reviewed, modified and confirmed with “user groups” during the subsequent design phases.

### 4 New Kindergarten Classrooms (New Addition)

MARK	ELEMENT	DESCRIPTION
0	General	1,000 net square feet classroom with bay window and some “historic” character/charm similar to the older existing rooms.
1	Millwork / Casework	Built in window seat in bay window, cubbies for coats and backpacks for up to 25 students, full height locking wardrobe cabinet for teachers, low bookshelves under the window wall, full height storage cabinets with sliding whiteboard doors on upper portion of cabinets for a minimum of 12 feet of wall length, low base cabinets with sink for handwashing near toilet room.
2	Floors	Premium vinyl or linoleum – water cleanup only. Fire rated area rugs for teaching and gathering areas where students sit on the floor.
3	Walls	Painted drywall with wood base, chair rail and trim at wall ceiling.
4	Doors	Corridor door to be wood with vision light and sidelight (with blinds / shutter). Exterior door to be insulated FRP - half lite style (with blinds).
5	Windows	Generous window area with dual roller shades for light control / blackout.
6	Ceiling & Lighting	Acoustic Ceiling and some drywall soffits (at bay window) with LED lighting switched separately so that daylight can be utilized with partial artificial lighting.
7	Display / Teaching Wall	Generous tackboard coverage throughout and a minimum of 20 linear feet of fixed whiteboard or magnetic glass boards (preferred). Some portion of writing surface should extend to low levels for use by students.
8	Technology	Robust Wi-Fi coverage, two hard wired data outlets (minimum), large (90”) flat touch screen monitor on vertical tracks for height adjustment. Space for laptop or tablet cart and charging.

9	Communication	IP phone through instructor's data port and intercom system with handset. Analog style wall-mounted clock connected to building clock system.
10	Security	Card key lock on exterior door, corridor lockset to have lock in function.
11	Electrical	Generous power outlets on perimeter and near casework (minimum four duplex per wall).
12	Furniture, Fixtures & Equipment	Moveable, re-configurable student tables and chairs, soft seating for reading areas, large soft chair for reading, instructor's table / desk and chair. Some mobile storage units for instructional materials.
13	Plumbing / Toilet Room	ADA accessible student toilet room with appropriately sized / scaled fixtures. Toilet room to have a handwash sink with soap and towel dispensers. Counter sink for handwashing with a bottle filler for drinking water and a soap and towel dispenser.

### Teacher's Room (Renovation)

MARK	ELEMENT	DESCRIPTION
0	General	345 net square feet space to replace area displaced by new main entrance.
1	Millwork / Casework	Wall and base cabinets to provide food preparation / warming area.
2	Floors	Premium vinyl or linoleum – water cleanup only.
3	Walls	Painted drywall with wood base, chair rail and trim at wall ceiling.
4	Door	Corridor door to be wood with vision lite.
5	Windows	None provided
6	Ceiling & Lighting	Acoustic Ceiling with LED lighting
7	Display / Teaching Wall	Tackboard and magnetic glass board for notices
8	Technology	Robust Wi-fi, 60" flat screen monitor.
9	Communication	IP phone and intercom system with handset. Analog style wall-mounted clock connected to building clock system.
10	Security	Door to have lock – in classroom function
11	Electrical	Generous power outlets and charging strip for devices at counter area.
12	Furniture, Fixtures & Equipment	Tables and chairs for up to 20 adults. Full size refrigerator, two wall mounted microwave ovens and a coffee maker.
13	Plumbing / Toilet Room	Kitchen sink and bottle filler.

## Resource Room (Renovation)

MARK	ELEMENT	DESCRIPTION
0	General	220 net square feet room to replace area displaced by new Main Office. Generally used for small group instruction and resource space for special needs students.
1	Millwork / Casework	Full height locking wardrobe cabinet for teachers, low bookshelves under one exterior wall.
2	Floors	Premium vinyl or linoleum – water cleanup only. Fire rated area rugs for teaching and gathering areas where students sit on the floor.
3	Walls	Painted drywall with wood base, chair rail and trim at wall ceiling.
4	Door	Corridor door to be wood with vision light and sidelight (with blinds / shutter). No exterior door to be provided in this room.
5	Windows	
6	Ceiling & Lighting	Acoustic Ceiling with LED lighting.
7	Display / Teaching Wall	Some tackboard coverage and a minimum of 8 linear feet of fixed whiteboard or magnetic glass boards (preferred). Some portion of writing surface should extend to low levels for use by students.
8	Technology	Robust Wi-Fi coverage, two hard wired data outlets (minimum), 60" flat touch screen monitor on vertical tracks for height adjustment.
9	Communication	IP phone through instructor's data port and intercom system with handset. Analog style wall-mounted clock connected to building clock system.
10	Security	Corridor lockset to have lock in function.
11	Electrical	Generous power outlets on perimeter and near casework (minimum two duplex per wall).
12	Furniture, Fixtures & Equipment	
13	Plumbing / Toilet Room	None provided

**Main Entrance / Security Vestibule (Renovation)**

<b>MARK</b>	<b>ELEMENT</b>	<b>DESCRIPTION</b>
0	General	The proposed plan provides a new secure, accessible main entrance at the ground floor level with a redesigned front plaza.
1	Millwork / Casework	Counter with storage below in security office with sliding transaction window with ballistic or laminated glass.
2	Floors	Refer to Plans
3	Walls	Refer to Plans
4	Doors	New main entrance & vestibule doors and sidelights to be custom color wide stile aluminum entrance system with ballistic or laminated glass. Wood door with vision panel between main office and security office.
5	Windows	See above
6	Ceiling & Lighting	Vestibule to have cement plaster ceiling with recessed LED lighting, Vestibule to be acoustic plaster with recessed LED lighting and Security office to have acoustic ceiling tile with LED lighting.
7	Display / Teaching Wall	60" flat screen for notices and schedule on south wall of vestibule.
8	Technology	Robust Wi-fi and hard wired data ports in security office to support security system, multiple monitors and ID badge printer.
9	Communication	Intercom and IP phone in Security Office. Clock in Vestibule should be visible from Security Office. Intercom and camera to connect Vestibule to Security Office and Main Office.
10	Security	Camera should cover Front Walk & Vestibule. Security camera head end equipment and ID badge printer should be located in Main Office. Multiple monitors should be located on counter in Security Office to monitor multiple cameras.
11	Electrical	Power outlets for convenience located in Vestibule and Exterior. Security Office to have dedicated power for security infrastructure.
12	Furniture, Fixtures & Equipment	6' exterior benches (2) and 8' interior bench for Vestibule. Security Office to have upholstered stool (counter height)
13	Plumbing	Provide a keyed hose bibb for washing walks etc.

## Main Office Suite (Renovation)

MARK	ELEMENT	DESCRIPTION
0	General	Relocate main office suite to the ground floor level to be directly adjacent to new, secure, accessible main entrance.
1	Millwork / Casework	Open Office – Built in transaction counter with storage below, wall mounted mailboxes for staff. Conference Room
2	Floors	Open Office, Security Office & passageway – resilient wood look plank flooring.  Private Offices and Conference Room – solid backed premium carpet tile.
3	Walls	Open Office, & passageway – porcelain tile to 60" AFF. Toilet Rooms – ceramic tile Private Offices - Painted drywall with wood base, chair rail and wall ceiling trim.
4	Doors	Solid wood doors with vision lites
5	Windows	Existing window openings to be re-used with new replacement window with dual roller shades for light control / blackout. Wood window surrounds, casings and sills / aprons. There will be an alternate to provide new windows (8 total) in the relocated main office and nurse's suite, in larger masonry openings.
6	Ceiling & Lighting	Acoustic ceiling tile and gypsum ceilings with LED lighting
7	Display / Teaching Wall	Tackboards in open office (west wall) and in passageway.
8	Technology	Robust Wi-fi with hard wired data for open office (2), private offices (2) and conference room (1).
9	Communication	IP phones and intercom and master clock panel.
10	Security	Cardkey access at suite entry, exterior door and principal's office. Camera coverage in open office area.
11	Electrical	Generous power supply in all areas.
12	Furniture, Fixtures & Equipment	Open office – 6 foot waiting bench, high stools and two workstations. Assistant Principal's office - desk, file, chair and two guest chairs. Principal's office – Desk, chair, credenza, two guest chairs and side table. Conference Room – Conference table and 10 chairs.
13	Plumbing / Toilet Room	



## Expanded Nurse's Suite (Renovation)

MARK	ELEMENT	DESCRIPTION
0	General	Relocate the nurse's suite adjacent to the new main entrance across the lobby from the main office – approximately 305 net square feet total. Provide office, rest room and toilet room
1	Millwork / Casework	Built in lockable storage
2	Floors	Resilient wood look vinyl plank flooring.
3	Walls	Painted drywall with wood base, chair rail and wall ceiling trim
4	Door	Wood door with sidelite at corridor and solid doors at toilet room and rest room.
5	Windows	There will be an alternate for new windows in the nurse's suite in enlarged masonry openings.
6	Ceiling & Lighting	Acoustic ceilings with LED lighting
7	Display / Teaching Wall	Tackboard for notices in office area.
8	Technology	Robust Wi-fi, data outlet for nurse's station and printer.
9	Communication	IP phone, intercom and clock
10	Security	Lock in feature on corridor door
11	Electrical	Generous power outlets in office and rest room.
12	Furniture, Fixtures & Equipment	Nurse's desk, chair, file and two guest chairs. Exam table, side chair and cot in rest room. Provide a small lock-able refrigerator for medications.
13	Plumbing / Toilet Room	Single user toilet with handwash sink, soap dispenser and towel dispenser. Provide a handwash sink with soap and towel dispenser in nurse's office.

## Relocated Speech Instructional Area (Renovation)

MARK	ELEMENT	DESCRIPTION
0	General	On Ground Floor.
1	Millwork / Casework	Built in shelving on one wall to chair rail height and full height lockable wardrobe for staff.
2	Floors	Resilient wood look vinyl plank flooring.
3	Walls	Painted drywall with wood base, chair rail and wall ceiling trim.
4	Door	Wood door with sidelite at corridor.
5	Windows	Existing window openings to be re-used with new replacement window with dual roller shades for light control / blackout. Wood window surrounds, casings and sills / aprons.
6	Ceiling & Lighting	Acoustic ceilings with LED lighting.
7	Display / Teaching Wall	Tackboards flanking magnetic glass marker board.
8	Technology	Robust Wi-Fi with hard wired instructor's station. 60" flat touch screen.
9	Communication	IP phone, intercom and clock.
10	Security	Lock in function on corridor door lock.
11	Electrical	2 power outlets per wall plus device charging station.

12	Furniture, Fixtures & Equipment	Student tables and chairs (12) plus instructor's desk chair and file.
13	Plumbing / Toilet Room	None Provided

### Relocated Psychologist's Office / Counseling Studio (Renovation)

MARK	ELEMENT	DESCRIPTION
0	General	360 net square feet – convert main office
1	Millwork / Casework	Built in shelving on one wall to chair rail height and full height lockable wardrobe for staff.
2	Floors	Resilient wood look vinyl plank flooring.
3	Walls	Painted drywall with wood base, chair rail and wall ceiling trim.
4	Door	Wood door with sidelite at corridor.
5	Windows	Existing window openings to be re-used with new replacement window with dual roller shades for light control / blackout. Wood window surrounds, casings and sills / aprons.
6	Ceiling & Lighting	Acoustic ceilings with LED lighting.
7	Display / Teaching Wall	Tackboards flanking magnetic glass marker board.
8	Technology	Robust Wi-Fi with hard wired instructor's station. 60" flat touch screen.
9	Communication	IP phone, intercom and clock
10	Security	Lock in function on corridor door lock.
11	Electrical	2 power outlets per wall plus device charging station.
12	Furniture, Fixtures & Equipment	Student tables and chairs (6), soft seating / sofa for 6 plus instructor's desk chair and file.
13	Plumbing / Toilet Room	None Provided

### Circulation Spaces

MARK	ELEMENT	DESCRIPTION
0	General	New corridors and entry pavilion at new addition.
2	Floors	Refer to Plans / Estimate.
3	Walls	Refer to Plans / Estimate.
4	Door	Exterior doors to be wide stile aluminum with side lites.
5	Windows	Glazed window walls to exterior with 12" high sill with radiation below.
6	Ceiling & Lighting	Acoustic tile ceilings with LED lighting.
7	Display / Teaching Wall	Tackboards and or display cases interspersed.
8	Technology	Robust Wi-fi
9	Communication	Analog clocks at periodic intervals
10	Security	Complete coverage with cameras. Card key locks at all exterior doors.
11	Electrical	Secure outlets for cleaning only.
12	Furniture, Fixtures & Equipment	No loose furniture in corridors.

