John Pettibone Community Center Building

Building Conditions Assessment

2 Pickett District Road
New Milford, Connecticut 06776

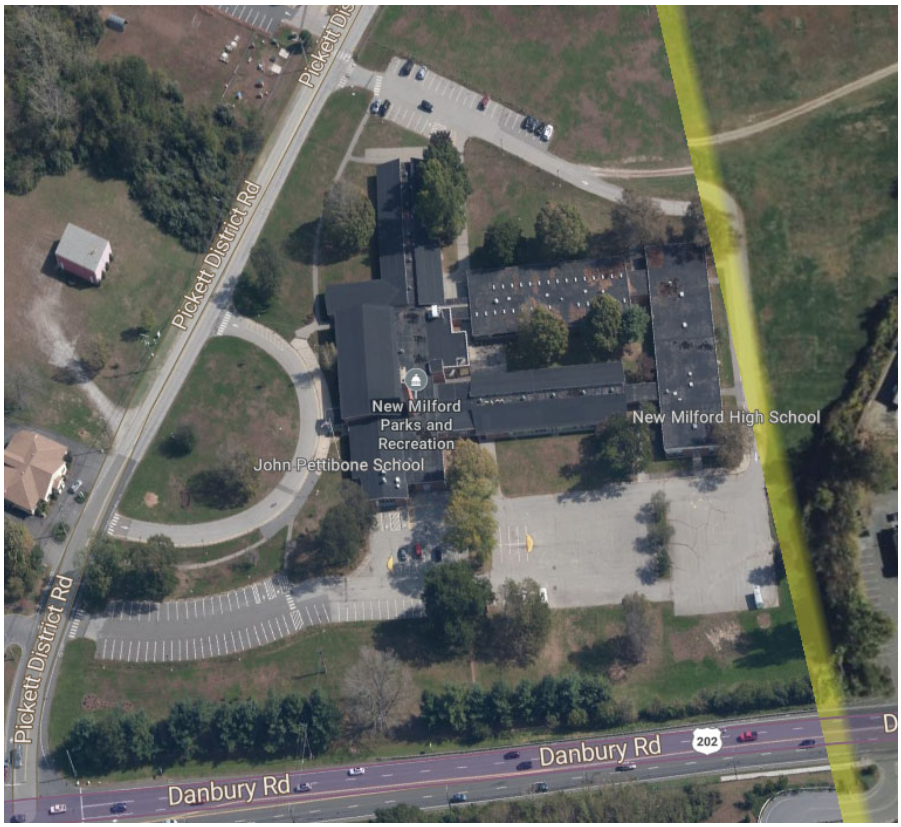

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TABLE OF CONTENTS

SECTION I - EXECUTIVE SUMMARY 1

Objective 1

Findings 1

Recommendations 1

SECTION II - PROCESS 3

SECTION III - EXISTING CONSTRUCTION 4

SECTION IV – ARCHITECTURAL OBSERVATIONS 5

SECTION V – ARCHITECTURAL RECOMMENDATIONS 12

SECTION VI - ENGINEERING OBSERVATIONS/RECOMMENDATIONS 16

SECTION VII - OPINION OF PROBABLE CONSTRUCTION COST (TOTAL) 41

SECTION VIII - ESCALATION 42

SECTION I - EXECUTIVE SUMMARY

This report was prepared by Silver Petrucelli & Associates, Inc. (SPA) of Hamden, Connecticut, an architecture and engineering firm specializing in municipal programming, planning and design, feasibility analyses and building condition investigations.

Objective
Silver Petrucelli & Associates (SPA) was retained in the late winter of 2024 by the Town of New Milford, New Milford Connecticut, to perform a comprehensive inspection/report reviewing the existing John Pettibone Community Center located at 2 Pickett District Road, New Milford, CT which was originally constructed/completed in 1953/1955. The analysis included the site conditions, site parking lots, sidewalks, entry drives, exterior building envelope, interior building conditions, code analysis along with Mechanical, Plumbing, Fire Protection and Electrical components. We did not perform any structural analysis, nor was any environmental or air quality performed as part of these services. If the district feels the need for these services, New Milford should retain structural engineers or Environmental engineers to perform these tasks. Our efforts included visual observations from the ground (both outside the facility & inside the facility), visual observations from the roof and review of limited existing documents made available to SPA.

