Facility Study of the former Saint Sylvester School Brentwood, Pennsylvania

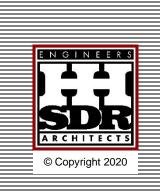
Performed for the Brentwood Borough School District



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January 21, 2020 Commission #4372

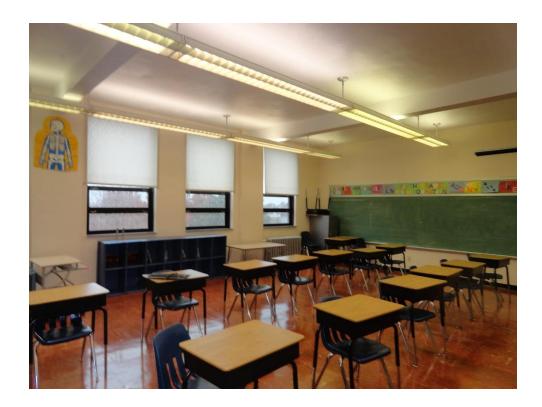


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Building Evaluation

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The Brentwood Borough School District requested HHSDR perform this Facility Study of the former Saint Sylvester School, located at 30 West Willock Road in Brentwood Borough. The Study is being performed on behalf of the Brentwood Borough School District.

Data was accumulated through site visitations and investigation, research, and interviews with the Roman Catholic Diocese of Pittsburgh Staff and Administrators. The Study is organized as follows:

Building Evaluation - Building observations, recommendations, cost estimates, photos and Site and Floor Plans;

Proposed Plans

Cost Estimates

Architects and Engineers from HHSDR have toured the building and grounds. We have reviewed the facilities and compared their condition against present-day building codes and regulations, educational guidelines and operational needs.

The team also met with the Brentwood Borough School District Administrators to obtain their perspective and to better understand the future educational goals of the District.

AUTHORS' CREDENTIALS

The study has been prepared by HHSDR Architects / Engineers of Sharon and Pittsburgh, Pennsylvania.

Over the past 67 years, HHSDR has served as the Architect for many K-12 clients across the state. It has performed services on a wide range of construction projects and has completed facility studies for hundreds of educational buildings in the Commonwealth.

The professionals who prepared the study are:

Andreas Dometakis, RA, AIA, NCARB James M. Vizzini, PE, LEED-AP BD+C John Pasquella Brad Myers David Kent Frank Gargiulo The format of this analysis and report provides a foundation from which the Brentwood Borough School District can select among a variety of capital improvements for the building.

The former Saint Sylvester School has been analyzed by Architects and Engineers using PDE standards and guidelines for determining building capacities, educational programs and condition of major components. Prevailing standards and codes were utilized to evaluate components such as soundness of structure, building envelope, heating / plumbing / electrical systems, physical accessibility, asbestos containing materials and energy efficiency.

The following is a summary of our findings.

ASBESTOS MITIGATION (Possible asbestos-containing materials):

- Steam boiler plumbing (pipes, expansion tank, etc.) and internal system
- 9x9 floor tiles & Mastic
- Plaster walls & ceilings

INTERIOR

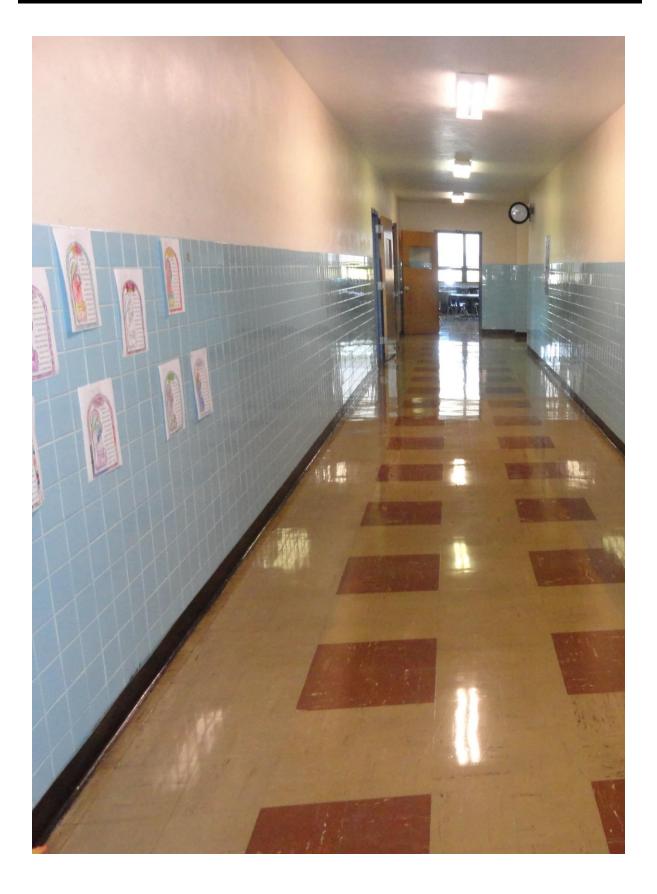
- Lower level moisture intrusion
- Lower level Delaminating Plaster due to moisture
- Delaminating plaster throughout from prior moisture issues (roof / mortar / lintels)
- Poor lighting throughout
- No kitchen On-site
- Cafeteria was converted into library
- No Security Vestibule On-site
- Gymnasium ceiling water damage
- Possible Lead paint
- No ADA accessibility between floors
- Restrooms do not meet ADA

MECHANICAL

- Steam Boiler #1 is 62 years old. Boiler #2 is 15-20 years old. (Inefficiency concern)
- Possible boiler backdraft issue (Carbon Monoxide concern)
- Outdated Electrical system amperage may be outdated possible Knob & Tube in original structure (1933?) Breaker panels observed

EXTERIOR

- Asphalt in poor condition
- No playground area
- Inadequate parking
- Aging Rubber Roofing
- Front Entry ADA ramp in poor condition
- Exterior doors in poor condition
- Exterior mortar irregularities (cosmetic)
- Possible Lead paint
- Windows appear to be in good condition



Former St. Sylvester School <u>30 West Willock Road, Pittsburgh (Brentwood Borough), Pennsylvania 15227</u>

Location: The former Catholic school is located adjacent to the St. Sylvester Church on Brownsville Road and West Willock Road in Brentwood Borough.

Construction

- **History:** The building was established as a school in 1948. The building was constructed in the mid-1930's with additions and alterations in the 1950's. Several other alterations were performed through the years. The Diocese of Pittsburgh closed St. Sylvester Catholic School in 2019 due to lack of enrollment.
- Size: The building is approximately 38,000 s.f. It consists of four floor levels: ground floor, basement, first floor and second floor.

Exterior:

- 1. Exterior access to the building is from the church parking lot and West Willock Road for the gymnasium. The paving around at the building is in poor condition
- 2. There is one ramp for handicapped access to part of the building, however it does not comply to current codes and regulations.
- 3. There are several exterior retaining walls that are in poor condition and need repairs or rebuild.
- 4. The exterior masonry is in fair condition. Some repairs were made, however several cracks on the brick, and rusted lintels still exist. The brick needs to be cleaned.
- 5. The windows are aluminum and in fair to good condition.
- 6. The exterior doors are in poor condition.
- 7. The roof is EPDM membrane and appears to be in fair condition. Some possible leaks have been observed inside the building with stained ceilings. Several areas of ponding have also been observed on the roof.
- 8. There is no exterior play area on the site.
- 9. Parking may be inadequate for the use at the school building unless the church lot is also utilized.

- 1. Repave the parking lot, rebuild the retaining walls, add a playground area.
- 2. Replace the roof system, exterior doors and repair the exterior brick where needed.
- 3. Construct an exterior accessible ramp at main entrance.

Interior:

- 1. There are two portions of the building, one constructed in the 1930's and the other in the 1950's. Both areas are not handicapped accessible except the floor where the ramp entrance exists.
- 2. Several areas in the lower level have moisture intrusion damage and delaminated plaster throughout.
- 3. The building does not have a functioning kitchen. The cafeteria and kitchen were converted to a library in previous years when the building was used as a school.
- 4. Several classrooms were modestly upgraded with new doors, carpet and visual display boards. Vinyl asbestos floor tiles appears to be in every room, in some instances under the carpet. The ceilings are plaster with exposed piping.
- 5. The corridors have terrazzo flooring at the lower level and ceramic tile walls. The ceilings are plaster with exposed piping. Upper level corridors have vinyl asbestos tile flooring.
- 6. The restrooms are in poor condition. Fixtures and toilet partitions need to be replaced and reconfigured for handicapped accessibility.
- 7. The gymnasium is of adequate size but not a regulation basketball court. The synthetic floor is in fair condition. The ceiling is in poor condition and is damaged in several areas. The bleachers are wood and in poor condition.
- 8. Accessibility is a major issue in the building as there are several levels with no elevator, lifts or ramps. The building also does not have a secure entrance.

- 1. Completely renovate the spaces to current codes and Department of Education Standards and Regulations.
- 2. Add elevators, ramps and chair lift for handicapped accessibility in all areas.
- 3. Construct new secure vestibule for visitor entrance to the building.