13	Plumbing / Toilet Room	Staff toilet accessed from new corridor. Storage room also available from hallway for janitor's closet and or IT room.
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### Shared Toilet Facilities / Rest Rooms

MARK	ELEMENT	DESCRIPTION
0	General	Renovated areas in existing building adjacent to new elevator shaft. Renovations per ADA Requirements.
2	Floors	Ceramic Tile with floor drains.
3	Walls	Ceramic tile to 84" AFF.
4	Door	Solid wood door with push/pull function, closer and mop and kick plates.
5	Windows	
6	Ceiling & Lighting	Hard drywall or plaster ceilings with recessed LED lighting.
7	Display / Teaching Wall	NA
8	Technology	Robust Wi-fi
9	Communication	NA
10	Security	NA
11	Electrical	Secure outlets for cleaning only.
12	Furniture, Fixtures & Equipment	Solid plastic / resin toilet partitions – floor mounted & ceiling braced.
13	Plumbing / Toilet Room	Self metering, touchless faucets, toilet valves and dispensers. Provide keyed hose bibb for washdown.

### Newly Created Outdoor Facilities

MARK	ELEMENT	DESCRIPTION
0	General	A number of new outdoor spaces are to be created: <ul style="list-style-type: none"> <li>• <b>Kindergarten</b> on south side of new addition.</li> <li>• Pre-K &amp; Kindergarten Play Areas</li> <li>• <b>Interior Courtyard – west</b></li> <li>• New age appropriate play structures</li> <li>• <b>Relocated age group play areas</b> – Displaced by the building addition these will move west closer to the lined playfield area.</li> </ul>
1	Millwork / Casework	Fixed play equipment at age group play areas. Provide fencing at Pre-K and Kindergarten area.
2	Surfaces	Natural turf with rubber play surfaces under equipment and seating areas. Resilient paved (asphalt based) walkways at interior courtyards.
8	Technology	N/A
9	Communication	Provide intercom at main exterior doors from courtyard and western play areas.

10	Security	All areas to be covered by cameras and all exterior doors to have card key access.
11	Electrical	Provide weatherproof quad outlets at each of the four locations. Provide junction box for exterior sound system at east interior courtyard.
12	Furniture, Fixtures & Equipment	N/A
13	Plumbing / Toilet Room	Provide keyed hose bibbs.

## OLD GREENWICH ELEMENTARY SCHOOL PROJECT RATIONALE

### Educational Program Upgrades

Despite the magnitude of the shortfalls outlined in the comparison to the Core and Goal elements of the Model Program the view of the Committee was to focus on resolving key issues related to educational program adjacencies and replacement of classrooms in an unsuitable area of the building.

It is practically difficult and potentially very costly to remedy the primary issue of under-sized classrooms for grades 2 - 5 at Old Greenwich Elementary School. These rooms are located primarily in the 1902 and 1950 portions of the building. The distance from the load bearing corridor wall to the exterior bearing wall establishes the size and shape of the rooms and the relocation of either of those walls is not practical. If any of the rooms are required to be replaced they can certainly be provided at the full program size.

### Security Improvements

The design of school facilities has been impacted by several tragic occurrences on school campuses that all occurred well after any portion of Old Greenwich Elementary School was designed. While several important improvements to harden the entrances and provide electronic surveillance have been in place for some time at the school, the basic layout of the building and campus is not in alignment with current best practices for school security. The key security related improvements that were prioritized by the Committee include:

- Relocation of the main office to be adjacent to the main entrance. This will allow main office personnel to maintain not only an electronic (camera) view of the entrance but also a direct visual connection.
- Provision of a secure vestibule at the main entrance. This design element is strongly recommended by both Connecticut standards and school safety studies published by the US Department of Homeland Security.
- Provision of protected outside space for use by students as dining, outdoor classroom or physical education.
- Relocation of the Kindergarten Classroom adjacent to the entrance driveway to a less vulnerable position on campus.
- As part of the alteration, the most critical locations will have new devices, cameras and associated wiring per the recommendations of the Director of School Safety.

### Accessibility Compliance

The Americans with Disabilities Act (ADA) is Federal civil rights legislation that was enacted in 1990. While in the first few years after it was passed there were a number of acceptable reasons to delay compliance after 30 years and the incorporation of many of the ADA's provisions into building codes it is no longer generally acceptable to have a public building with limited compliance. The major ADA compliance issues at Old Greenwich Elementary School include:

- Lack of an Interior Accessible Route – There should be an accessible means of traveling to all floor levels in the building. The Ground Floor of Old Greenwich School has 4 separate floor levels – only two of which are connected by an accessible ramp. The upper floors are not



accessible at all and will require the installation of an elevator to comply.

- Main Entrance is not accessible. While there is an on-grade entrance to the Ground Floor in the back area by the mechanical room this is not generally viewed as an acceptable strategy for equivalent access for the disabled.
- This same issue exists for the public entrance to the Gym and Auditorium. There are special events where this entrance is made accessible by installation of a temporary ramp but a permanent solution is needed.
- Given the age of the building it is difficult absent total renovation to make toilet rooms fully accessible. There have been some modifications where they were “readily achievable” that have provided some level of accessibility in some of the toilet rooms in the older portions of the building.

There are other ADA issues of a less significant magnitude that should be addressed as well including updated communication systems, signage, door hardware and door access. The schematic design plans have been reviewed and approved by the US Department of Education’s Office for Civil Rights.

## Infrastructure and Building Systems Upgrades

Given the age of the building and the date of the last major capital project there are many building systems that have exceeded their expected useful life and are now in need of replacement. In general the older portions of the building have significantly more needs. Most of the 1995 addition in the rear or west side of campus is in acceptable condition. The building was assessed in detail by a team of professionals during the recent Master Plan process and over \$16 Million Dollars of improvements were identified for infrastructure replacement and upgrades to sustain the building in overall good condition.

During the Committee discussions the overall condition of the building’s infrastructure and specific systems were reviewed. The prioritization process revealed that every Committee member felt that upgrades to the HVAC system were viewed as a must-have element of the project. The upgrading of the HVAC systems in the older sections of the building includes providing code compliant ventilation with the ability to mechanically introduce heated or cooled, filtered, fresh air. Indoor air quality improvements have always benefitted the health of all building occupants as well as improved the educational environment but with the advent of the pandemic they are viewed as even more critical. This is a typical issue with buildings of the age of Old Greenwich Elementary School which have older passive ventilation systems that did meet the codes at the time when they were originally constructed. The expectation of occupants of buildings of all types has evolved significantly with regard to temperature control and overall indoor air quality.

Another element that most thought was a must-have feature of the project was the replacement of the two undersized classrooms that are on the lowest level of the building that are below the flood elevation. These two spaces are now used as a Kindergarten and First Grade classroom. These two rooms were once a larger multi-purpose room and are on their own (low) floor level. To make these rooms accessible as well as provide access to the two classrooms that are further south and were part of the 1950 addition the proposed design infills these lowest classrooms and corridor area to raise them up to be flush with the 1902 corridor level and then to add a small corridor ramp to access the 1950 portion to the south. This infill solution provides accessibility and helps minimize future flooding.

The balance of the infrastructure items were identified in the detailed reports included in the Master Plan and are comprised of replacement of materials and systems that are at the end of their expected useful life or required to update the building to meet current codes. Please refer to the attached plans dated January 19, 2024 and estimate dated March 12, 2024.

These include:

- Partial roof and window replacement with an alternate for eight lower level windows to be replaced.
- Installation of an automatic fire protection system (sprinklers).
- Interior upgrades including lighting, ceilings and casework replacement.
- Communications, fire alarm and emergency lighting updates.
- Installation of an emergency generator. This is especially important for this location that has pumps to move sanitary waste and storm water from the site.

Excerpts of the detailed reports on the building infrastructure are included in the Appendix to this document.

## OLD GREENWICH ELEMENTARY SCHOOL PROJECT DESCRIPTION

The proposed concept for the improvements to Old Greenwich Elementary School involves the relocation of functions that result in the need for a one-story four classroom addition and interior alterations. This approach results in an integrated solution to the major Educational, Security and Accessibility issues. Site and Floor Plans for the conceptual design are included in the Appendix to this report.

### Safety and Security Improvements

The proposed new main entrance location involves a redesign of the front plaza and regrading for a direct connection to the ground floor. By converting this to a main entrance it will reinforce the symmetrical appearance of the public facing side of the building. This approach creates an entry plaza, a secure vestibule and a security window. The finish floor elevation at the new entrance will be set at elevation 14', one foot above flood elevation as established by FEMA.

Other security issues that are remedied by this approach include the provision of a large interior courtyard that can be used for dining, outdoor educational programs, large group gatherings and physical education. The proposed relocation also relocates a Kindergarten room from a somewhat vulnerable position to a more secure portion of the site.

### Accessibility Upgrades

The new main entrance on the ground floor also solves the accessible main entry concern. Other accessibility improvements include:

- Installation of a permanent ramp at the Auditorium / Gym Entrance.
- Installation of a new three-stop elevator in the interior of the existing building to provide an interior accessible route connecting the three main levels of the building.
- Infill of the lowest classrooms and corridor area on the ground floor for a flush, accessible transition, as well as a short ramp to access the 1950 portion.
- Interior renovations adjacent to the proposed elevator will include updated, fully accessible toilet rooms on all three floors of the building.

### Educational Program Improvements

Most of the educational program improvements have already been mentioned as they are integrated with the security and accessibility solutions. The proposed conceptual layout for the new addition is proposed to be a single loaded corridor configuration (rooms on one side of a corridor rather than both) that connects the northwest side of the original 1902 building to the southwest corner of the 1995 addition. This configuration requires that some of the play equipment be replaced. The proposed addition connects to the 1902 original building at a point where a three-story classroom addition was constructed. The connecting corridor goes through the lowest of these classrooms, which is a first grade classroom which will also require that it be replaced. The existing classroom is then renovated to provide in part for the new corridor as well as the relocated Teacher's room and Special Ed. Resource room that were displaced by the new entrance and relocated main office.

A summary of the Educational Program Improvements includes:

- Replacement of four classrooms including two that were under-sized with four full sized classrooms for the youngest students.
- Pre-Kindergarten, Kindergarten and First Grade Rooms are all located on the Ground Floor and are grouped together. Expansion of the support functions for the Nurse, Speech program and Psychologist.

- 
- New Main office suite adjacent to the accessible main entrance.
  - New secure entrance vestibule.
  - Provision of secure outdoor instructional space.
  - Improved overall building circulation by providing an alternate pathway from the Cafeteria to classrooms.

## Proposed Site Improvements

Most of the proposed site improvements are related to the area impacted by the new one-story addition and the creation of the new main entrance. This includes the reconfiguration of walkways and landscaping at the new main entrance and relocation of play surfaces, equipment and related utilities work, landscaping, fencing, grading, drainage and paving. The existing front plaza will be redesigned and regraded for the new accessible main entrance at ground level in the center of the 1902 building, the historic main entrance without the stairs.

## PROJECT BUDGET, STATE REIMBURSEMENT, SCHEDULE & IMPLEMENTATION

### Budget Development Process

Proposed budgets were developed for each element of the proposed improvements. A budget summary is included below and the more detailed budget development worksheet is included in the appendix to this report. Budgets for new construction, renovation and sitework are based on unit prices and the area that applies to each item of work. Budgets for infrastructure upgrades are developed from the baseline data and budgets included in the Master Plan. All budgets include a 10% contingency for items that are added but not yet known and unforeseen conditions discovered during the development of the design and during construction. The budgets are escalated to reflect four years of price escalation at 3% per year. This is a reasonable estimate based on past years but the actual cost escalation in the construction market can vary widely dependent upon overall economic conditions. They also include an allowance for soft costs equal to 18% of the hard costs. This allowance should be adequate to fund design professional fees, construction management fees, surveys, testing and other Owner expenses necessary to administer the project.

### Project Budget

The budget for the proposed improvements described in the Ed. Specs. And the conceptual design is summarized below:

	2018 Master Plan	2020 Study
Site Development	\$ 3,025,309	\$ 1,700,000
New Construction	\$ 10,700,000	\$ 6,900,000
Renovation	\$ 9,060,903	\$ 2,900,000
Infrastructure	\$ 15,848,542	\$ 13,000,000
Subtotal	\$ 38,634,754	\$ 24,500,000
*Feasibility Study Options include estimated cost escalation to 2024		

This proposed budget is significantly less costly than the cost and scope of the project included in the Master Plan. The Committee guiding this process was interested in a more modest and cost-effective approach that addressed the highest priority issues. Refer to the attached project estimate dated March 12, 2024.