Findings
Based on our observations, the 16.7 acre site components and 75,257 s.f. building are generally in fair condition. While the structure appears solid along with the exterior masonry walls, many of the other building elements need significant work due to deferred maintenance over the years or code compliance violations. The majority of the floors, exterior windows, doors, hardware, roofs, toilets, etc. are all being recommended to be replaced as part of this study. There are many ADA code violations that also need to be addressed throughout the facility. The Mechanical, Electrical and Plumbing components are also past their useful life expectancy and will require significant renovations/replacement work.

Recommendations
SP&A is recommending to fully renovate the building correcting existing deficiencies including parking lot re-paving, sidewalk restoration, code compliance building & site issues, building envelope restoration including new windows, exterior doors & roof, new finishes, interior doors, toilets, masonry repairs, etc. We also recommend full removal and installation of a new Mechanical, Plumbing, Fire Protection & Electrical systems throughout the 1-story facility. Further details and information can be found later in this report.

Opinion of probable Construction Costs:

To correct the existing code & construction deficiencies, SPA recommends that the Town of New Milford appropriate the following amount for the renovations/restorations to the John Pettibone Community Center Facility:

Total 2024 Costs = $25,209,500

Note: These costs do not assume any future build out or program modification to the existing building as it is near impossible to predict how the building will be utilized moving forward. These improvements simply repair or replace existing components that are not ADA complaint, or are past their useful life expectancy.

Aerial View of 2 Pickett District Road, New Milford, CT

SECTION II - PROCESS

The information contained in this report was gathered by S/P+A via field observations. On February 9, 2024, one Architect and 2 Engineers from SPA walked the site and the building, including all rooms, cafeteria, gymnasium, classrooms, media center, boiler room, etc along with the roof. These visual inspections along with photography taken as part of this site visit were invaluable and utilized as part of this study. The information contained in this report was gathered by S/P+A via field observations, interviews with staff of the Community Center and historical drawings of the Structure, originally designed in 1953 by Carl J. Malmfeldt and Associates, Harford, Connecticut. A classroom addition on the East side of the facility in 1957, designed by Philip N. Sunderland William Webb Sunderland, Danbury, Connecticut. A third Addition in 1963, Designed by Lyons and Mather, Bridgeport, Connecticut added the south classroom addition along with the two small corridor connectors. A fourth addition added in 1990, designed by Fletcher Thompson, Bridgeport, Connecticut added the small media center addition in the existing courtyard. The current building is occupied by Social Services, The Youth Agency & Parks + Recreation utilizing the North-East wing, East wing and West wing, respectively. Other spaces, like the gymnasium and media center are being utilized by other entities affiliated with the Town of New Milford. All of this information was invaluable and utilized as part of this study. The collected data was organized and appears in sections of this report in the form of written narratives and graphic images. Silver Petrucelli also coordinated a field inspection in late November 2022 for roof analysis and observations/ understanding of the existing roof conditions and interior conditions of the facility.

SECTION III - EXISTING CONSTRUCTION

Designs for the New Milford Elementary School (later to be renamed John Pettibone Elementary School (and later again named the John Pettibone Community Center)) were completed in July of 1953 and construction began immediately thereafter, being completed in 1955. The 1 story structure has a brick exterior along with aluminum window wall systems, along with a combination of flat (low sloped) roofs and very prominent sloped roofs, both currently covered with black EPDM membrane. While most of the original school structure has sloped roofs, subsequent additions in 1957, 1963 & 1990 added additional flat (low sloped) roofs which are not very noticeable from the ground. However, due to the topography of the site, all roof surfaces are noticeable from route 7 (202) as this site fronts this major roadway as it is located immediately to the East of route 7 (202).

The Building Structure:

The John Pettibone Community Center is a type 2B construction which means that the structure is constructed of noncombustible materials. The Super structure of the facility consists of Concrete footings, foundations & floor slabs, steel columns, steel beams and steel bulb T's or metal deck for the roof structure, depending on the location. The exterior walls of the facility consist of a 4" brick veneer and concrete block backup wall along with aluminum window wall systems. The interior walls primarily consist of concrete block or brick, depending on the location along with some wood/metal stud framed walls at various locations.