HVAC:

<u>Boilers</u>:

- 1. The building was originally constructed in the mid-1930's. That portion of the building's heating system is steam and is served by a recent (2008) HB Smith, gasfired steam boiler. The boiler is in good condition and based on the tag data, could be reused if the building was upgraded and converted to hot water.
- 2. The addition dates to the 1950's. That portion of the building's heating system is hot water and is served by the original, 61-year-old boiler. This equipment is in poor condition.
- 3. The original building boiler stack looks to be in fair condition.
- 4. The addition boiler stack is in very poor condition and has 3 stainless steel bands around to prevent brick from failing.
- 5. The original boiler room is sufficiently sized to add a second boiler and could then be set up as the new consolidated hot water plant.

Piping Systems:

- 1. The original portion of the school is served by a 2-pipe (steam and condensate return) system. The piping is original and dates to the 1930's.
- 2. The 1958 addition is hot water. This piping is also original
- 3. Both systems are antiquated and must be replaced.

Automatic Temperature Control (ATC) System:

1. Non-existent.

Classroom Terminal Equipment:

- 1. Most classrooms are served by floor cast iron steam radiators and are not ventilated. This is a code violation.
- 2. A couple rooms are equipped with unit ventilators which in 1958, did provide ventilation. These most assuredly do not function in this manner at present. Units are in poor condition and must be replaced.

Gymnasium Terminal Equipment:

1. Ductwork condition could not be assessed as it is hidden above the ceiling. Given its age, it is estimated to be in poor condition.

Office:

1. The office area is served by finned tube radiation. These spaces are also not ventilated.

Miscellaneous Heating Equipment:

1. Various types of cast iron radiators, convectors, panel radiators, horizontal unit heaters and finned-tube radiation are spotted throughout the building. These date to 1933 and 1958 and are in poor condition.

Exhaust Fans:

1. Roof exhaust fans are estimated to be in poor/inoperable condition.

Recommendation:

1. Completely upgrade to comply with building codes, improve efficiency and possibly incorporate full building air conditioning.

PLUMBING:

- 1. The domestic water and storm systems appear to all date from the original construction periods (1933 / 1958). Piping and equipment appeared in fair to poor condition with no problems reported.
- 2. The sanitary sewer system appears to have portions which date back to the original 1933 construction.
- 3. New residential water heaters are in place.
- 4. Fixtures (water closets, urinals, lavatories) all date to original construction and are in fair to poor condition.

Recommendation:

1. Completely upgrade the plumbing systems.

ELECTRICAL SYSTEM:

- 1. The main electrical service is currently located in the boiler room of the 1958 addition. It is a 400 Amp, 240/140V, single phase service that is fed from a single DLCO pole mounted transformer. The transformer is mounted on pole #186064, located on West Willock Road. From the transformer, 400 Amp underground service feeders are run to a pull box located in the 1958 boiler room. A Square D 400 Amp disconnect switch, located below the pull box, feeds (5)-disconnect switches via a metal wiring trough.
 - a. Disconnect Switch #1; Square D, 60 Amp, 240/120V, single phase, normal power feed to the generator's emergency relay.
 - Disconnect Switch #2; Square D, 200 Amp, fused at 150 Amps, 240/120V, single phase feed to the original 1933 building's I.T.E. service disconnect switch.
 - c. Disconnect Switch #3; Square D, 100 Amp, 240/120V, single phase feed to Panel "B" located on the first floor.
 - d. Disconnect Switch #4; Square D, 100 Amp, 240/120V, single phase feed to Gym Panel "A" located in the gym on the ground floor.
 - e. Disconnect Switch #5; Square D, 100 Amp, 240/120V, single phase feed to Gym Panel located in the boiler room next to disconnect switch #5.

The equipment listed above is in fair condition.

- 2. The original 1933 electrical distribution is back fed from the above mentioned Disconnect Switch #2. It consists of a 150 Amp, 240/120V, single phase I.T.E. disconnect switch, which feeds several 30 Amp, Edison Base plug style fused disconnects, via a metal wiring trough. This equipment is in fair to poor condition.
- 3. The life expectancy for electrical equipment is generally twenty-five to thirty years, depending on type and usage. The age of the equipment listed above is between 62-87 years old.
- 4. Concerns:
 - a. Age of the equipment and wiring.
 - b. Limited to no space capacity.
 - c. The service does not appear to be properly grounded.

Recommendation:

1. Replace the aged equipment and the upgrade the electrical service to a 600 Amp, 480/277V, 3 phase service to better serve the building now and in the future.

Electrical Panelboards:

- 1. Most of the panelboards are original to the building and are a mixed group of manufacturers including The Leonard Electric Manufacturing Company, General Switch Corporation, Square D, and General Electric. Most of the panelboards have thermal magnetic type circuit breakers while a couple panels still utilize Edison Base screw-in style fuses. Finding replacement breakers that fit into the panels and making sure the breakers that are present function properly and trip when required are some common issues with panels of this age. The panelboards listed are in fair to poor condition.
- 2. The life expectancy for electrical equipment is generally twenty-five to thirty years, depending on type and usage. The age of most of the equipment listed above is between 62-87 years old.
- 3. Concerns:
 - a. Age of the equipment and wiring.
 - b. The panelboards do not appear to be properly grounded.
 - c. Limited to no space capacity.
 - d. Five panelboards are in public spaces and do not have locking covers.
 - e. Two newer panelboards are installed in small storage closets which do not meet the required working clearances of the National Electric Code.

- a. Install 600 Amp, 480/277V, 3 Phase, 4 Wire distribution style panelboard step down transformer, and a 400 Amp, 208/120V, 3 Phase, 4 Wire distribution style panelboard.
- b. Replace the existing branch panelboards and feeders.
- c. Install additional panelboards to serve the required receptacle loads needed in classrooms and supporting spaces and to add spare capacity for future loads.

ELECTRICAL - Electrical Lighting and Power Branch Circuits, Switches, and Receptacles:

- 1. The existing branch circuits consist of a mixture of copper and aluminum wiring with thermoplastic insulation and both braided cloth and thermoplastic sheathing. There is also MC cable installed throughout the building. Most of the receptacles were replaced at some point in time however, some receptacles are original to the building and do not have proper grounding. Most of the newer receptacles are installed in either surface mounted metallic or non-metallic raceways. The disconnect switches appear to be original to the building and are in fair to poor condition. The above-mentioned wiring, receptacles, and metallic raceways are in fair condition. The above-mentioned non-metallic raceways are in poor condition.
- 2. The age of the equipment listed above varies from 10 to 87 years old.
- 3. Concerns:
 - a. Age of the wiring and disconnect switches.
 - b. Exposed branch circuits are not properly supported.
 - c. Lack of fireproofing on exposed branch circuits routed through rated partitions.
 - d. Quantity and age of the convenience receptacles.
 - e. Receptacles located in wet locations do not have proper GFCI protection.

Recommendation:

a. Replace all branch circuit wiring and devices.

ELECTRICAL – Exterior Lighting:

1. The exterior lighting is either building or canopy mounted and consists of a variety of lamp types from incandescent, halogen, LED, fluorescent, and HPS. This survey was conducted during the day so light distribution and footcandle levels were not recorded. It appears that all light fixtures except for the LED fixtures are controlled through a mechanical timer switch. The LED fixtures are controlled through remote photocell switches. The LED fixtures are in good condition. The HPS fixtures are in poor condition. All other light fixtures are in fair condition.

- a. Replace all branch circuit wiring.
- b. Replace all non-LED fixtures with LED fixtures.
- c. Add digital lighting controls for all exterior fixtures to maximize energy savings.

ELECTRICAL – Interior Lighting:

- 1. Much of the interior lighting consist of fluorescent fixtures with T-12 lamps and electronic ballasts. While several fixtures have medium base sockets with replacement style screw-in fluorescent bulbs. A few locations still utilize incandescent lamps. At some point the gym HID lights were replaced with fluorescent, T-8, 6-lamp, high bay fixtures. The light levels in most of the spaces appear to be inadequate per the IESNA Lighting Standards. Most of the lights are controlled by standard on/off toggle switches. The lights in the gym are controlled by the circuit breakers feeding them. Most of the exit signs are original to the building and have medium base, screw-in style sockets. Many of the fixtures are either missing or have broken or yellowed lenses. All the light fixtures are in fair to poor condition.
- 2. Concerns:
 - a. Age of fixtures.
 - b. Light switches do not meet ADA mounting height requirements.
 - c. Received an electrical shock when operating several light switches.
 - d. Lack of automatic lighting controls required by today's Energy Code.

Recommendation:

- a. Replace all interior light fixtures and exit signs with energy efficient LED fixtures.
- b. Replace all associated wiring and conduit.
- c. Install automatic lighting controls to meet the latest Energy Codes and to maximize cost savings.

ELECTRICAL - Emergency Power:

1. There is currently (1) generator, located in the 1958 boiler room, that feeds the entire building's life safety loads. The emergency generator is a Kohler, Natural gas fired unit with single automatic transfer switch located in the 1933 boiler room. The name plate data on the generator was unreadable, but it appears to be approximately a 7.5kW, 120V, single phase generator. The generator and transfer switch appear to be original to the building and are at the end of their life span.