### State Grant Process

The development of an Ed. Spec. and budget is the first step in applying for State grants to assist the locality in the funding of the project. An overview of eligible and ineligible costs finds that most if not all of the budgeted expenses are sometimes allowed for reconstruction and addition projects. As most renovation and addition projects are by definition unique the confirmation of what portion of the costs are eligible can only be known during the full application process.



## Project Delivery Method

The pre-construction planning and design process has several more steps prior to breaking ground including:

- Securing funding for the design phases of the Project.
- Establishing a project specific Town Building Committee.
- Selecting an Architect for the full basic architectural services necessary to deliver the project starting with Schematic Design.
- Updating existing building drawings to accurately reflect “as-built” conditions.
- Updating Site and topographic Survey to show accurate floodway locations and elevations.
- Obtaining local and State approvals including; State Grant review, Town of Greenwich Municipal Improvement and Site Plan Approval, Environmental Approvals and Building Permits.

The delivery method for the construction itself is most typically accomplished through conventional Design, Bid and Build type procurement. Some new building projects have benefitted from completing the Design up to the Design Development Level and then negotiating a Guaranteed Maximum Price (GMP) from a qualified Construction Manager (at risk). Typically with additions projects at occupied schools it makes sense to complete the new addition first so it can be occupied and then take existing rooms out of service and renovate them. While this can extend the duration of the project it allows for the existing building to stay in operation at full capacity during the course of the project.

## Projected Timeline

A project of this scope and budget takes a few years to be developed and fully realized.

- 2022 – 2023 – Initial Design phases are funded and approvals initiated.
- 2023 – 2024 – Design Development, Construction Documents and approvals are finalized. Final pricing is established through the bidding or negotiation process.
- 2025 – 2027 – Construction in phases over the course of two school years. Full access to the school (no summer programs) for two summers will be required to complete the renovation work.

We feel based on experience that this is a reasonable approximation of a schedule for how the project would develop assuming that there is support for the funding from the Town of Greenwich. It is possible to complete the overall process faster if more planning and design funding is authorized in the 2021 – 2022 budget. If funding is restricted then the overall process can take longer.

Greenwich Public Schools  
Old Greenwich Elementary School  
Feasibility Study  
Space Comparison

## Model Program

### 3 Section

Pre-Kindergarten (Opt.)		
PK.01	CORE	PK Learning Studios
PK.02	GOAL	Small Group Rooms
PK.03	GOAL	Commons/Transition Area
PK.04	GOAL	PK Storage Room
PK.05	CORE	PK Toilets
Subtotals		

Qty	Avg. Size	Total NSF
3	1,000	3,000
2	200	400
1	500	500
1	250	250
3	50	150
Subtotals		4,300

Qty	Avg. Size	Total NSF
2	958	1,916
0		-
0		-
0		-
2	60	120
Subtotals		2,036

Qty	Avg. Size	Total NSF
2	1,120	2,240
1	230	230
		-
		-
2	125	250
Subtotals		2,720

Instructional Core		
A.01	CORE	Kindergarten Learning Studios
A.01a	CORE	Kindergarten Toilets
A.01b	CORE	Kindergarten Storage
A.01c	CORE	First Grade Learning Studios
A.01d	CORE	First Grade Toilets
A.01e	CORE	First Grade Storage
A.02	CORE	2-5 Learning Studios
A.03	GOAL	FLEX Learning Studios
A.04	GOAL	Small Group Rooms
A.05	GOAL	Activity Commons
A.06	GOAL	Storage Rooms
A.07	CORE	Student Restrooms
A.08	CORE	Staff Restrooms
Subtotals		

Qty	Avg. Size	Total NSF
3	1,000	3,000
3	50	150
1	100	100
3	850	2,550
3	50	150
3	100	300
12	850	10,200
0	850	-
6	100	600
1	400	400
1	100	100
8	150	1,200
8	50	400
Subtotals		19,150

Qty	Avg. Size	Total NSF
3	1,072	3,216
2	135	270
3	75	225
4	863	3,452
1	40	40
1	50	50
12	738	8,856
0		-
0		-
0		-
5	137	685
4	163	652
1	35	35
Subtotals		17,481

Qty	Avg. Size	Total NSF
3	1,000	3,000
3	125	375
		-
4	895	3,580
2	125	250
2	100	200
12	738	8,856
		-
		-
		-
7	137	959
4	163	652
3	90	270
Subtotals		18,142

Activities Programs		
B.01	CORE	Gymnasium
B.09	CORE	Gym Storage & Supports
B.02	CORE	Music Labs
B.03	CORE	Music Lab (Band/Orch)
B.04	CORE	Art Lab
B.04a	CORE	Art Kiln, Glazing & Storage Rooms
B.10	GOAL	Computer Lab
B.11	GOAL	World Language Lab
B.05	CORE	Science Lab w/Prep Room
B.05a	GOAL	Additional Science Lab w/Prep Room
B.06	GOAL	Multi - Purpose /Project/Idea Lab
B.07	GOAL	Flex Lab
B.08	GOAL	Lab Storage Rooms
Subtotals		

Qty	Avg. Size	Total NSF
1	4,500	4,500
1	300	300
1	1,000	1,000
1	1,000	1,000
1	1,000	1,000
2	150	300
0	850	-
0	850	-
1	1,200	1,200
1	1,200	1,200
1	850	850
1	650	650
4	100	400
Subtotals		12,400

Qty	Avg. Size	Total NSF
1	4,410	4,410
1	450	450
1	1,020	1,020
1	870	870
1	1,000	1,000
1	150	150
1	540	540
1	685	685
1	700	700
0		-
0		-
0		-
1		-
Subtotals		9,825

Qty	Avg. Size	Total NSF
1	4,410	4,410
1	450	450
1	1,020	1,020
1	870	870
1	1,000	1,000
1	150	150
1	540	540
1	685	685
1	700	700
0		-
0	-	-
0		-
1		-
Subtotals		9,825

Special/Support Programs		
C.01	CORE	Accelerated Learning Program
C.02	CORE	Resource/Reading/Literacy/ESL
C.03	CORE	Special Ed Learning Studios / Resource
C.04	GOAL	Flex Special Programs Room
C.05	GOAL	Storage Room
C.06	CORE	Student Restroom/Changing
C.07	GOAL	Sensory Room
C.08	CORE	OT/PT
C.09	GOAL	Reflection/Small Group Room
Subtotals		

Qty	Avg. Size	Total NSF
1	850	850
3	600	1,800
1	850	850
2	300	600
1	100	100
1	100	100
1	200	200
1	400	400
1	100	100
Subtotals		5,000

Qty	Avg. Size	Total NSF
1	700	700
2	788	1,576
2	453	906
0		-
0		-
0		-
0		-
1	730	730
0		-
Subtotals		3,912

Qty	Avg. Size	Total NSF
1	700	700
2	788	1,576
2	418	836
0		-
0		-
0		-
0		-
1	730	730
0		-
Subtotals		3,842

Community Commons		
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Performance Platform
D.07	GOAL	Audience Seating (shared w/adj.)
D.08	GOAL	Parent Center/Community Room
D.09	GOAL	After School Programs
Subtotals		

Qty	Avg. Size	Total NSF
1	2,700	2,700
1	400	400
1	1,000	1,000
1	3,000	3,000
1	800	800
1	1,400	1,400
0	-	-
1	400	400
1	400	400
Subtotals		10,100

Qty	Avg. Size	Total NSF
1	3,300	3,300
0		-
0		-
1	2,000	2,000
1	1,200	1,200
1	900	900
0		-
0		-
0		-
Subtotals		7,400

Qty	Avg. Size	Total NSF
1	3,300	3,300
0		-
1	1,475	1,475
1	2,000	2,000
1	1,200	1,200
1	900	900
0		-
0		-
0		-
Subtotals		8,875

Admin & Student Services		
E.01	GOAL	Welcome Center
E.02	CORE	Office Staff/Reception
E.03	CORE	Principal's Office
E.04	CORE	Admin Offices
E.05	CORE	Conference Room
E.06	GOAL	Work/Mail/Copy Room
E.07	CORE	Teacher's Lounge/Dining
E.08	CORE	Specialist Offices (Sp, Psy, Soc., etc)
E.09	GOAL	Small Conference Room
E.10	CORE	Nurse Suite
Subtotals		

Qty	Avg. Size	Total NSF
1	400	400
1	200	200
1	200	200
3	150	450
1	300	300
2	250	500
1	600	600
4	150	600
1	150	150
1	500	500
Subtotals		3,900

Qty	Avg. Size	Total NSF
		-
1	350	350
1	150	150
1	300	300
1	200	200
		-
1	360	360
2	120	240
		-
1	325	325
Subtotals		1,925

Qty	Avg. Size	Total NSF
		-
1	500	500
1	170	170
2	200	400
1	385	385
		-
1	345	345
2	310	620
		-
1	420	420
Subtotals		2,840

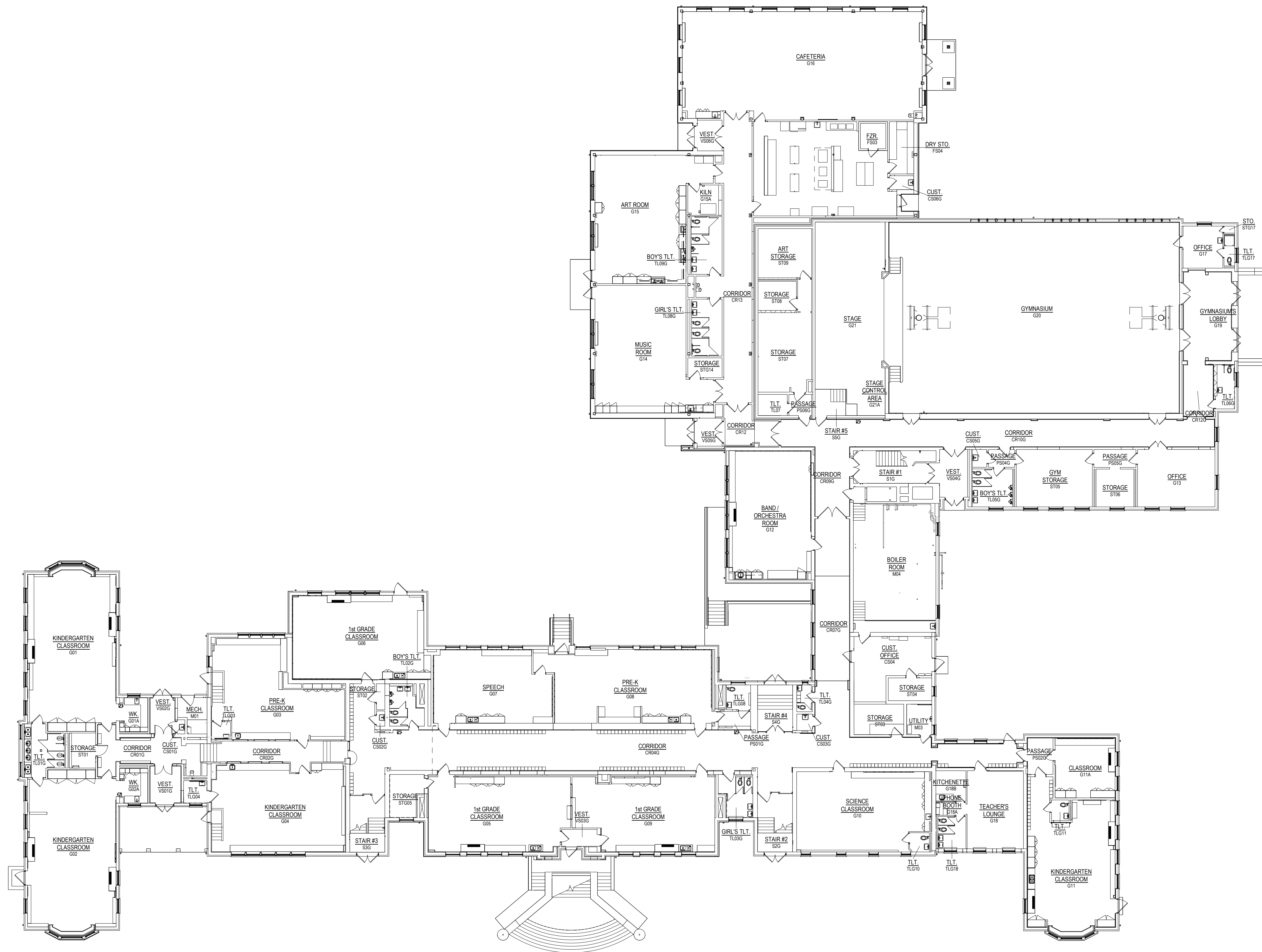
Building/Facilities Support		
F.01	CORE	Receiving
F.02	CORE	Storage
F.03	CORE	Custodial
F.04	CORE	Security Vestibule
Subtotals		