Typical roof/building construction – original 1955 building

Bar joist and metal roof deck – 1990 media center addition

SECTION IV – ARCHITECTURAL OBSERVATIONS

The Site:

The Property located at 2 Pickett District Road is bound by Danbury Road (Route 202) on the West side, a restaurant (Three Brothers Family Restaurant) on the South Side and Pickett District Road on the North/East side. The building structure is placed favoring the South-East side of the Site with a level grass lawn and circular bituminous drive on the North side including 2 curb cuts onto Pickett District Road. This circular driveway, which provides drop off access to the main front door of the facility, lacks the proper ADA drop off/passenger loading zone and signage. The west side, facing Danbury Road, is predominantly a paved vehicular parking lot. Between the parking lot and Danbury road, there is a grass stretch of land with a significant upward slope to Danbury road. There are also many mature trees adjacent to the Danbury Road property line. On the East & south side of the structure is a bituminous driveway that circles the entire structure with 2 additional curb cuts on Pickett District Road. There are Bituminous concrete sidewalks connecting the Structure to these driveways & parking lots throughout the site. There are currently approximately 115 striped parking spaces on the various bituminous lots along with 6 designated handicapped parking spaces. However, these handicapped spaces are not ADA complaint lacking the proper striping dimensions & signage. There is also room for approximately 100 additional cars in the unstriped parking lots on the West side of the property. Various small bituminous sidewalks also connect various classrooms & means of egress exit points from the building to this driveway network. All of these forementioned bituminous sidewalks, driveways and parking lots are in poor condition. There is a courtyard in the center of the facility with numerous large trees and connecting bituminous sidewalks, equally in poor condition. At the front door of the facility, there is a concrete entry stoop in good condition. There are also a handful of concrete stoops at various exterior doors. These stoops are in good condition, but many of them have a singular riser that is not ADA compliant. Many of the exterior egress doors are not ADA complaint as the change in elevation from the bituminous sidewalk and the finished floor of the building exceeds ½". The lawn areas in the courtyard along with the lawn areas in the front, sides & rear of the structure all appear to be in good useable condition.

West Side Parking lot adjacent to Route 202

Typical bituminous sidewalk condition. Note step at door

East side bit. parking lot condition (adjacent to ball fields)

South Side bit. driveway, curb and sidewalk conditions

Bituminous sidewalk condition. Step at door too high

Concrete stoop doesn't connect to sidewalk. Step too high

Bituminous stoop doesn't connect to sidewalk. Step too high

typical courtyard condition

The Building Structure:

The existing super-structure including the steel columns, steel roof beam, steel roof joists and steel roof trusses all appear to be in sound condition. We did not observe any locations where significant water damage has affected any of the steel superstructure nor any of the 1.5" structural metal roof deck or tectum/concrete slurry deck. However, not all undersides of the roof were inspected due to limited viewing opportunities without destructive demolition. If a comprehensive structural analysis is desired by the district, we would recommend hiring an independent structural engineer to perform this effort.

Typical steel framing & tectum roof panels at gymnasium

Typical steel framing & tectum roof panels at cafeteria

Boiler room- concrete construction

typical sloped classroom structure. Tectum on steel beams

The Building Exterior:

The John Pettibone Community Center Structure is a one-story masonry building with brick veneer from grade to roof. At the roof line is a white painted wood fascia predominately supported by steel framed outriggers, which are also painted. In conjunction with the exterior brick veneer, the second most prominent exterior material is the aluminum/glass window system. Above these windows is mostly an exposed painted tectum roof panel acting as the building soffit. At various sloped roof locations are aluminum gutters and downspouts. There is also a significant bank of aluminum lovers at the mechanical/boiler room on the west side of the facility.

Starting from the ground up, the 4" brick veneer is in good condition with only a handful of locations needing cleaning/repointing. This brick is likely applied in front of a concrete block that makes up the backing masonry of the facility. The exterior aluminum windows are all non-thermally broken frames with either insulated or non-insulted glazing. At many locations, there is an insulated aluminum panel placed in the window wall in lieu of glazing. All of the exterior windows, frames, glazing, calking & panels are in poor condition and will need to be replaced as part of any renovation. The majority of the exterior doors are also aluminum with either insulated or non-insulted glazing. These doors, likely installed at the same time as the window frames, are equally in poor condition and will need to be replaced as part of any renovations. At the top of these masonry walls/windows is a wood painted fascia that is in fair/poor condition. A few locations were noted as being rotted and portions will need to be replaced. All of the wood fascia's are in need of paint. These fascia's are supported by painted steel outriggers which all appear to be in good condition. However, like the wood fascia's, they will need to be painted. The soffits around the facility are predominately tectum roof panels supported on steel "bulb-tees". These panels & steel structure are also painted and in need of fresh paint. Aluminum gutters and downspouts were noted on some of the sloped roof sections of the facility. It is the opinion of SPA to replace all gutters and downspouts as part of any future renovations and/or roof replacement project.