- a. Replace the existing generator with a 60kW, 480V, 3 Phase generator. Final size will depend on the Mechanical and Fire Protection loads.
- b. Install (1) transfer switch for life safety loads and add an additional transfer switch for equipment loads.
- c. Current codes require an indoor generator and associated transfer switches be located in a separate 2-hour rate room.

TELECOMMUNICATION SYSTEMS:

Telecom Network Equipment and Cabling:

- 1. The service entrance equipment for telephone and data is in the 1958 Boiler Room. The existing network is tied to the church building via an overhead fiber line. There are currently (2) existing telecom closets located on the first floor; (1) in the original 1933 building and (1) in the 1958 addition. Both are in a small coat/storage closet within a classroom. There is also an electrical panel installed in each of the closets. The backbone cabling consists of fiber optic cable between each closet. Horizontal wiring from the telecom closet to the outlet is a mix of CAT 5 and CAT5e cabling.
- 2. Concerns:
 - a. Equipment/electronics are not in a conditioned space.
 - b. Lack of working clearances.
 - c. The horizontal cabling, exposed in corridors and classrooms, is not properly supported.
 - d. Most of the non-metallic surface mounted raceways, for horizontal cabling, are not properly installed.
 - e. Insufficient number of existing data outlets in classrooms and supporting spaces.
 - f. No wireless access points.

Recommendations:

- a. Create dedicated rooms with proper HVAC to condition each space.
- b. Upgrade network electronics.
- c. Properly support horizontal cabling per EIA/TIA standards.
- d. Replace failing raceway systems.
- e. Add additional outlets, as required, to better serve each space.

TELECOMMUNICATION SYSTEMS - Bell System:

- 1. The bell system and the PA speakers appear to be original to the 1958 building. The PA headend equipment appears to have been upgraded within the last 20 years.
- 2. Concerns:
 - a. Sound quality and coverage of existing speakers.

Recommendations:

a. Replace existing system due to the age.

TELECOMMUNICATION SYSTEMS - Clock System:

1. The clock headend system is manufactured by Standard Electric Time and appears to be original to the 1958 building. Only (3) analog secondary clocks where noted which have been upgraded to Skyscan astronomical analog clocks.

Recommendation:

1

a. Replace existing system due to the age.

TELECOMMUNICATION SYSTEM - Camera/Security System:

- One (1) wall mounted dome lens camera, (1) keypad, (1) card reader, and (1) intercom station were noted at the main entrance and appears to be in good working order. All other entrances had keyed lock sets only.
- 2. Concerns:
 - a. Capacity of the existing system. Can the existing system be expanded to accommodate additional cameras and doors?

Recommendations:

1.

- a. Expand camera system at a minimum to all entrances and exterior play area(s).
- b. Expand security system to all exterior doors with electrified lock sets.

TELECOMMUNICATION SYSTEMS - Fire Alarm System:

- The fire alarm system is manufactured by Faraday. The system appears to be original to the building.
- 2. Concerns:
 - a. Age of system.
 - b. The current fire alarm code requires the fire alarm system to be a voice system within all educational facilities.
 - c. Does not meet current code for requirements of manual pull stations, smoke detectors, carbon monoxide detectors, audible notification devices, and visual notification devices.

Recommendation:

a. Replace system to meet the latest code requirements.



Building Entrance.



Asphalt is in poor condition.



Exterior Brick and Lintels are in poor condition.



Exterior Concrete Steps and Landings are in poor condition.



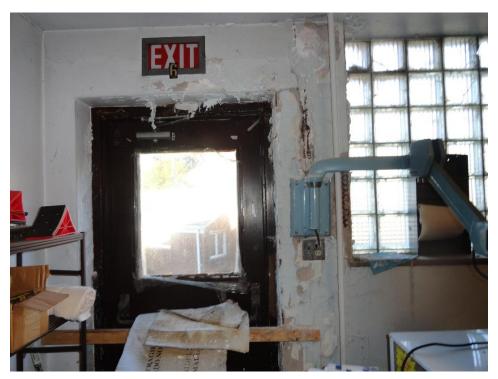
Handicap access ramp is in poor condition.



Building ADA access concerns.



Aged EPDM rubber membrane and standing water.



Lower level moisture intrusion damage.



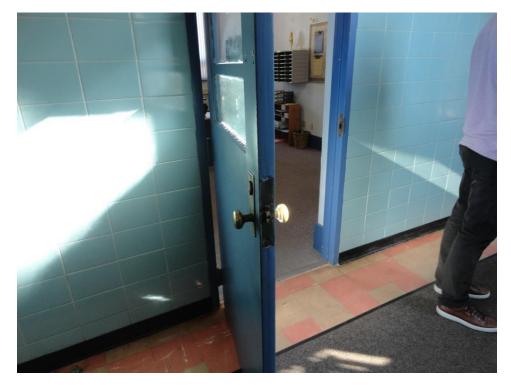
Lower Level mold-like substance on surfaces.



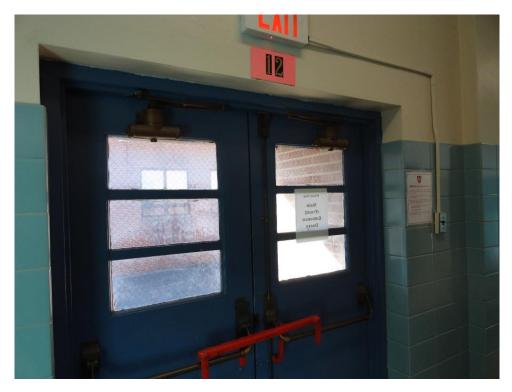
Upper level moisture intrusion damage.



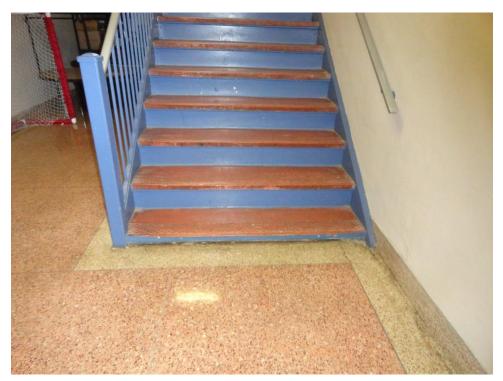
Hallway wall tiles are loose and missing.



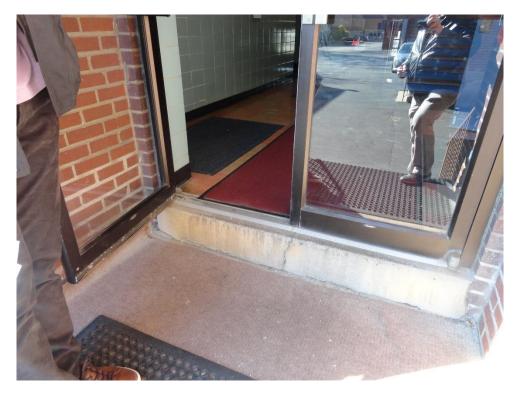
Interior doors are not ADA-compliant in many locations.



Exterior doors are not ADA-compliant in many locations.



Inadequate stair riser (trip hazard).



Non-code compliant riser at entry.



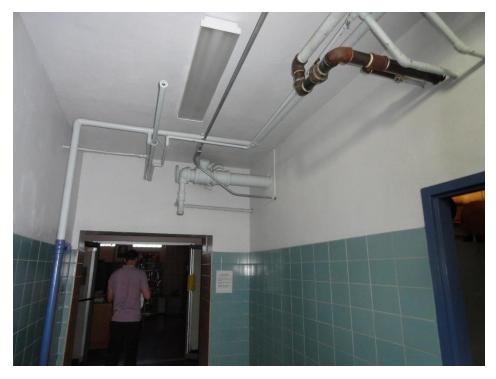
Non-standard, non-code compliant stair configurations.



Likely Asbestos-containing floor tile throughout.



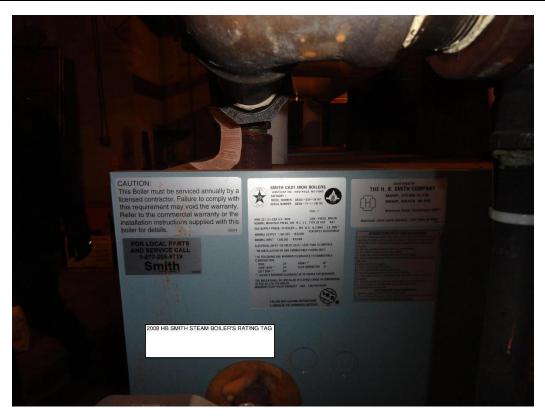
Exposed cast-iron steam radiators are original to the building.



Antiquated Steam Heat Pipe System.



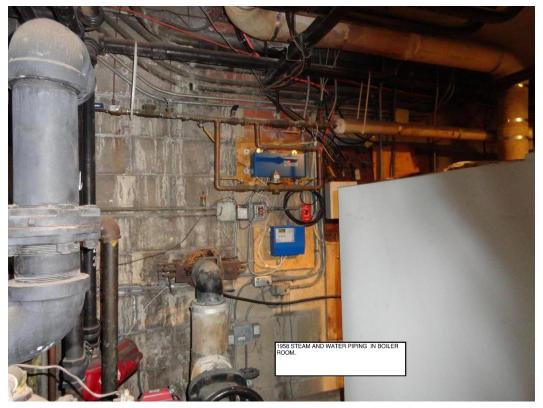
Inadequate & outdated Electrical System.