Qty	Avg. Size	Total NSF
1	200	200
1	1,000	1,000
2	100	200
1	200	200
Subtotals		1,600

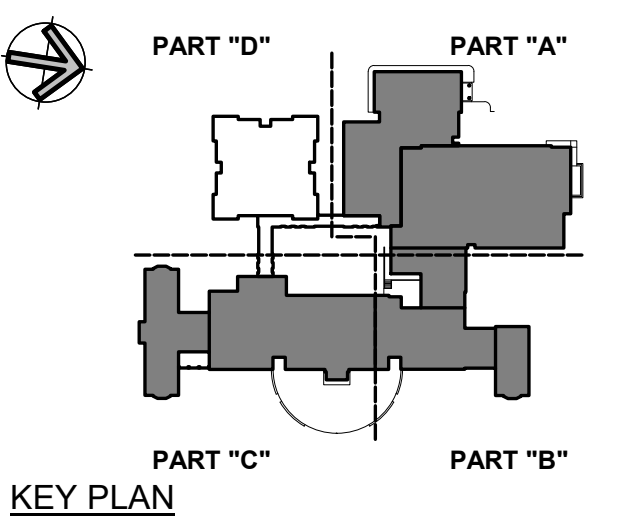
Qty	Avg. Size	Total NSF
		-
1	1,000	1,000
1	415	415
		-
Subtotals		1,415

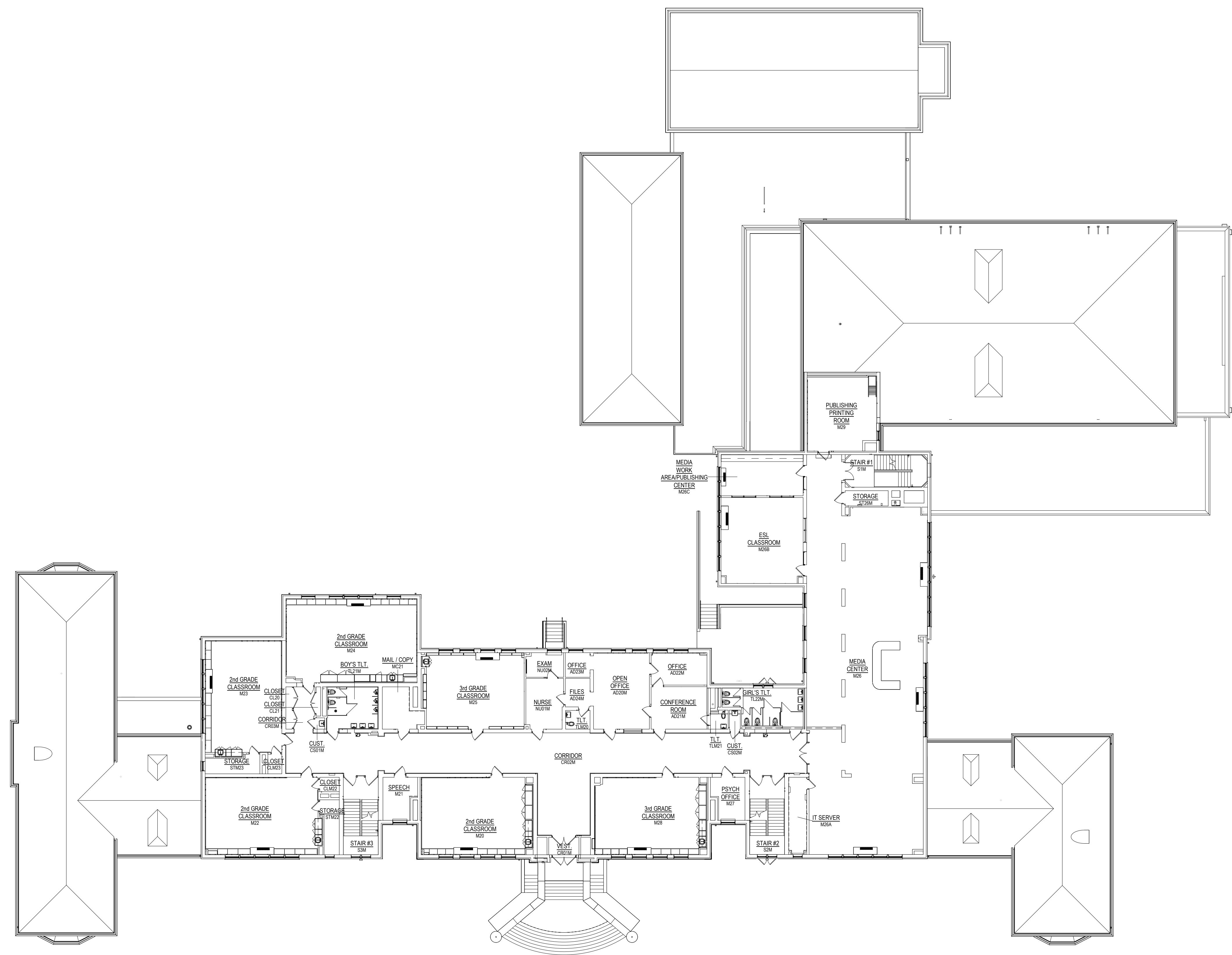
Qty	Avg. Size	Total NSF
		-
1	1,000	1,000
1	415	415
		-
Subtotals		1,415

NSF Total	56,450	43,994	47,659
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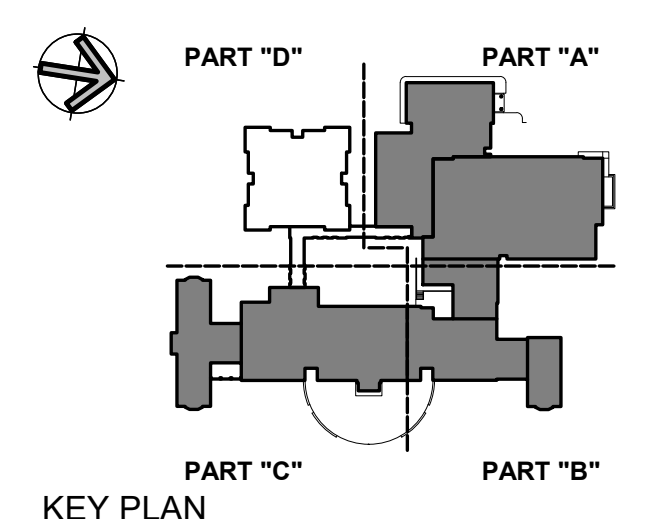


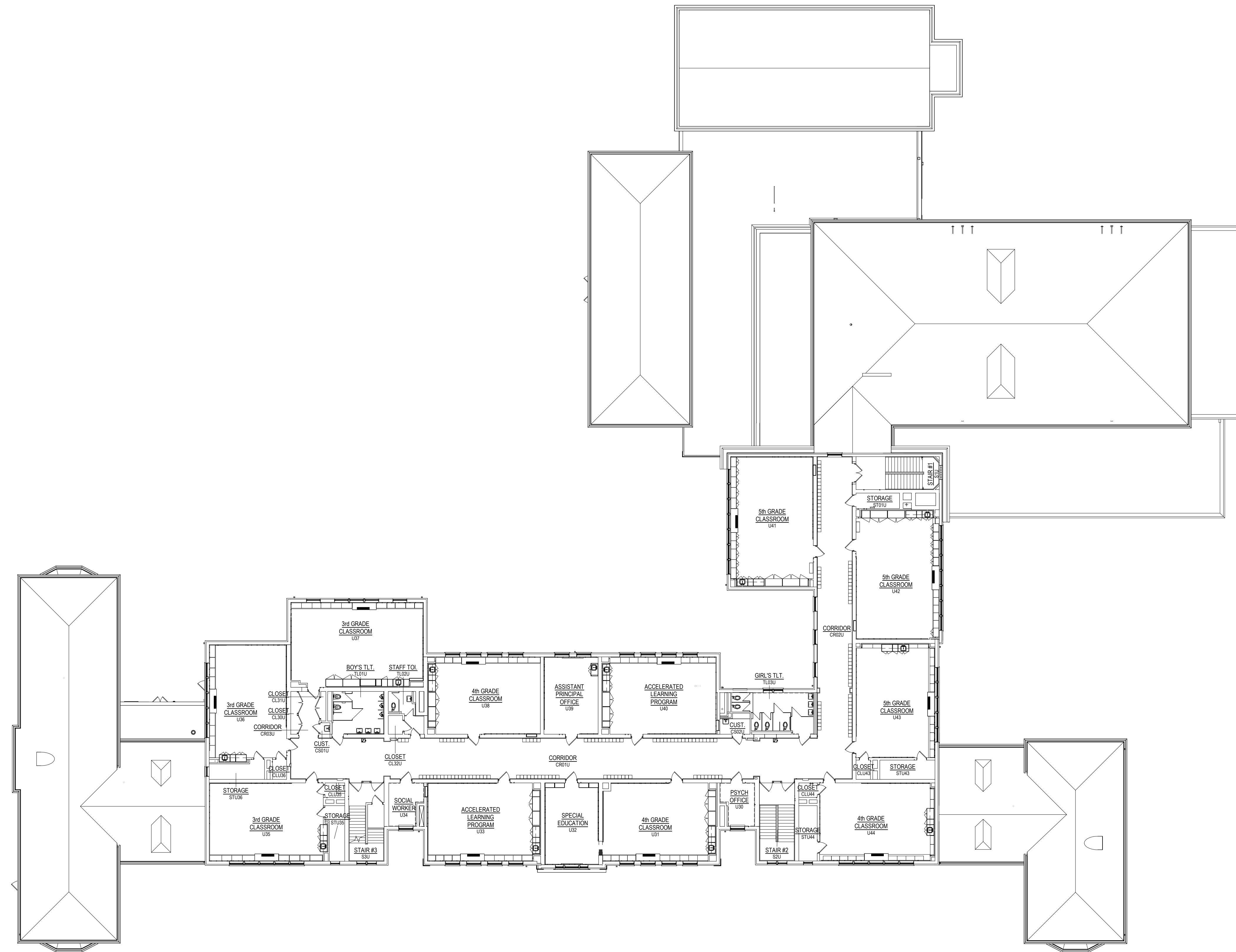
**1** 1st FLOOR - EXISTING CONDITIONS  
1/16" = 1'-0"