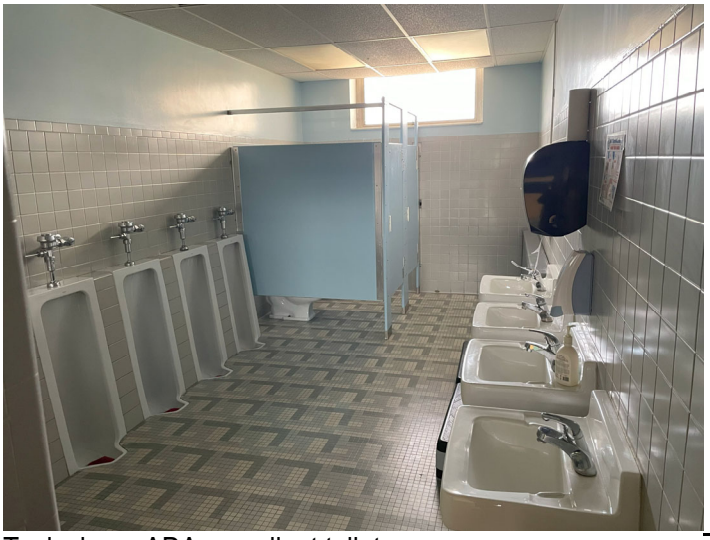
A comprehensive roof analysis was performed by SPA for the entire facility and therefore, additional roof analysis was not performed as part of this study as no work has been performed on the roof since this study. Therefore, the recommendations of a full roof replacement is still the position of SPA. For reference, please see the "John Pettibone Community Center Roof Report & Roof Replacement Recommendations" dated December 14, 2022.

Exterior brick & window wall at gymnasium

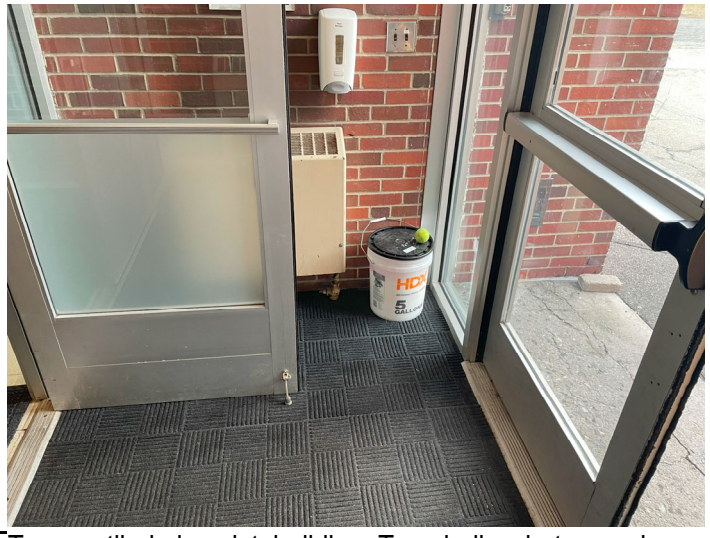
East entrance. Note clerestory classroom windows above

The Building Interior (code & ADA issues):