2008 HB Smith Steam Boiler.



1958 cast-iron steam boiler is in poor condition and not rated for conversion to hot water.



1958 steam and water piping in Boiler Room.



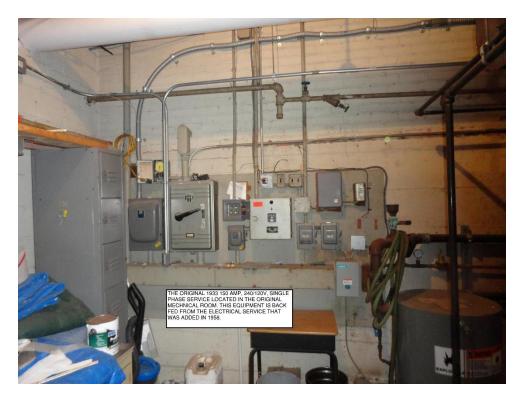
2008 HB Smith Steam Boiler is in good condition, rated to allow future conversion to hot water.



Exhaust fan in Library.



Original Faraday fire alarm, standard light switch and branch panel do not meet today's code requirements.



Original 1933 150-amp, 240/120-volt service, back fed from the 1958 service.



Automatic transfer and disconnect switches.



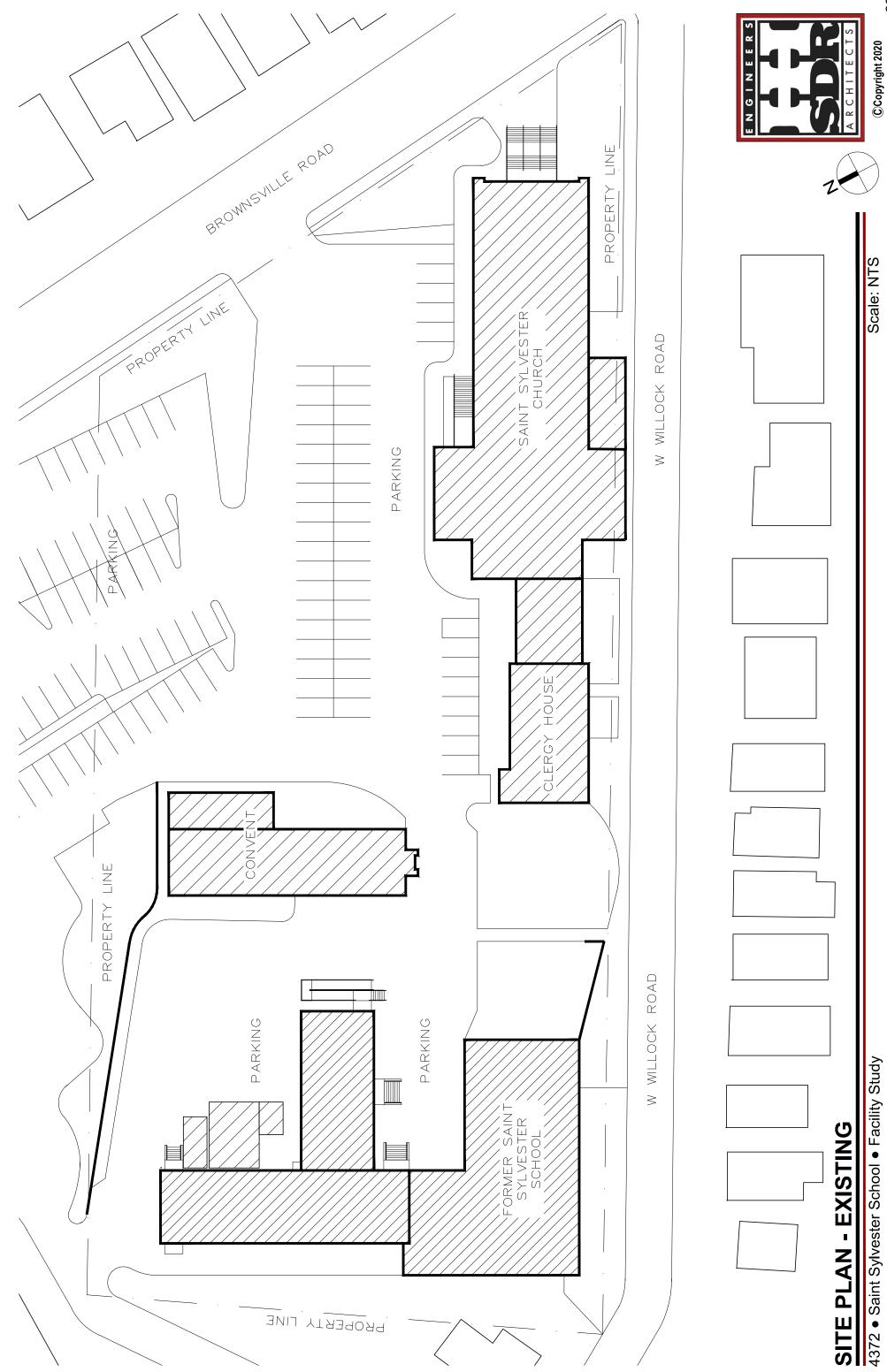
T12 Fluorescent lighting is providing inadequate lighting.