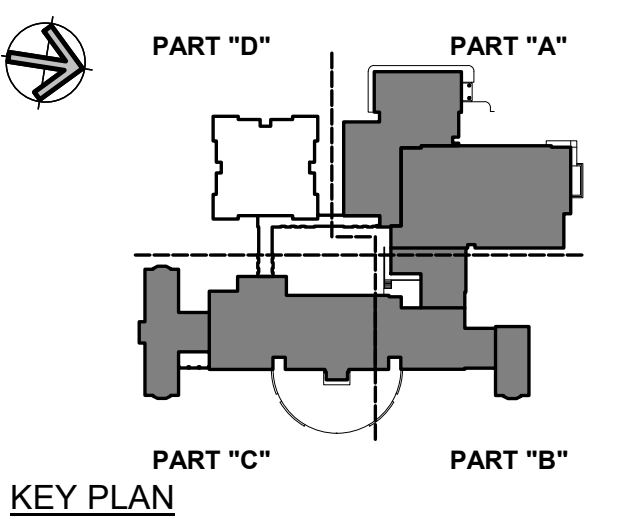


**1** 2nd FLOOR - EXISTING CONDITIONS  
1/16" = 1'-0"

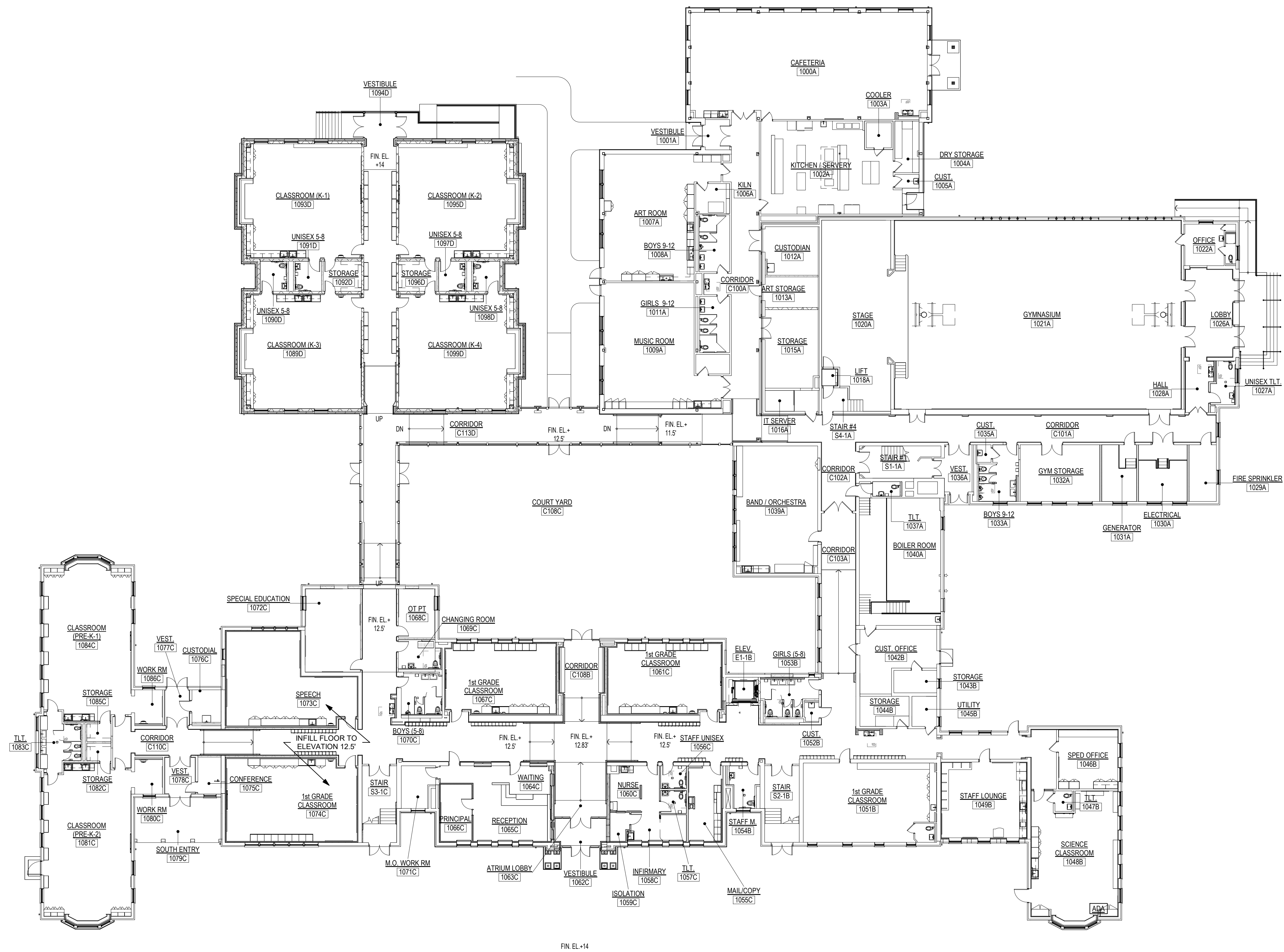




1 3rd FLOOR - EXISTING CONDITIONS  
1/16" = 1'-0"







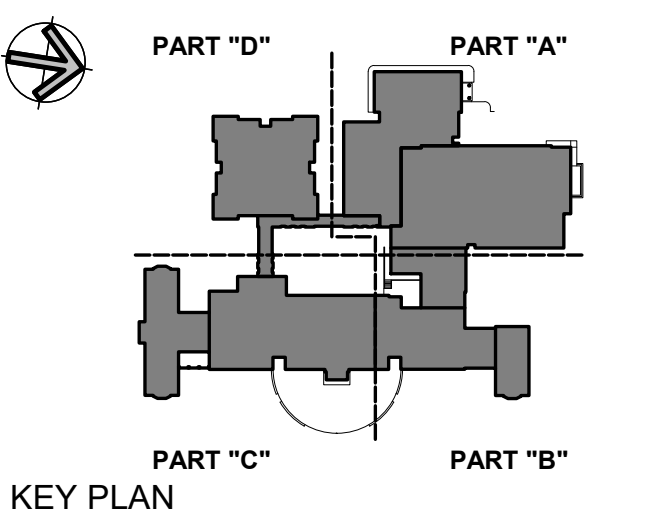
1 1st FLOOR - OVERALL FLOOR PLAN  
1/16" = 1'-0"

#### SYMBOL LEGEND

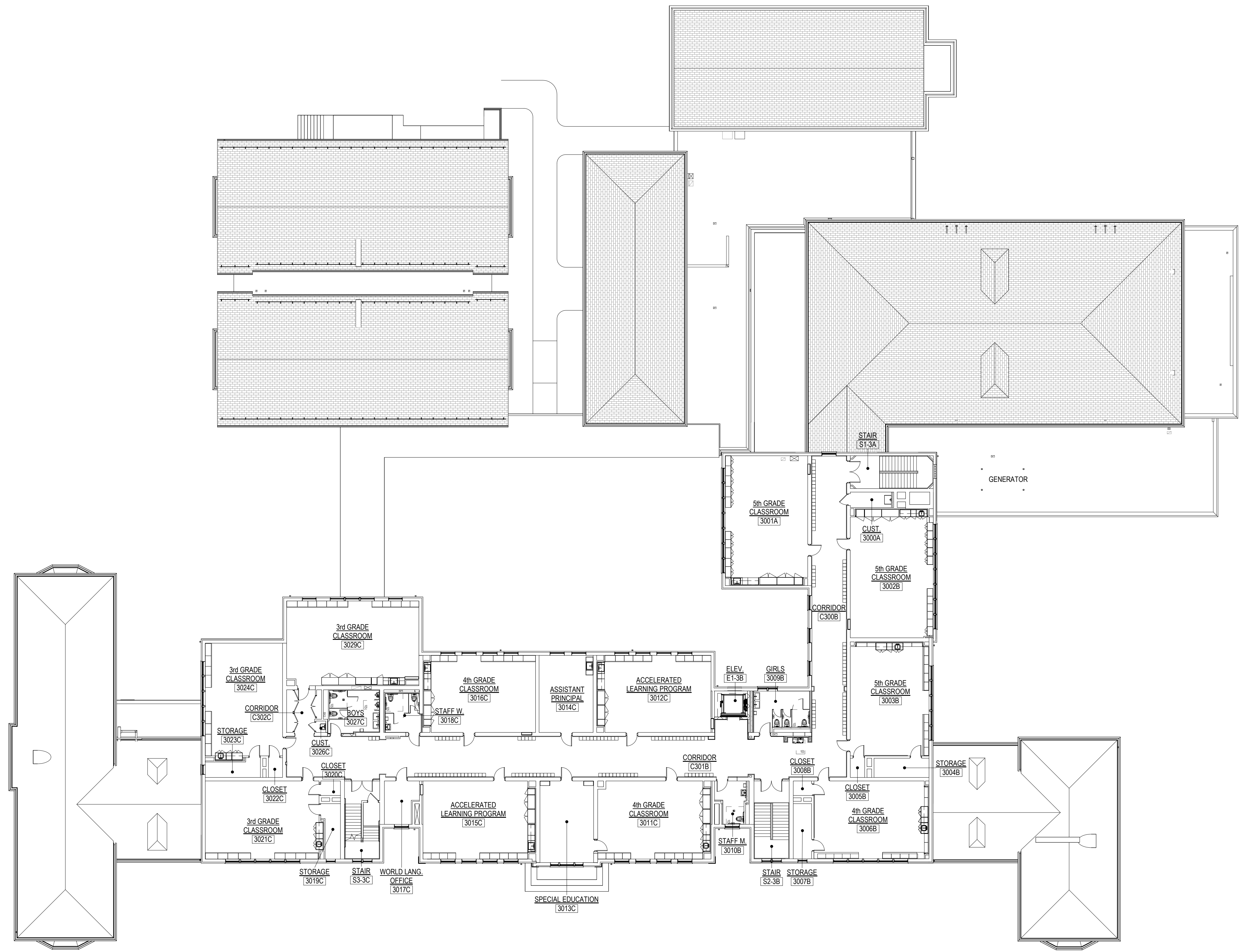
- NEW METAL STUD PARTITIONS
- NEW MASONRY WALL (4" BRICK VENEER)
- NEW CMU WALL
- DOOR NUMBER
- WINDOW TYPE (SEE A300s DRAWINGS)
- ROOM NAME
- ROOM NUMBER
- PARTITION TYPE (SEE A300s DRAWINGS)
- CONSTRUCTION KEY NOTE
- EXTERIOR DOOR LABEL, SEE DWG. A910
- ELEVATION/SECTION NUMBER
- SHEET NUMBER
- INTERIOR ELEVATION NUMBER
- SHEET NUMBER
- WALL SECTION NUMBER
- SHEET NUMBER
- BUILDING SECTION NUMBER
- SHEET NUMBER
- ACCESSIBLE WATER COOLER/S
- ROOF LEADER - REFER TO ROOF PLAN / EXTERIOR ELEVATIONS
- WHITE BOARD / TACK BOARD / PEG BOARD
- SMART BOARD
- FIRE EXTINGUISHER AND CABINET
- FLOOR DRAIN, SLOPE FLOOR TO DRAIN

#### GENERAL NOTES

1. READ ALL GENERAL NOTES ON DRAWINGS A001.
2. CONTRACTORS SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
3. PATCH TO MATCH ALL EXISTING WALLS AND CEILINGS TO REMAIN AFFECTED BY ANY DEMOLITION AND/OR NEW WORK.
4. ALL DIMENSIONS ARE OUTSIDE FACE OF BRICK, CONCRETE MASONRY UNITS AND FACE OF GYPSUM BOARD UNLESS OTHERWISE NOTED.
5. ALL NEW WALL AND PARTITION ASSEMBLIES SHALL EXTEND TO UNDERSIDE OF DECK ABOVE UNLESS OTHERWISE NOTED.
6. PROVIDE CMU WITH PRE-MANUFACTURED BULLNOSE AT ALL EXPOSED CORNERS.
7. PROVIDE CORNER GUARDS AT ALL GYPSUM WALL BOARD EXPOSED CORNERS.
8. WHERE THE WORD "ALIGN" IS INDICATED IT SHALL MEAN TO ALIGN BOTH SIDES OF THE WALL.
9. SEE M.E.P. DRAWINGS TO COORDINATE ALL REQUIRED TRENCHING AT CONCRETE SLABS. SAW CUT SLAB TO THE REQUIRED EXTENT. INSTALL UTILITIES, INFILL SLAB FLUSH WITH ADJACENT. SEE ALSO OTHER DETAILS IN THE DRAWINGS AS APPLICABLE.
10. PROVIDE STRUCTURAL ANCHORS TO TOP OF ALL CURTAIN WALL FRAMES, AND AT INTERMEDIATE STRUCTURAL MEMBERS OR WALLS AS REQUIRED TO RESIST WIND LOADS. SECURE ANCHORS TO STRUCTURAL MEMBERS AND/OR WALLS.







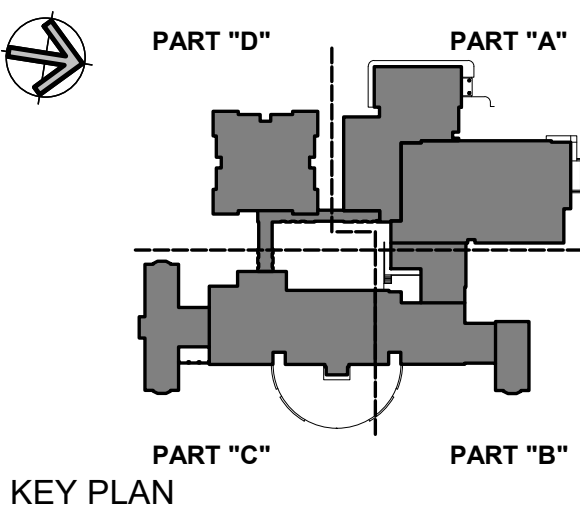
**1** 3rd FLOOR - OVERALL FLOOR PLAN  
1/16" = 1'-0"

SYMBOL LEGEND

- NEW METAL STUD PARTITIONS
- NEW MASONRY WALL (4" BRICK VENEER)
- NEW CMU WALL
- DOOR NUMBER
- WINDOW TYPE (SEE A600s DRAWINGS)
- ROOM NAME
- ROOM NUMBER
- PARTITION TYPE (SEE A900s DRAWINGS)
- CONSTRUCTION KEY NOTE
- EXTERIOR DOOR LABEL, SEE DWG. A910
- ELEVATION/SECTION NUMBER
- SHEET NUMBER
- INTERIOR ELEVATION NUMBER
- SHEET NUMBER
- WALL SECTION NUMBER
- SHEET NUMBER
- BUILDING SECTION NUMBER
- SHEET NUMBER
- ACCESSIBLE WATER COOLER/S
- ROOF LEADER - REFER TO ROOF PLAN / EXTERIOR ELEVATIONS
- WHITE BOARD / TACK BOARD / PEG BOARD
- SMART BOARD
- FIRE EXTINGUISHER AND CABINET
- FLOOR DRAIN, SLOPE FLOOR TO DRAIN