The Facility was constructed in 1955 with additions in 1957, 1963 and 1990 and is a traditional school design of that era. The building is a one story facility with 9 means of egress of double loaded corridors (meaning usable space on both side of the corridor). A center courtyard is a prominent feature in the middle of the facility, providing natural daylight to the inner classroom spaces. Like many traditional schools, there is a cafeteria, kitchen, gymnasium, media center, offices, classrooms & toilet facilities, along with secondary spaces like boiler rooms, custodial closets, etc. Being a one story facility, all of the spaces, with a few exceptions, are ADA accessible from the main corridor. The Kitchen has limited equipment without much/any accessibility. The gymnasium is accessible but the stage on the east end of the gymnasium does not have a lift nor accessible stairs leading to it. There are also chairs being stored below the stage which is no longer allowed by the International Building Code. The media center appears to be ADA compliant. The balance of the usable space is made up of mostly offices and classrooms. While most of the classroom & office doors are wide enough to accommodate ADA dimensions, a significant percentage of doors do not have the proper push/pull clearance nor the required ADA complaint hardware. All of the existing classroom sinks and cabinets/counter are also not ADA complaint. Therefore, if any of these are to remain as part of future renovations, full ADA compliance would be required. There are 4 sets of boys/girls public toilets (one in each wing of the building). None of these bathrooms have the required fixtures, equipment, sinks, mounting heights, urinals, grab bars etc to meet ADA compliance. There are also a variety of single user toilet rooms, all needing the same ADA upgrades as the public toilet rooms. The lower-level boiler room, while not required to be ADA accessible via wheelchair, will need minor improvements including new stair railings. Various other features in the facility will also need upgrades/alterations including ADA compliant drinking fountains, removing various projections into the corridor, increasing the depth of vestibules (currently too shallow) modifying accessible heights of fire extinguishers, correcting floor transitions that exceed ½", etc. Many other ancillary spaces throughout the facility like custodial closets, storage rooms, the electrical room, etc are not ADA accessible. While some of these spaces will not need to be made accessible, spaces like the custodial closets will, which will require rebuilding the room, widening the door and installing new slop sinks/equipment in order to make them code complaint.



Typical non ADA compliant toilet room



Typ. vestibule in exist. building. Too shallow between doors

The Building Interior (general finish conditions):

As mentioned above, the John Pettibone Community Center is a 75,257 s.f. facility that was previously an elementary school up until 2017. The following spaces are highlighted with regard to their finishes/conditions:

Vestibules: The majority of the facility vestibules have either walk off cocoa mat or VCT (vinyl composition tile). While the cocoa mat flooring is in good condition, none of the VCT flooring is, and therefore should be replaced. Walls are mostly painted masonry and in fair condition. We will be recommending painting all interior wall surfaces as part of this report. Ceilings are either 2x4 ACT (acoustical ceiling tile) 1x1 acoustical ceiling tile, or exposed painted tectum decking. We will be recommending painted all exposed tectum decking throughout the facility. All of the existing 2x4 ACT or 1x1 ACT is in poor condition.

Corridors: the corridors are predominately 12"x12" VCT tile in poor condition with loose tiles in many locations. Walls are mostly painted masonry (some locations have exposed red brick) and ceilings are mostly 2x4 ACT in poor condition. New flooring, paint & new ceilings are being recommended.

Cafeteria: The existing cafeteria has 12"x12" VCT floor tile in poor condition with loose tiles in many locations. There are also significant cracks causing tripping hazards in this space. Walls are mostly exposed red brick and ceilings are exposed painted sloped tectum panels. New flooring & paint for the walls & ceiling is recommended.

Kitchen & Dishwashing Room: These spaces have 12"x12" VCT tile in fair condition. Walls are mostly exposed painted brick or painted concrete block and ceilings are 2x4 vinyl faced ACT tiles in fair condition. New flooring & paint for the walls is recommended while new ACT ceiling should be installed. The existing refrigerator & freezer appear to be in good working order. The overhead hood is still intact, but all other appliances are no longer present.

Gymnasium: The existing gymnasium has a conventional wood floor which is in good condition, minus the few locations where hardwood floor patching has occurred. Walls are mostly tan brick and ceilings are exposed painted sloped tectum panels. Refinishing the hardwood floors and new paint for the ceiling is recommended. There are existing wood bleachers in good condition, however, minor modifications are needed to make them ADA code compliant. There is a folding partition in the gymnasium that is in fair/poor working condition. It is recommended that this be replaced. The stage will also need existing floors refinished and new paint on all wall & ceiling surfaces.

Boiler Room & adjacent mechanical/electrical spaces (lower level): The boiler room and adjacent spaces are in good serviceable condition. Existing floors are exposed concrete and walls are exposed painted concrete block while the ceilings are exposed painted concrete. New painting on all surfaces is recommended.

Media Center: The existing media center has carpet flooring in very poor condition with many sections completely missing. The walls are painted concrete block or painted gypsum board. The ceiling is mostly 2x4 ACT and is poor condition with many tiles missing from roof leaks. It is recommended that all carpet and ACT ceiling be replaced with new paint on all wall surfaces.