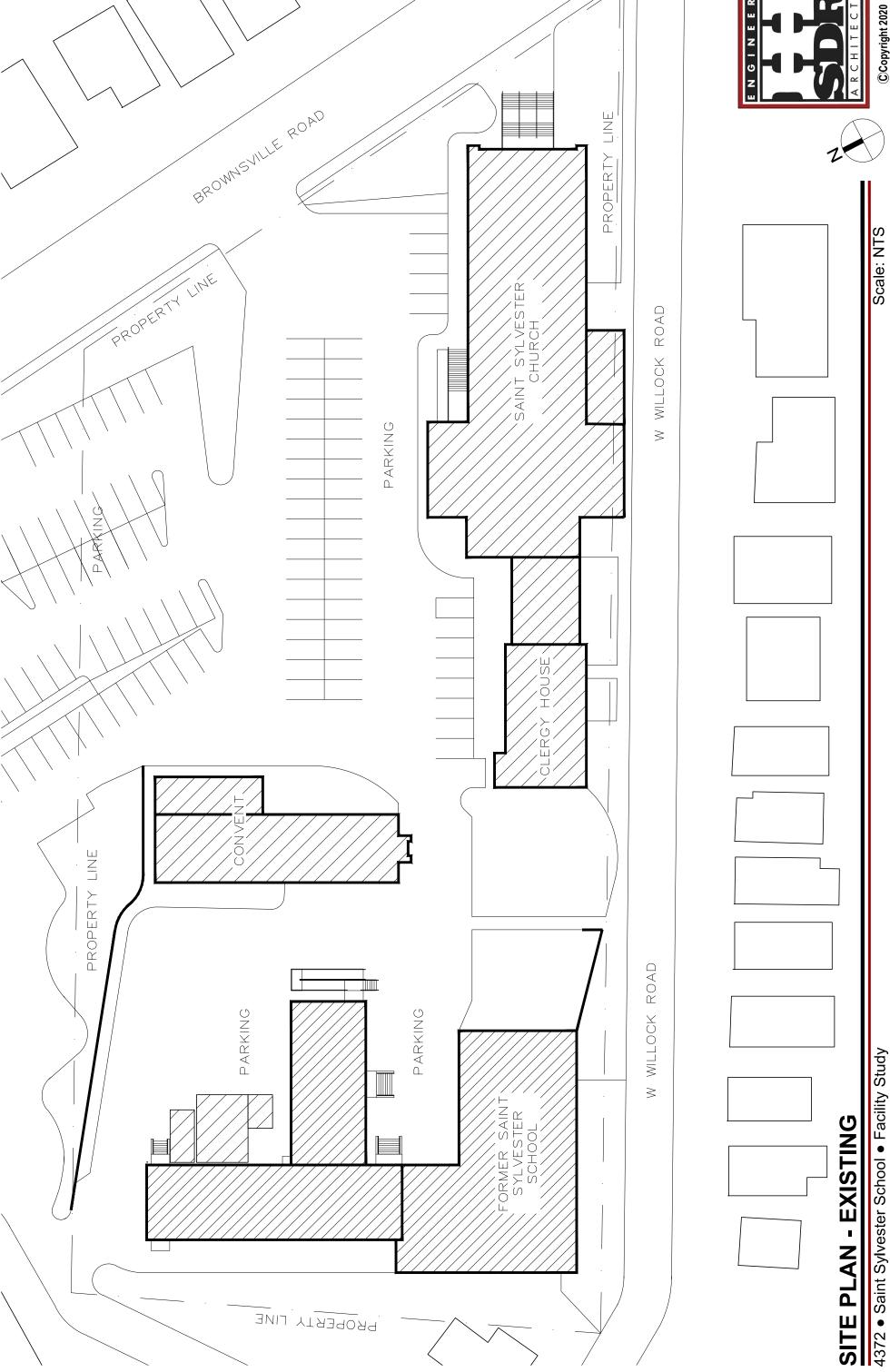


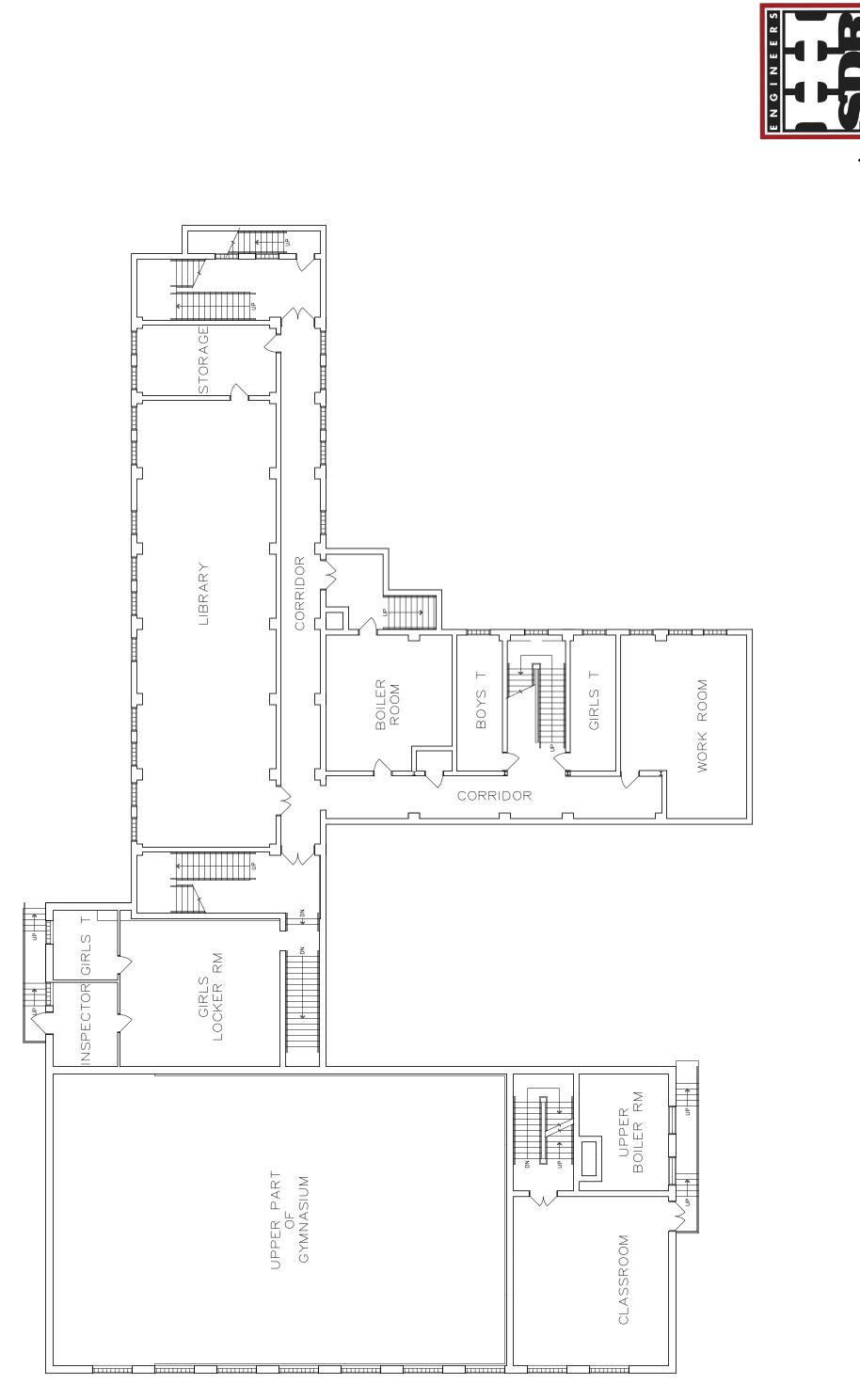
1958 400-amp 240/120-volt single phase service.



Clock head-end system installed in the 1958 addition.







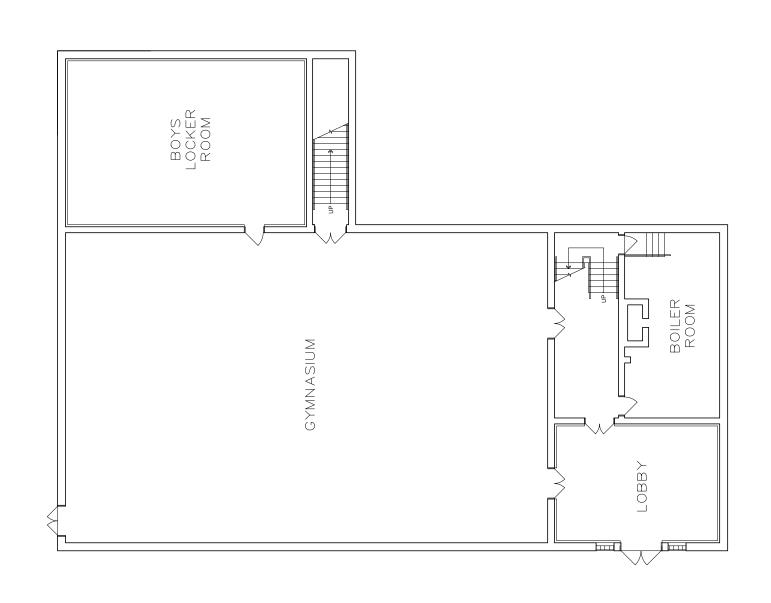
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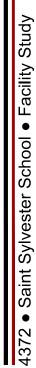
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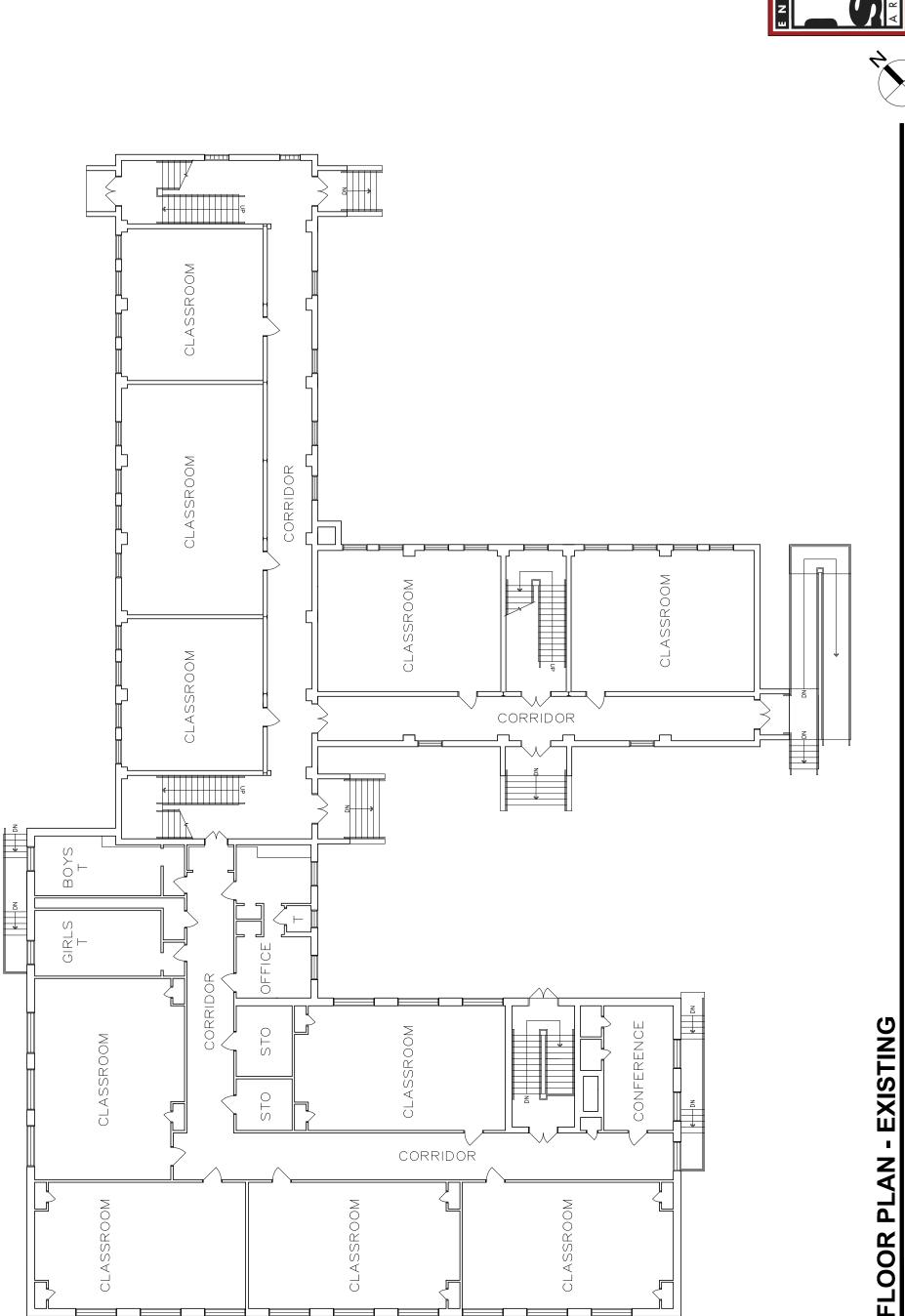