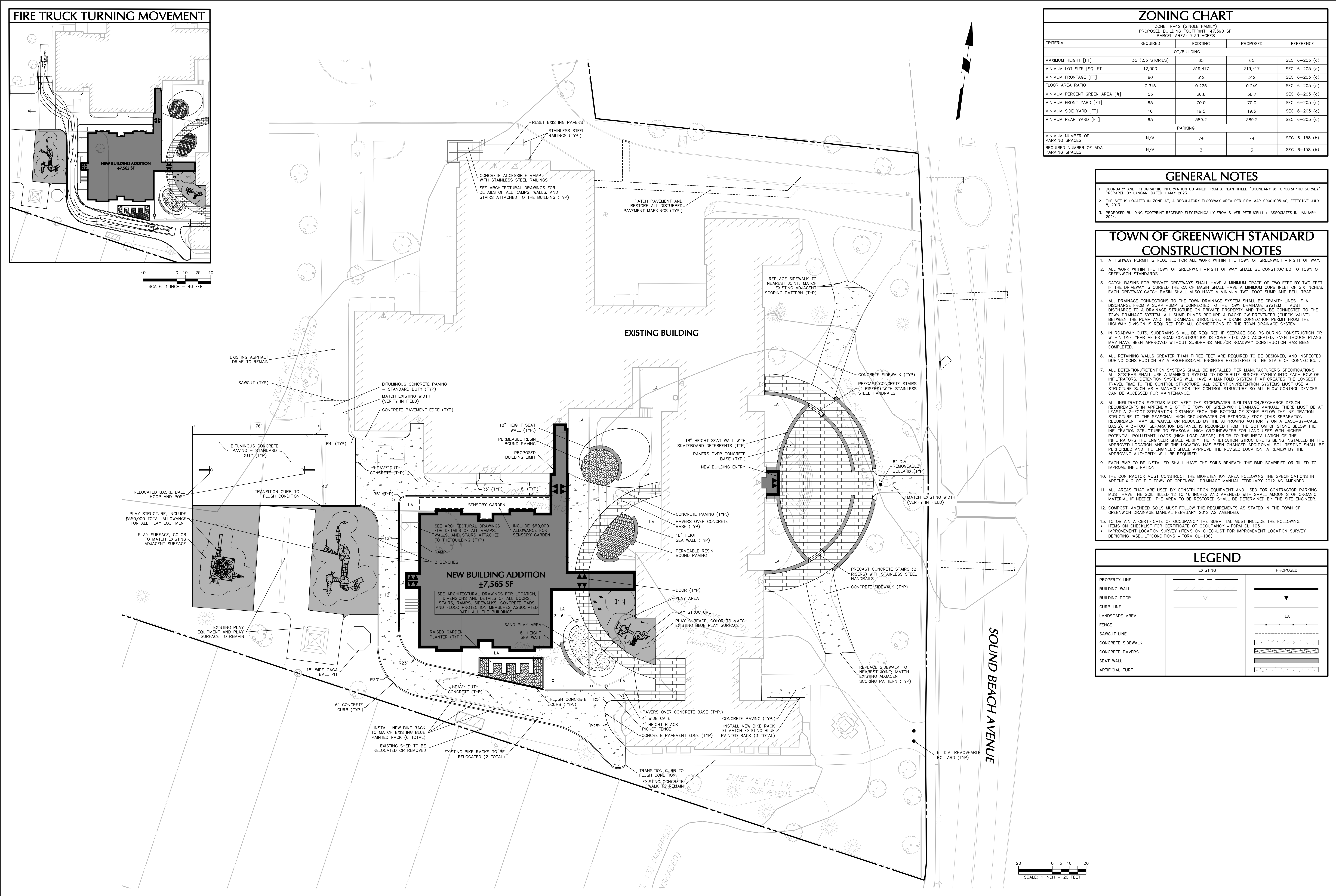
GENERAL NOTES

1. READ ALL GENERAL NOTES ON DRAWINGS A001.
2. CONTRACTORS SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
3. PATCH TO MATCH ALL EXISTING WALLS AND CEILINGS TO REMAIN AFFECTED BY ANY DEMOLITION AND/OR NEW WORK.
4. ALL DIMENSIONS ARE OUTSIDE FACE OF BRICK, CONCRETE MASONRY UNITS AND FACE OF GYPSUM BOARD UNLESS OTHERWISE NOTED.
5. ALL NEW WALL AND PARTITION ASSEMBLIES SHALL EXTEND TO UNDERSIDE OF DECK ABOVE UNLESS OTHERWISE NOTED.
6. PROVIDE CMU WITH PRE-MANUFACTURED BULLNOSE AT ALL EXPOSED CORNERS.
7. PROVIDE CORNER GUARDS AT ALL GYPSUM WALL BOARD EXPOSED CORNERS.
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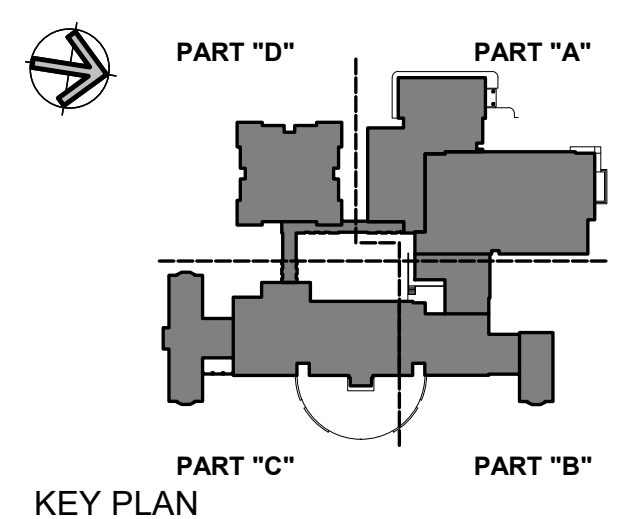
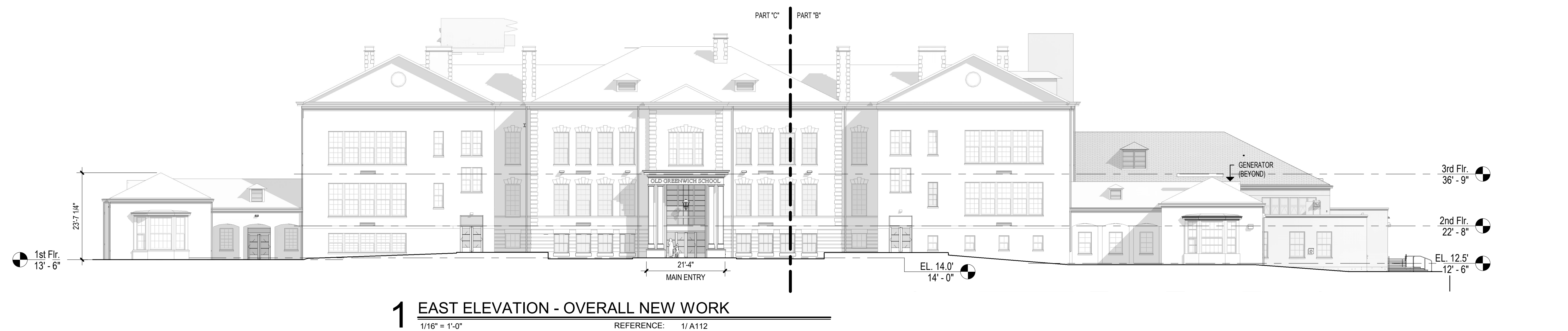
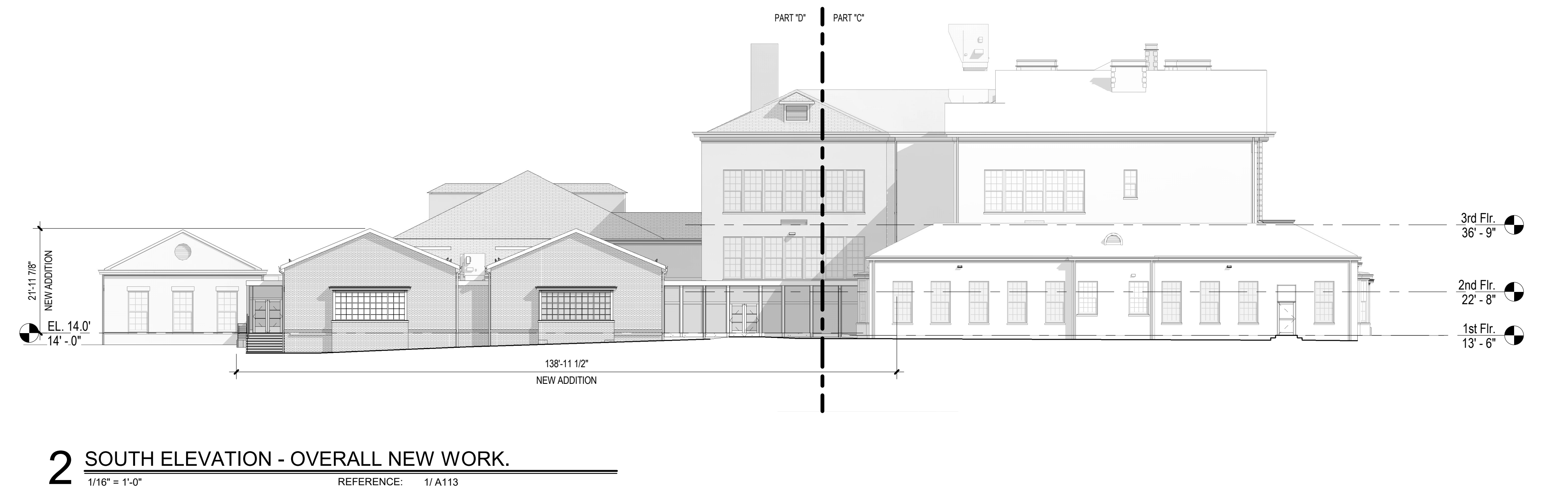
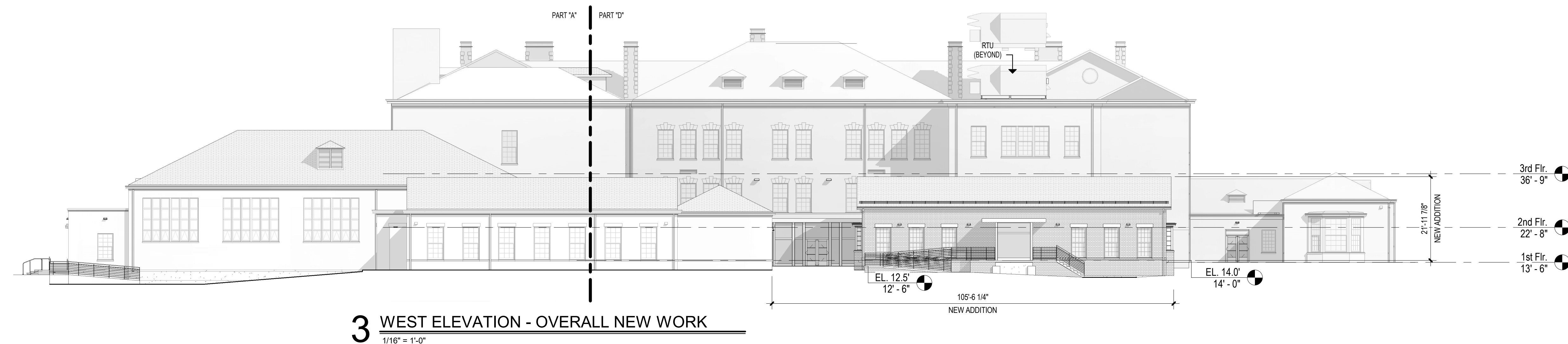
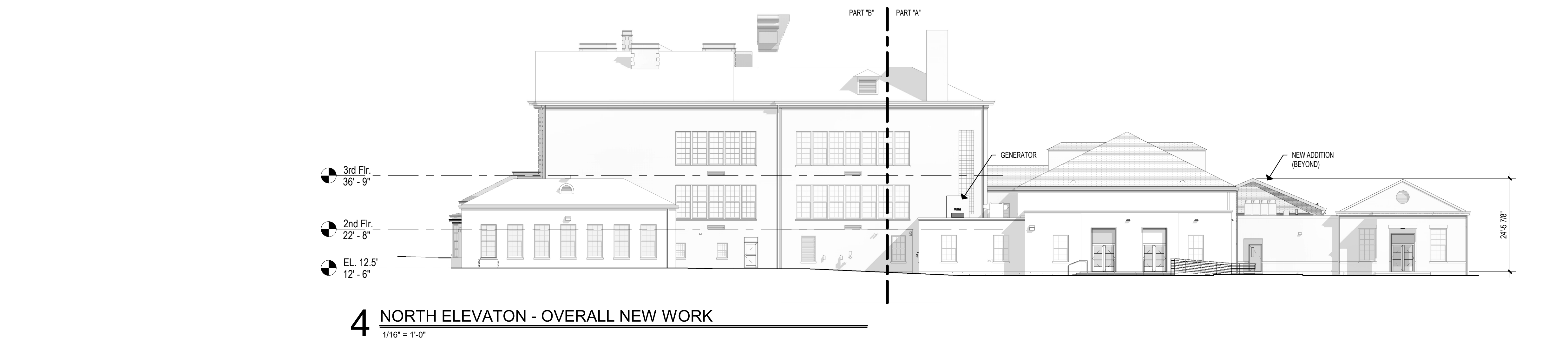