Existing Classrooms: The existing classrooms have either VCT flooring or carpet (likely with VCT below) and are all in fair/poor condition. Walls are either painted concrete block or painted gypsum board. Ceiling are either 2x4 ACT, 12x12 ACT or exposed painted sloped tectum panels. It is recommended that all floors be replaced with VCT floor, and all ceilings (except for the exposed tectum) be replaced with 2x2 ACT. All walls should be repainted. The existing cabinets, countertops & sinks that exist in most classrooms are in poor condition and should be replaced as part of any future project.

Gang toilets & private toilets: The toilets are all similar wither tile floors, tiled or glazed block walls & 2x4 ACT ceilings which are all in fair/poor condition, needing full replacement. Since the fixtures are outdated, and the toilet partitions in poor condition, not meeting ADA, we believe that a full gut renovation to all toilets is required. This would involve new fixtures, tiled floors, tiled walls, 2x2 ACT ceilings along with new toilet partitions & accessories.

The remaining closets, storage rooms & custodial spaces: these spaces, like the classrooms, will require new floors, painted walls & new 2x2 ACT ceilings.

Existing doors & hardware: most of the doors in the facility are wood doors, original to the date of construction, and are in fair/poor condition. Many of these doors have wire glass (no longer allowed by code) and antiquated hardware. It is recommended that all doors/hardware be replaced throughout the facility.

Notes: It should be noted that it appears that the 12x12 VCT flooring may be installed over older flooring that may be asbestos containing. It is recommended that the Town retain an environmental consultant to test for hazardous flooring material.

It is also noted that the 12x12 ceiling tiles in many classrooms (especially the east classroom addition from 1957) are often adhered to the substrate with asbestos containing adhesive. It is strongly recommended that the Town retain an environmental consultant to test for hazardous material throughout the facility.

Lastly, there was a unique (and strong) petroleum odor in the 13 classrooms (entire 1963 South classroom wing) including the boys & girls bathrooms and storage rooms, that should also be further studied by an environmental firm specializing in air quality.

Typical hallways materials/condition


Cafeteria VCT flooring condition

Counter condition – Social Services. No ADA compliance

ceiling condition in Media Center – significant roof leaks.

Typical Classroom ceiling condition

wall/ceiling condition in classroom

Typical classroom casework/ sink condition

Many HM door frames in wet condition showing rust.

SECTION V – ARCHITECTURAL RECOMMENDATIONS

Proposed Site Improvements:

- Replace all exterior Bituminous concrete sidewalks.
- Replace all exterior Bituminous concrete parking lots & driveway.
- Replace all exterior concrete sidewalks/curbs
- Replace all exterior concrete stoops at doorways making them ADA compliant.
- Install passenger loading zones & striping with appropriate signage
- Restripe all parking spaces
- Restripe & install proper signage at all ADA parking stalls including accessible van parking

Opinion of Probable Construction cost:
$1,080,000

Proposed Building Exterior Improvements:

- Clean/Repoint/replace all failed brick & joinery.
- Replace all exterior aluminum/hollow metal doors/frames.
- Replace all exterior aluminum louvers.
- Replace all exterior aluminum insulated panels.
- Replace all exterior aluminum window wall system & glazing (including high clerestory windows)
- Strip. Prime and paint all exterior wood trim/fascia
- Replace existing roof per SPA report dated 12/14/2022.
- Paint exterior wood fascia/tectum soffits & steel outriggers.
- Paint exterior handrails.
- Paint exterior entry canopy ceiling & columns.
- Replace all exterior aluminum gutters & aluminum downspouts.
- Replace fascia panel above windows on south 1963 addition.

Opinion of Probable Construction cost:
$8,455,000

Proposed Building Interior Improvements (code and ADA issues):

- Replace all stair railing/guard rails with ADA rails.
- Replace all toilet fixtures and accessories with ADA complaint fixtures.
- Replace all drinking fountains with ADA complaint fixtures.
- Rebuild/replace all door openings not meeting minimum ADA dimension criteria.
- Replace existing fire extinguisher cabinets with ADA compliant cabinets.
- Replace classroom sinks/casework with ADA compliant units.
- Replace custodial closet mop sinks to be ADA/code complaint.
- Remove display cabinets that project into corridors to meet ADA compliance/dimensions.
- Replace all interior doors & hardware with ADA complaint doors/hardware. (some frames will need replacing)
- Install interior lifts for stage ADA accessibility.
- Remove stair storage from below stage.