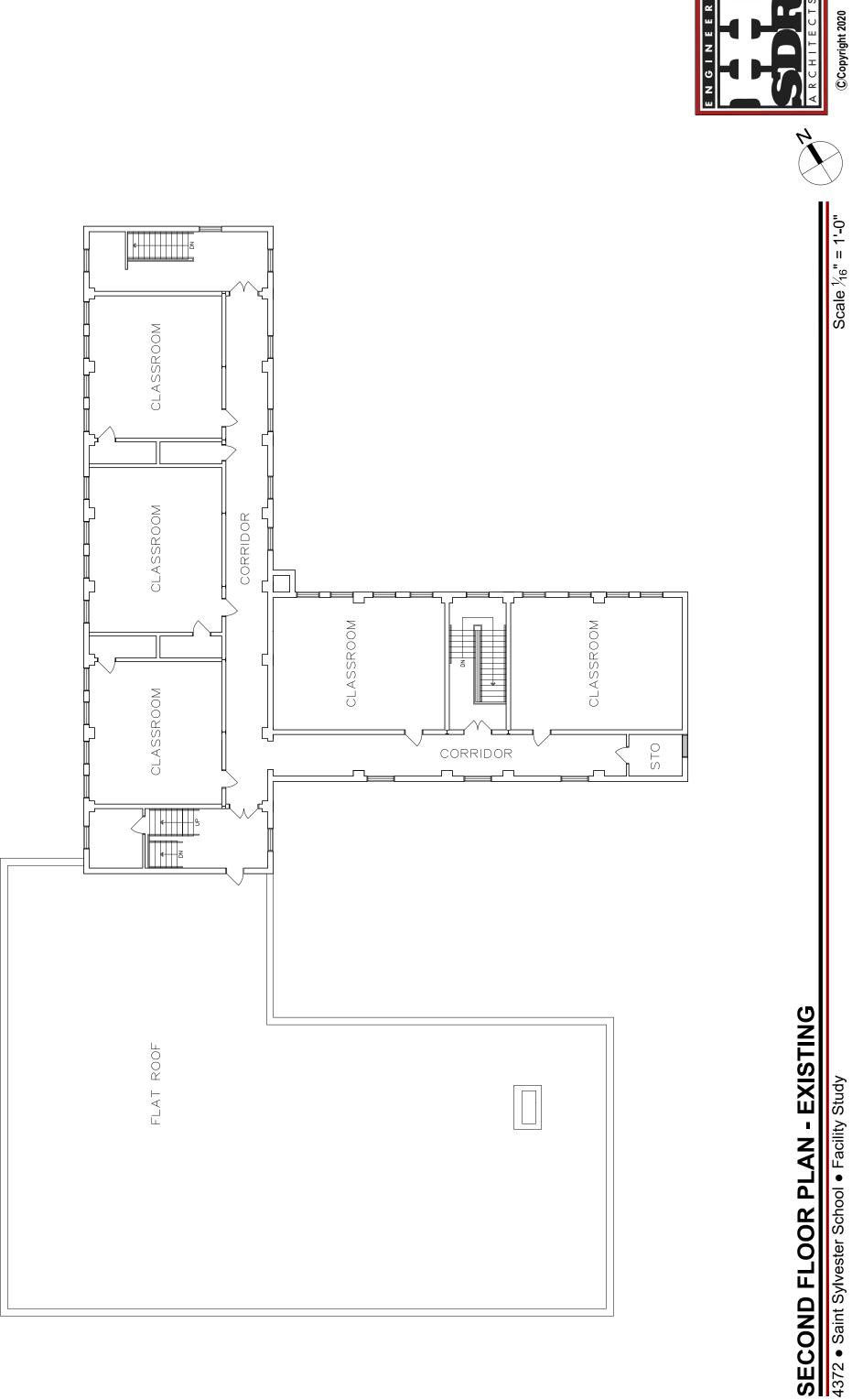




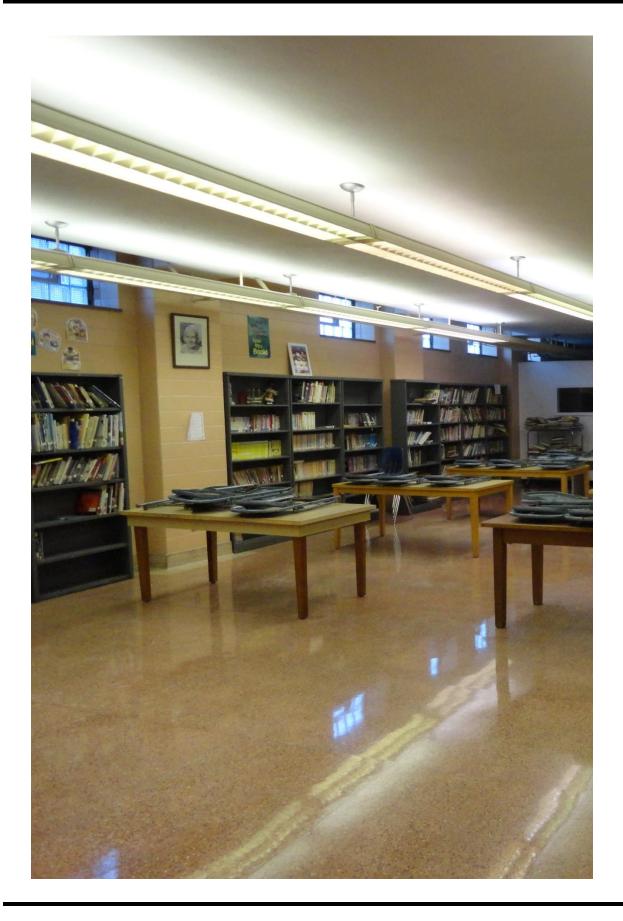
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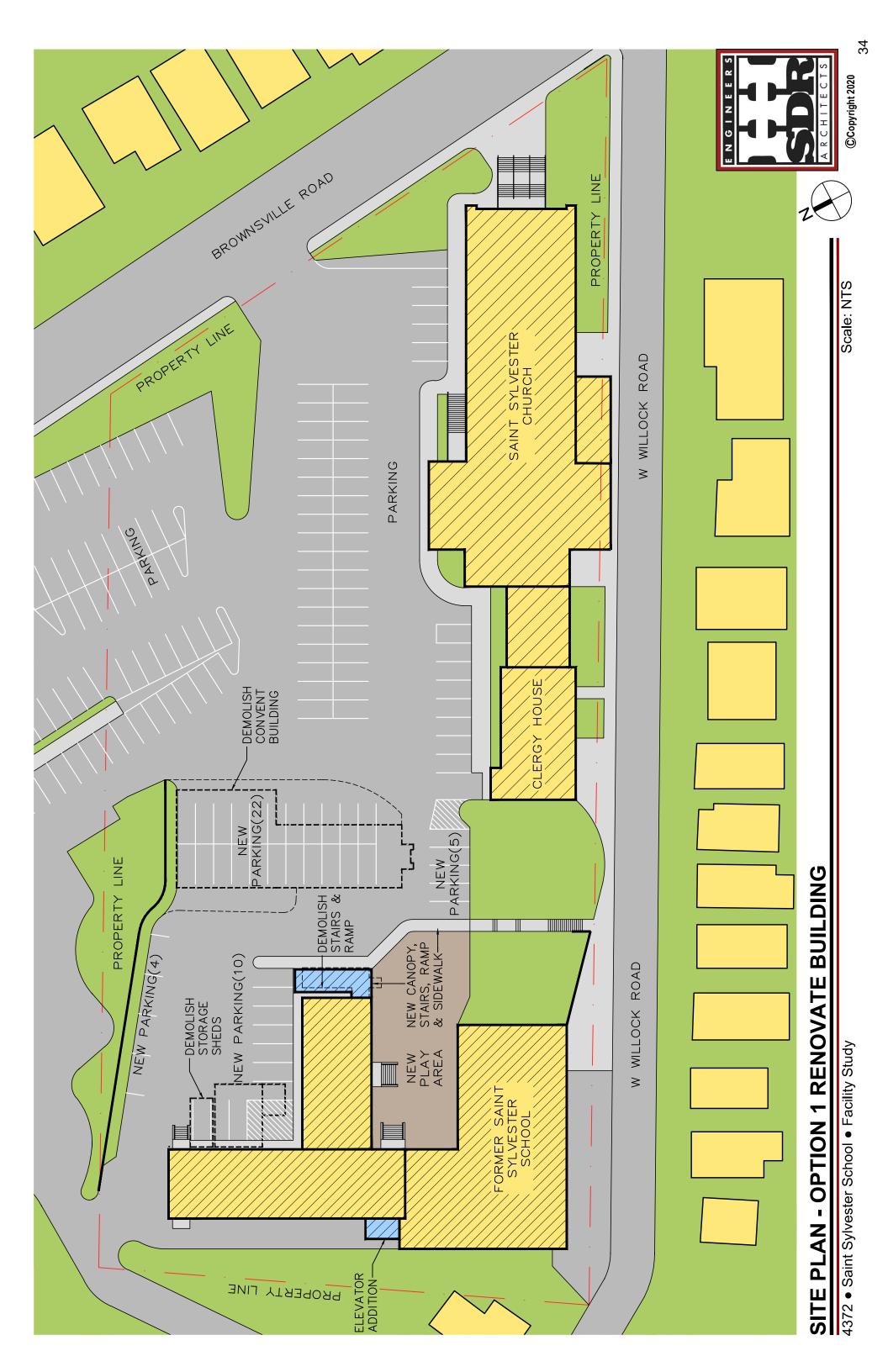
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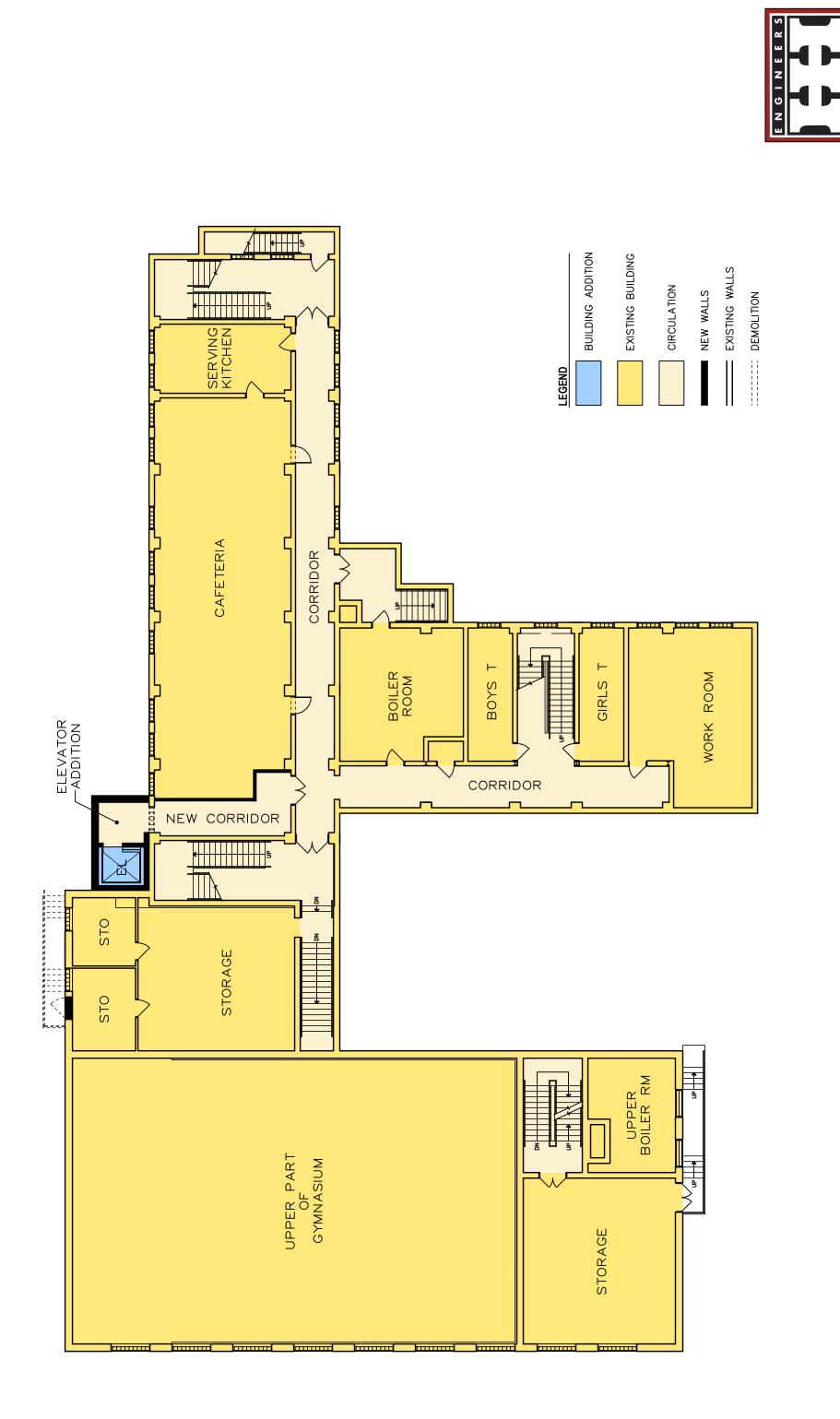
FIRST FLOOR PLAN - EXISTING 4372 • Saint Sylvester School • Facility Study