Revision:	Description:	Date:	Revised By:









Old Greenwich Elementary School  
Infrastructure Breakdown from Master Plan

					Trade Cost	Total Project Cost	
north side/student drop off	replace granite steps with new entry design with	1	allowance	\$75,000.00	\$75,000	\$109,032.00	Accessibility
Gym/Stage	Install ADA Lift	1	each	\$35,000.00	\$35,000	\$50,881.60	
						<b>\$159,913.60</b>	
New Wing Hall	Abatement - Boiler Room (Facilities)	1	allowance	\$250,000.00	\$250,000	\$363,440.00	Boiler
Fuel Oil System	Fuel Oil System demolition	1	LS	\$10,000.00	\$10,000	\$14,537.60	Boiler
Boilers	Boiler demolition	2	EA	\$7,500.00	\$15,000	\$21,806.40	Boiler
HW Heating Pumps	Heating Pump demolition	2	EA	\$650.00	\$1,300	\$1,889.89	Boiler
Boilers	Installation of new 2,000 MBH Gas Boiler - Condensing	2	EA	\$75,000.00	\$150,000	\$218,064.00	Boiler
HW Heating Pumps	Installation of new HW Heating Pumps - 7.5 HP Basemo	2	EA	\$16,000.00	\$32,000	\$46,520.32	Boiler
						<b>\$666,258.21</b>	
PK-K Classrooms	Replace lockers in PK-K Classrooms	1	allowance	\$35,000.00	\$35,000	\$50,881.60	Casework
Cafeteria	Replace Cabinets	9	lf	\$600.00	\$5,400	\$7,850.30	Casework
Classrooms	Replace Cabinets	168	lf	\$600.00	\$100,800	\$146,539.01	Casework
						<b>\$205,270.91</b>	
PA/Comm Systems	Replace existing PA system and master clock systems	1	allowance	\$120,000.00	\$120,000	<b>\$174,451.20</b>	Communications
Bldg Exterior	Repair Parge Foundation	350	sf	\$20.00	\$7,000	\$10,176.32	Envelope
Bldg Exterior	Replace Window lintels	150	lf	\$400.00	\$60,000	\$87,225.60	Envelope
Bldg Exterior	Replace Leaders	500	lf	\$15.00	\$7,500	\$10,903.20	Envelope
Bldg Exterior	Replace UV Grilles	1	allowance	\$5,000.00	\$5,000	\$7,268.80	Envelope
Bldg Exterior	Minor repairs to cornice and paint	350	lf	\$60.00	\$21,000	\$30,528.96	Envelope
Bldg Exterior	Exterior Building Painting (Facilities)	1	allowance	\$50,000.00	\$50,000	\$72,688.00	Envelope
Lobby	Install New Exterior Doors	4	each	\$4,800.00	\$19,200	\$27,912.19	Envelope
front entry stair	replace railing	70	lf	\$360.00	\$25,200	\$36,634.75	Envelope
Bidg Exterior	Replace Windows with new	7,836	sf	\$175.00	\$1,371,300	\$1,993,541.09	Envelope
						<b>\$2,276,878.91</b>	
Fire Alarm & Smoke Detection	Replace fire alarm system - 100 detectors and wiring incl	1	allowance	\$150,000.00	\$150,000	<b>\$218,064.00</b>	Fire Alarm
New Fire Protection water ser	New Fire Protection water service	1	LS	\$25,000.00	\$25,000	\$36,344.00	Fire Protection
Full Building Sprinkler System	Full Building Sprinkler System	75,187	SF	\$8.00	\$601,496	\$874,430.82	Fire Protection
New Fire Pump	New Fire Pump	1	LS	\$100,000.00	\$100,000	\$145,376.00	Fire Protection
						<b>\$1,056,150.82</b>	
Classrooms	Update Classroom Furniture	26	each	\$40,000.00	\$1,040,000	<b>\$1,511,910.40</b>	Furniture
Emergency/Standby Power	Provide new 750kW diesel generator and tarnser switch	1	allowance	\$250,000.00	\$250,000	<b>\$363,440.00</b>	Generator
Gym and Stage	Gym and stage HVAC unit demolition	1	each	\$5,000.00	\$5,000	\$7,268.80	Gym HVAC
Gymnasium & Stage	New HVAC system @ \$40 / SF	6,000	SF	\$40.00	\$240,000	\$348,902.40	Gym HVAC
						<b>\$356,171.20</b>	
General Building	construction of new electrical equipment room (required f	1	allowance	\$150,000.00	\$150,000	\$218,064.00	HVAC
General Building	Architectural work related to HVAC Improvements	1	allowance	\$450,000.00	\$450,000	\$654,192.00	HVAC
Classrooms	Interior wall patching and casework related to UV replace	33	each	\$2,000.00	\$66,000	\$95,948.16	HVAC
General	Ceiling repairs and patching at valve replacements	1	allowance	\$12,000.00	\$12,000	\$17,445.12	HVAC
Interior Electric Distribution	Upgrade to 2000A switchgear new distribution & panelbo	1	allowance	\$134,475.00	\$134,475	\$195,494.38	HVAC
Unit Ventilator demo	Unit Ventilator demo	33	each	\$1,200.00	\$39,600	\$57,568.90	HVAC
Kitchen Makeup Air demolition	Kitchen Makeup Air demolition	1	each	\$1,000.00	\$1,000	\$1,453.76	HVAC
Kitchen makeup air unit	Kitchen makeup air unit	1	each	\$18,000.00	\$18,000	\$26,167.68	HVAC
New rooftop exhaust fans	New rooftop exhaust fans	15	each	\$3,500.00	\$52,500	\$76,322.40	HVAC
Kitchen Make-Up Air Unit	Kitchen Make-Up Air Unit	1	EA	\$18,000.00	\$18,000	\$26,167.68	HVAC
Rooftop Exhaust Fans	Rooftop Exhaust Fans	15	EA	\$3,500.00	\$52,500	\$76,322.40	HVAC
Classrooms	VRF @ \$12k / Ton	33	EA	\$36,000.00	\$1,188,000	\$1,727,066.88	HVAC
Corridors	New HVAC system @ \$40 / SF	10,000	SF	\$40.00	\$400,000	\$581,504.00	HVAC
Cafeteria	New HVAC system @ \$40 / SF	2,200	SF	\$40.00	\$88,000	\$127,930.88	HVAC
Kitchen	New HVAC system @ \$40 / SF	1,300	SF	\$40.00	\$52,000	\$75,595.52	HVAC
Media / Story Area	New HVAC system @ \$40 / SF	3,500	SF	\$40.00	\$140,000	\$203,526.40	HVAC
Media / Computer Lab	New HVAC system @ \$40 / SF	1,200	SF	\$40.00	\$48,000	\$69,780.48	HVAC
HVAC Controls	HVAC Controls	75,187	SF	\$2.50	\$187,968	\$273,259.63	HVAC
						<b>\$4,503,810.26</b>	
Gymnasium	Replace gymnasium floor	4,590	sf	\$25.00	\$114,750	\$166,818.96	Interior Update
New Wing Hall	Replace Tiling - New Wing Hall (CIP)	1	allowance	\$75,000.00	\$75,000	\$109,032.00	Interior Update
Cafeteria/Corridor	Repair Damaged Wall Tile	75	sf	\$35.00	\$2,625	\$3,816.12	Interior Update
Classrooms	Replace VCT Flooring	40,000	sf	\$4.25	\$170,000	\$247,139.20	Interior Update



Old Greenwich Elementary School  
Infrastructure Breakdown from Master Plan

Cafeteria	Replace VCT Flooring	2,320	sf	\$4.25	\$9,860	\$14,334.07	Interior Update
Art room	Replace VCT Flooring	940	sf	\$4.25	\$3,995	\$5,807.77	Interior Update
Music Room	Install New Carpet	1,018	sf	\$6.25	\$6,363	\$9,249.55	Interior Update
Media Room	Install New Carpet	3,465	sf	\$6.25	\$21,656	\$31,482.99	Interior Update
						<b>\$587,680.66</b>	
Entire Building	Replace Ceilings as part of light fixture replacement	1	allowance	\$50,000.00	\$50,000	\$72,688.00	Lighting
Lighting Fixtures	Remove and replace all light fixtures with new LED	75,187	sf	\$7.20	\$541,346	\$786,987.74	Lighting
Lighting Controls	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire.	75,187	SF		\$134,397	\$195,380.64	Lighting
Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605 each.	68	EA	\$605.00	\$51,174	\$74,394.94	Lighting
						<b>\$1,129,451.31</b>	
General Building	Lead free valves at fixtures	145	each	\$125.00	\$18,125	\$26,349.40	Plumbing Upgrades
General Building	Lead free valves at general locations	30	each	\$175.00	\$5,250	\$7,632.24	Plumbing Upgrades
General Building	Sump Pump demo	2	each	\$550.00	\$1,100	\$1,599.14	Plumbing Upgrades
General Building	Installation of new sump pumps	2	each	\$3,000.00	\$6,000	\$8,722.56	Plumbing Upgrades
General Building	Hot water heater demo	2	each	\$300.00	\$600	\$872.26	Plumbing Upgrades
General Building	Circulating pump demo	1	each	\$500.00	\$500	\$726.88	Plumbing Upgrades
General Building	Installation of new hot water heaters	2	each	\$18,000.00	\$36,000	\$52,335.36	Plumbing Upgrades
General Building	Installation of new circulating pump	1	each	\$3,000.00	\$3,000	\$4,361.28	Plumbing Upgrades
Corridor	Install New Water Fountains	3	each	\$5,700.00	\$17,100	\$24,859.30	Plumbing Upgrades
General Building	Plumbing Fixture demo	105	each	\$300.00	\$31,500	\$45,793.44	Plumbing Upgrades
General Building	Installation of new toilets	53	EA	\$3,500.00	\$185,500	\$269,672.48	Plumbing Upgrades
General Building	Installation of new urinals	8	EA	\$2,000.00	\$16,000	\$23,260.16	Plumbing Upgrades
General Building	Installation of new lavatories	30	EA	\$1,500.00	\$45,000	\$65,419.20	Plumbing Upgrades
General Building	Installation of new sinks	10	EA	\$1,750.00	\$17,500	\$25,440.80	Plumbing Upgrades
						<b>\$557,044.49</b>	
Roof	New Section Roof (CIP)	1	allowance	\$160,000.00	\$160,000	\$232,601.60	Roof
Roof	Roof Replacement - LESS \$160000 CIP	13,100	sf	\$25.00	\$167,500	\$243,504.80	Roof
Roof	Roof Replacement - Gym (CIP)	1	allowance	\$400,000.00	\$400,000	\$581,504.00	Roof
Roof	Upcoming Roof Replacement	8,400	sf	\$25.00	\$210,000	\$305,289.60	Roof
						<b>\$1,362,900.00</b>	
Demolition of UG Fuel Tank	Doubled pricing from Durst for smaller tank removal (DU	1	allowance	\$10,000.00	\$10,000	\$14,537.60	Site
Site Electrical	Cost includes excavation, backfill and compaction. Includes service feeders and conduit for 2000 Amps upgrade, taken from Costworks 2017 D5010130 underground electric service. Included temp generator at \$10,000.	1	EA		\$94,600	\$137,525.70	Site
general site	add walkway lighting	12	each	\$3,000.00	\$36,000	\$52,335.36	Site
general site	replace bollards	14	each	\$1,500.00	\$21,000	\$30,528.96	Site
front of school	replace school billboard/sign on sound beach drive	1	allowance	\$50,000.00	\$50,000	\$72,688.00	Site
north side/student drop off	add entry canopy	1	allowance	\$60,000.00	\$60,000	\$87,225.60	Site
rear of building	replacement of basketball hoops and other equipment	1	allowance	\$25,000.00	\$25,000	\$36,344.00	Site
general site	tree removal and trimming	1	allowance	\$20,000.00	\$20,000	\$29,075.20	Site
south side of school	formalize landscape garden	1	allowance	\$25,000.00	\$25,000	\$36,344.00	Site
general field	replace batting cage on softball field	1	allowance	\$20,000.00	\$20,000	\$29,075.20	Site
playground fencing	provide new 4' chain link security fence at playground w/ 2 gates	300	lf	\$150.00	\$45,000	\$65,419.20	Site
general site	replace existing chain link fence with new 6' high	975	lf	\$100.00	\$97,500	\$141,741.60	Site
Rear of building	replace railings on steps and landing	67	lf	\$360.00	\$24,120	\$35,064.69	Site
Rear of building	Masonry/concrete repair at rear entry (Facilities)	1	allowance	\$25,000.00	\$25,000	\$36,344.00	Site
front entry stair	repair existing concrete stair and install stone treads and	500	sf	\$75.00	\$37,500	\$54,516.00	Site
front entry stair	masonry cleaning and repointing	1	allowance	\$20,000.00	\$20,000	\$29,075.20	Site
area near ball field	replace asphalt walk with concrete walk (5' wide)	800	sf	\$20.00	\$16,000	\$23,260.16	Site
						<b>\$911,100.47</b>	

## Old Greenwich School Master Plan

OLA Project No. NKGD0171.00

August 4, 2017

### Site Utilities:

#### **Site Water**

N/A.