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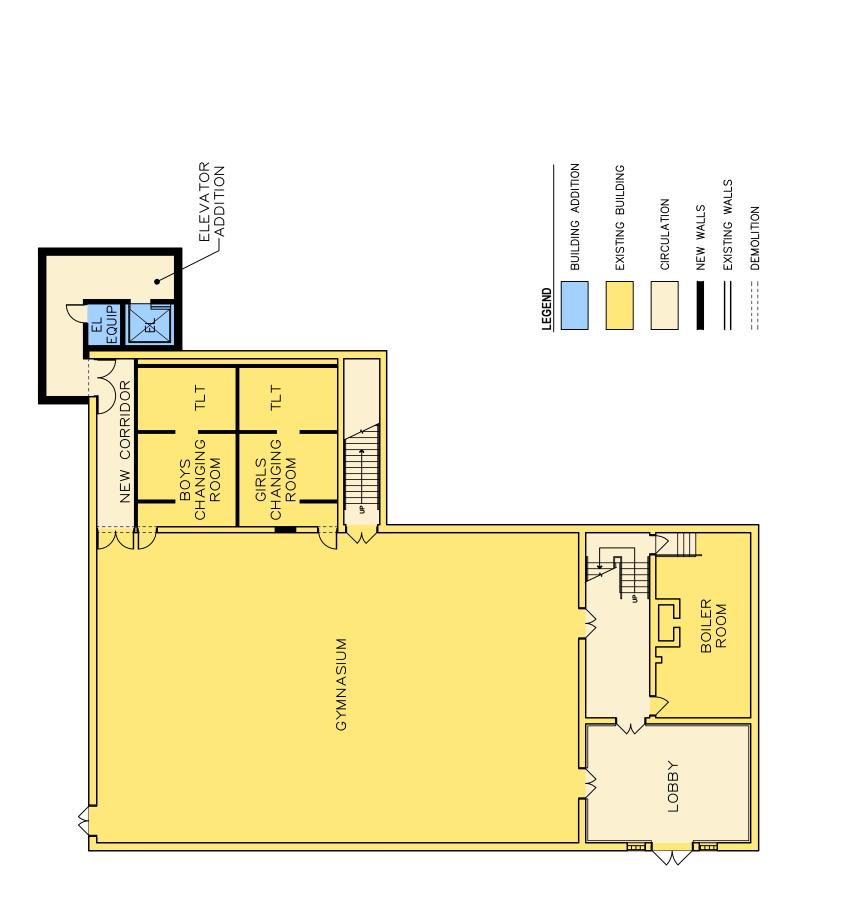
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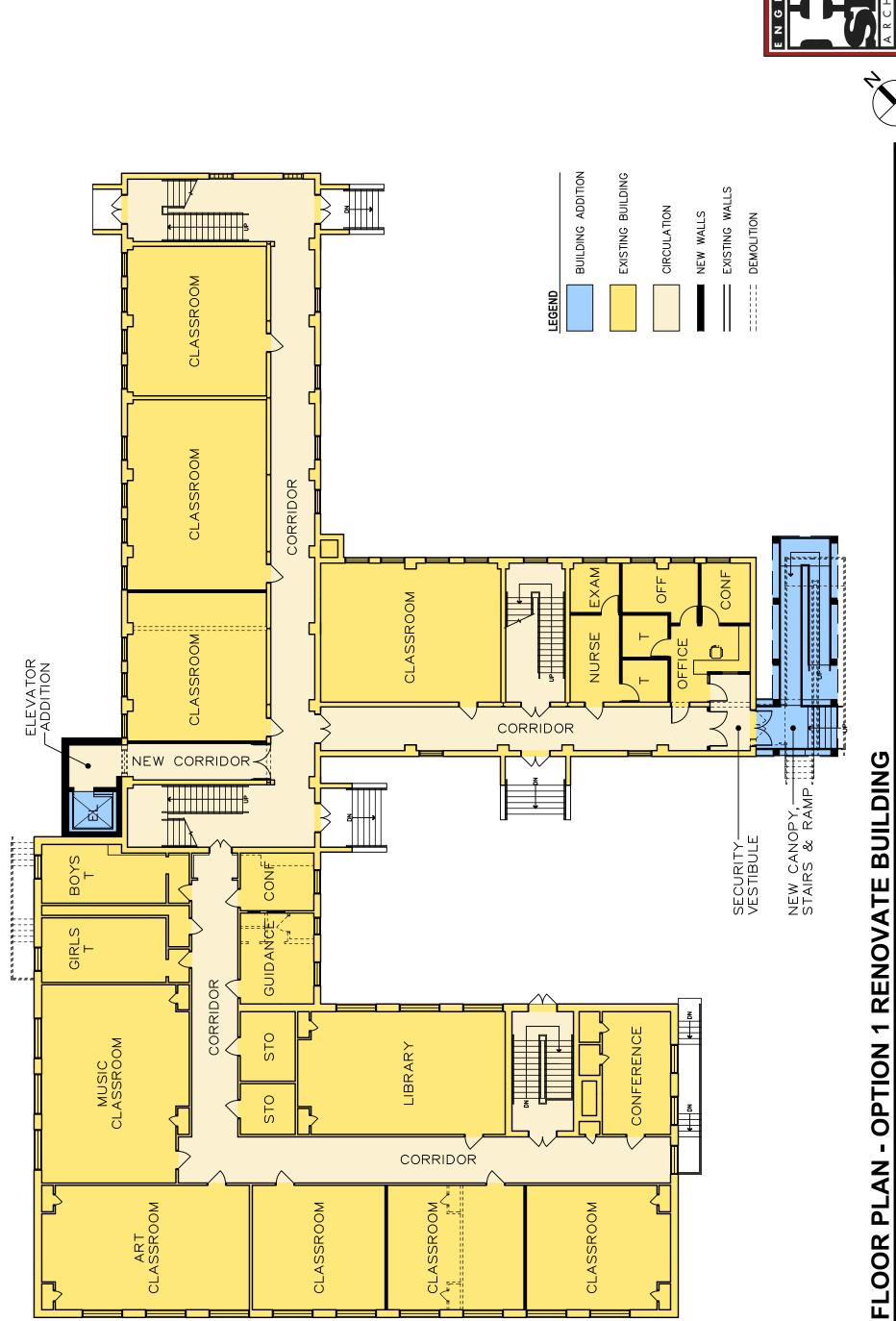