#### **Site Sanitary**

N/A.

#### **Site Gas**

The school is provided with a single gas service that splits to two (2) gas meters and regulators at the exterior of the building.

#### **Site Fuel Oil**

The existing fuel oil system at the building has been partially demolished and abandoned in place. An underground fuel oil tank outside of the Boiler Room has been abandoned in place including the underground fuel oil supply and return piping to the boiler. It is recommended the abandoned fuel oil system be removed completely. It should be confirmed that the decommissioning of the underground fuel tank was done in the correct manner and all testing, local, state, and federal agency sign-offs were obtained.

#### **Site Electrical**

The electrical service for this school originates at a utility pole located at the northeast end of the property. The service is routed underground to a utility transformer located at the north end of the property where the voltage is stepped down to 208Y/120V, 3phase, 4 wire, and routed to a 1200 amp main service switch located in the utility room in the northeast corner of the building. The electrical service appears to be original and has not been upgraded recently. There will be a need for an electrical service upgrade to 2000 amps in the next 5 years due to the addition of AC for the entire school.

#### **Site Storm Water**

N/A.

### Electrical/Fire Alarm/Lighting:

#### **Interior Electric Distribution**

The electrical distribution inside the school originates in the utility room in the northeast corner of the building where it is metered. The main switch is also located in this room and is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire. It then feeds the main distribution equipment which is located in the custodian's office adjacent to the utility room. The main distribution equipment should not be in a room shared with the custodians office. There is currently some electrical circuit capacity in the main electrical equipment of the school. The distribution throughout the school consists of

mainly ITE/Siemens equipment which appears to be over 30 years old and should be replaced to support additional loads. It is recommended that the service equipment is upgraded to 2000 amps and a new 800 amp panel is added for air conditioning in the next 5 years. It is also recommended that (4) 225 amp electrical panels are added throughout the school for circuit capacity for new technology.

#### **Lighting Fixtures**

The lighting fixtures throughout the school consists of mainly 2'x4' and 2'x2' fluorescent fixtures which would not be considered energy efficient by today's standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lights appear to be HID. They should also be replaced with LED fixtures in the next 5 years. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time- based controls for exterior lighting within the next 5 years.

#### **PA/Communications**

The Public Address System is a TOA (TOA Electronics Inc.) 700 series amplifier system, model A-724 and is approximately 20 years old and functioning. There are no current issues. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

The communications DATA/IT systems have been kept up to date but require regular maintenance and up keeping. New capacity is required as technology improves.

#### **Fire Alarm and Smoke Detection**

The current fire alarm system consists of a Notifier AFP-400 intelligent fire detection system with voice evacuation and is currently serviced by United Alarm Services, Inc.. There is full smoke detection coverage throughout the school. The system is approximately 20 years old and will need to be replaced within 5 years based on new technology and expansion of the system. Strobes should be added in classrooms to meet current code requirements.

#### **Emergency and Exit Lighting**

The emergency lighting is currently functioning. The exit lights appear to have fluorescent or incandescent lamps. The emergency and exit lights should be replaced with energy efficient LED fixtures throughout the school in the next 5 years.

#### **Emergency/Standby Power**

There is currently no emergency generator system for this building. A new generator is recommended to be installed for back-up power during utility outages to power entire facility in the next 5-15 years.

### **Plumbing:**

#### **Water Distribution**

A 3-inch domestic water service enters the Boiler Room and is provided with a main house control valve, water meter, pressure reducing valve, and a reduced pressure zone (RPZ) backflow preventer. Pressure was observed at approximately 65 psi downstream of the RPZ. The RPZ catastrophic discharge drain terminates into an adjacent duplex sump pump pit. It is recommended the RPZ drain terminate above grade or into a gravity drainage system. If the drain must require a pumped discharge, it is recommended the respective pumps be provided with back-up power. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves.

A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system. The device was observed to have been last tested on July 27, 2016. The RPZ catastrophic discharge drain terminates into an adjacent duplex sump pump pit. It is recommended the RPZ drain terminate above grade or into a gravity drainage system. If the drain must require a pumped discharge, it is recommended the respective pumps be provided with back-up power.

#### **Sanitary Drainage**

The school sanitary main exits the building below grade. The sanitary mains exits through a pit below slab with a house-trap. Immediately exterior to the house trap is an underground pit with a check-valve installed on the sanitary main. It was brought to our attention that during periods of high tide and severe rainfalls, the building is subject to backups within the sanitary system and includes overflow and backup of the main house-trap and individual plumbing fixtures throughout the building. It was noted that additional sump pumps and generators are provided on-site during times of anticipated heavy rainfall and/or high tides. It is recommended the main sanitary system be snaked and/or scoped to confirm it is clear of any obstructions or blockages within the piping. Additional permanent sump pumps are recommended to be installed to assist in the remediation of flood waters and back-ups to the building. We recommend a review be performed by a Site Engineer to determine the exact cause of the back-ups into the sanitary piping within the building. Sanitary piping within the building consists of cast-iron hub-less piping.

A duplex sump pump and pit is located within the Boiler Room. It was undetermined at the time of our visit where the discharge of this pump terminates.

#### **Storm Drainage**

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

### **Hot Water Heaters**

The school is provided domestic hot water through two (2) AO Smith gas-fired hot water heaters. The heaters are approximately 2 years old and appear to be in good condition. Expansion tanks are located at the floor adjacent to each hot water heater. It is recommended the expansion tanks be located up on a 4" curb for protection from water infiltration into the Boiler Room.

### **Plumbing Fixtures**

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

### **Gas**

Gas is routed to the Boiler Room from the two (2) exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers and two (2) domestic hot water heaters. Gas is distributed through the school to the Kitchen for cooking equipment.

### **Fuel Oil**

The existing fuel oil system within the school has been partially demolished and abandoned in place. The fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room has been abandoned in place. Fuel oil piping to the boiler burners has been partially demolished, capped, and abandoned in place. We recommend removal of all abandoned fuel oil equipment and piping.

### **Swimming Pool**

N/A.

## **HVAC Systems:**

### **Heating Systems**

The original steam heating plant has been demolished with portions of steam heating elements remaining abandoned within the building. The existing heating system consists of two (2) HB Smith model 28A-10 sectional cast-iron hot water boilers with dual fuel burners. Each boiler has a rated gas input of 3,172 MBH. The oil piping to the burners has been cut, capped, and abandoned in place. We recommend removal of all abandoned fuel oil equipment and piping. The main boiler flue was observed to be installed with a Tjernlund assistance fan to modulate exhaust of the boilers through varying loads on the boilers. Two (2) B&G in-line primary pumps provide circulation through the boilers and two (2) B&G end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 10 years old and observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through ducts from the exterior to the boiler room.

**Deleted:** It is recommended the size of the ducts be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

Corridors throughout the building were observed with surface mounted hot water fin tube radiators (FTR) along the perimeter walls. The newer FTR enclosure have been installed over the original recessed steam heating coils within the wall construction. It is recommended the steam heating elements and associated piping be removed and new FTR located within the wall cavity; providing additional usable square footage within the Corridors.

Classrooms, offices, and common spaces throughout the school are provided with hot water fin-tube radiators along the perimeter walls to provide heating to the space. The overall condition of this system is good.

#### **Ventilation Systems**

The school is provided with ventilation through various systems and equipment located throughout the building. Common areas, corridors, classrooms, and offices are provided with unit ventilators or fan coil units with a variety of 2-pipe and 4-pipe units. Hot water is routed to the hot water coil at each unit. The 4-pipe units chilled water coils are currently not utilized. Ventilation to the spaces is provided by louvers through the exterior walls with outside air ducted to the unit ventilators and fan coil units. The unit ventilators and fan coil units are approximately 40 years old and have exceeded their useful life expectancy. It is recommended new energy efficient heating and ventilating equipment be installed to serve the spaces.

The kitchen is provided with a dedicated make-up air unit and kitchen exhaust hood fan located at the flat roof. The Reznor gas-fired rooftop unit is in fair condition and appears to be approaching its useful life expectancy. It is recommended this unit be replaced in the near future with a more efficient unit. The Greenheck kitchen exhaust fan is in fair condition. . We would recommend replacement of the kitchen exhaust fan at the same time the make-up air unit is replaced.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the spaces. The general condition of the fans are fair. It is recommended old fans be replaced with new, more efficient fans.

The Cafeteria is provided with ventilation through McQuay air-handling unit (AHU). The AHU is provided with a hot-water heating coil and outside air from an exterior louver. The AHU is in fair condition and approximately 15 years old. Consideration should be given to replacing this equipment with new energy efficient equipment.

The Gymnasium is provided with ventilation through a Trane AHU with a duct mounted hot water heating coil. Outside air is provided from an exterior louver. The AHU is approximately 45 years old and has exceeded its useful life expectancy. It is recommended a new energy efficient air-handling unit be installed to provide ventilation and heating to the gymnasium.

#### **Air Conditioning Systems**



The Classrooms are currently provided air conditioning with thru-window air conditioning units. The age of these units varies. It is recommended these units be removed and new energy efficient air conditioning equipment with energy recovery be installed to serve the Classrooms.

The Main Offices are provided with split system air conditioning units located throughout the offices. The outdoor condenser is supported from the exterior wall at the second level and was unable to be observed. The system is approximately 3-4 years old.

The Music Room and Art Room are provided with air conditioning with indoor air handling units above the ceiling. The outdoor Lennox condensers are located on the flat roof and supported on lengths of 4x4 wood lumber. The systems are approximately 20 years old and have exceeded their useful life expectancy. It is recommended new energy efficient air conditioning equipment with energy recovery be installed to serve these areas.

#### **HVAC Controls**

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

### **Fire Protection:**

#### **Fire Water Service**

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventor equipment be installed for sprinklering of the full building.

#### **Fire Protection Systems**

Sprinkler heads, totaling less than ten (10) heads were observed within a storage room and within the Kitchen. The sprinkler heads are connected to the domestic water system within the building. We recommend these sprinkler heads be removed from the domestic system. We recommend the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

#### **Fire Pump**

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

## **OLD GREENWICH SCHOOL**

The Old Greenwich School has fifteen different sections of flat and sloped roof, that vary in height from one to three stories. The total roof area is approximately 56,400 square feet.

Approximately 34,500 square feet of roof area is covered with architectural style asphalt shingles. There are a few missing shingles that should be replaced immediately, but the shingles are in generally good condition.

Approximately 13,100 square feet of roof area is covered with older 3-tab asphalt shingles. These shingles are in fair to poor condition, and need replacing.

Approximately 8,400 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. It is in generally good condition.

Approximately 200 square feet of roof area is covered with fully adhered reinforced ethylene propylene diene monomer (EPDM) rubber single ply roofing. The EPDM roofing is in good condition.

Three small bay window roofs are covered with copper, they are also in good condition.

The high sloped roof is accessible via a roof hatch. Flat roof areas and adjoining low sloped roof areas are accessible by climbing out second floor windows. Portable ladders are needed to access some of the lower roofs.

The newer architectural asphalt shingles, the EPDM and the copper roofs should provide at least 20 more years of service. The modified bitumen roll roofing should provide about 10 years of service. Plans should be made to replace the older 3-tab asphalt shingle roofs in 3 to 5 years.

*Roof report above excerpted from 2017 Master Plan by Watsky Associates*