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ENGINE



GROUND FLOOR PLAN - OPTION 1 RENOVATE BUILDING



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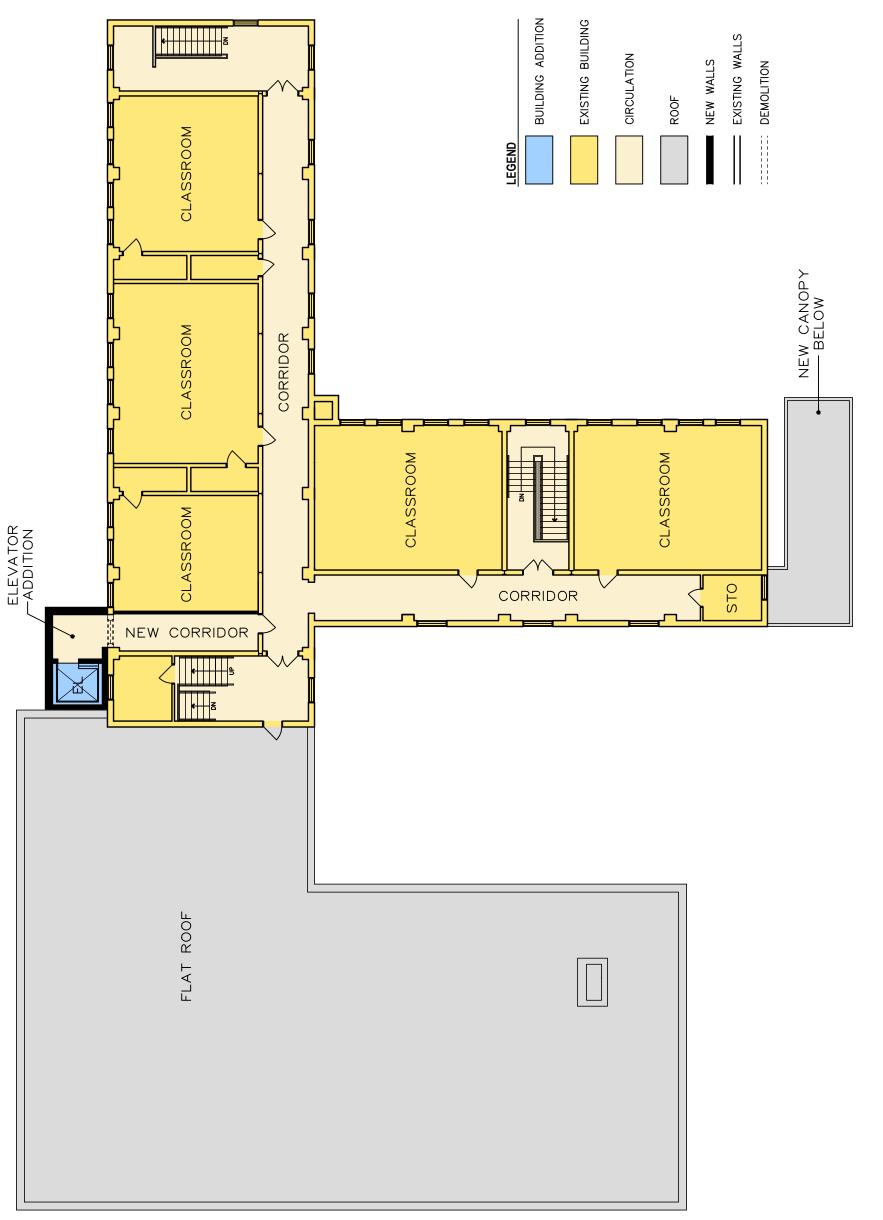
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FIRST FLOOR PLAN - OPTION 1









SECOND FLOOR PLAN - OPTION 1 RENOVATE BUILDING 4372 • Saint Sylvester School • Facility Study

OPTION 1 - RENOVATE THE EXISTING BUILDING

CONSTRUCTION COSTS:

- A. Addition for Elevator (1100 s.f.):
 - Addition for Elevator and new access corridors

Estimated Construction Costs: \$ 750,000

- B. <u>Site Work (Facility Upgrade to Include)</u>:
 - New entrance ramp and steps
 - Play area
 - Retaining walls
 - Demolition of Convent Building

Estimated Construction Costs: \$ 645,000

C. Alterations to Existing Building (38,000 S.F.)

General Trades (Facility Upgrade to Include):

- New roofing system
- Exterior doors and frames
- Masonry restoration
- Waterproofing of subsurface areas
- Serving kitchen and equipment
- Flooring
- Ceilings
- Painting
- Restroom renovations
- Doors and frames
- Gymnasium floor
- Athletic equipment
- Bleachers
- Educational equipment
- Visual displays
- Office and other area reconfiguration

Estimated Construction Costs: \$4,750,000

HVAC (Facility Upgrade to Include):

- Boilers
- Piping system
- Automatic temperature control system
- Terminal equipment
- Exhaust fans
- Radiators, connectors etc.

Estimated Construction Costs: \$1,250,000

Add Air-Conditioning: 250,000

\$ 1,500,000

OPTION 1 - RENOVATE THE EXISTING BUILDING (continued)

CONSTRUCTION COSTS (continued):

Plumbing (Facility Upgrade to Include):

- Piping for domestic water
- Plumbing fixtures
- Sanitary and storm pipings

Estimated Construction Costs: \$ 300,000

Electrical (Facility Upgrade to Include):

- Electrical service
- Panel boards
- Lighting (interior and exterior)
- Branch circuit, switches and receptacles
- Emergency power
- Telecom equipment and cabling
- Public address and bell system
- Clock system
- Camera and security system
- Fire alarm system

Estimated Construction Costs: \$ 2,205,000

TOTAL ESTIMATED CONSTRUCTION COST: \$10,150,000

D.	SOFT COSTS:	
	Design and engineering	\$ 710,000
	 Project supervision (Clerk of the Works) 	120,000
	Site survey	5,000
	Test Borings	10,000
	 Inspections and Permits 	228,000
	Utility company fees	10,000
	Commissioning	85,000
	SWM, E & S fees	35,000
	Code modeling	5,000
	Sewage planning modules	2,500
	Printing and advertising	3,500
	Contingency	 508,000

Sub-Total Soft Costs: \$ 1,722,000

TOTAL ESTIMATED PROJECT COSTS: \$11,872,000

OPTION 2 - CONSTRUCT NEW BUILDING

A. Demolition of existing School and Convent buildings \$		250,000
 B. <u>Site Work</u>: Parking, sidewalks, play areas, retaining walls \$ 	\$	750,000
C. Construct New Building 38,000 s.f.	<u>\$11</u>	<u>,780,000</u>
TOTAL ESTIMATED CONSTRUCTION COST: \$	<u>\$12</u>	. <u>,780,000</u>
 D. <u>SOFT COSTS</u>: Design and engineering Project supervision (Clerk of the Works) Site survey Test Borings Inspections and Permits Utility company fees Commissioning SWM, E & S fees Code modeling Sewage planning modules Printing and advertising Contingency 	\$ \$ 1	767,000 120,000 5,000 25,000 250,000 25,000 35,000 35,000 3,500 3,500 639,000

TOTAL ESTIMATED PROJECT COSTS: \$14,743,000