Opinion of Probable Construction Cost:
$1,294,500

Proposed Building Interior Improvements (general):

- Remove unused/un-needed debris from various classrooms throughout facility (mostly in southern wing)
- Replace VCT floor & base throughout facility.
- Replace carpet floor & base where located throughout facility.
- Refinish hardwood floor in gym and stage. Re-stripe as needed.
- Install new 2x2 ACT ceilings at all suspended ceiling locations.
- Repaint all existing painted masonry walls.
- Repaint all existing exposed tectum slope ceilings.
- Replace all tile floors in toilet rooms & custodial closets.
- Replace all tile walls throughout all gang/single use toilet rooms & custodial closets.
- Demolish all miscellaneous unnecessary (non-load bearing) walls/doors throughout facility (retain original walls)
- Replace folding partition in gymnasium

Opinion of Probable Construction Cost:
$1,605,000

SECTION VI - ENGINEERING OBSERVATION/RECOMMENDATIONS

MECHANICAL CONSIDERATIONS

General

All heating, ventilation and air conditioning systems will be new and designed in accordance with Connecticut's High Performance Building Regulation.

Existing Conditions

A central boiler plant located in a sub level 1 mechanical room provides heating for the entire building. The two existing hot water boilers are HB Smith Cast Iron sectional boiler with dual fuel (oil and gas) Powerflame gas burners. The existing nameplate indicates the boilers are a 28A-13 series Smith boiler with a NET IBR Rating of 2,867,000 Btu/Hr. The two boilers generate heat for the facility and distributes hot water throughout the building. Hot Water is fed to equipment such as perimeter unit ventilators, convection units, baseboard radiation and unit heaters. With proper maintenance of the equipment, the life expectancy of the boiler is 30 years, and the associated burner is approximately 20 years. Therefore, this equipment is beyond its life expectancy and in poor condition. Associated hot water system pumps are well beyond their serviceable life expectancy of 20 years as well and should be replaced. The existing expansion tank is newer and was replaced in the year 2016.The original ceiling mounted expansion tanks have been abandoned in place and should be removed.

Flue gases are routed through breeching connected to a masonry chimney which terminates above the roof. The existing chimney in poor condition and filled with contaminants therefore should be cleaned and lined. Combustion air is supplied by wall mounted outside air dampers with an intake louver.

The piping distribution system throughout the building is original to the 1955 construction. Piping systems, with proper maintenance, can operate for 50 years. Therefore, the piping is beyond its serviceable life expectancy and should be replaced.

The existing 10,000-gallon underground fuel oil storage tank was removed approximately three years ago. The associated existing fuel oil pump system remains abandoned in place underneath the walkway of the mechanical room. The abandoned pump set should be removed along with all associated controls.

Ventilation, or the provision for delivering fresh air to the building, has been provided predominantly via operable windows. A combination of mechanical exhaust, natural and mechanical ventilation has been provided throughout the facility as well. Before the use of mechanical ventilation, it was common practice to simply open the exterior windows. This is not a method that is currently recommended for several reasons. First, during the winter and summer months the windows are generally not opened, which fails to meet the requirements of the code. Second, ASHRAE Standard 62 Ventilation for Acceptable Indoor Air Quality has provisions for how far an exterior window must be from the furthermost interior wall.

Means for cooling have not been provided throughout the building with the exception of random window AC units, several wall-mounted split system and a rooftop unit with dx cooling serving the Media Center.

Existing Temperature Control systems throughout the facility are stand alone, the existing pneumatic control system is currently non-operational and abandoned in place. Facility employees have divorced all pneumatic controls from the existing equipment. All existing equipment is currently manually operated and cannot be monitored or controlled through a central

building management control system or internet. The control system is considered to be non-operational, beyond its useful life expectancy and should be replaced. This type of control system is considered obsolete technology and replacement parts are not readily available.

Classroom areas of the original school are served by perimeter hot water radiation, operable windows, and central exhaust systems. Existing exhaust systems appear to be damaged, missing components and in poor condition. The associated exhaust fans located on the roof are non-operable, well beyond their serviceable life and should be replaced.

The Computer Classroom is served by perimeter hot water radiation, operable windows, central exhaust system and three Mr. Slim wall mounted split systems. The existing exhaust system appears to be damaged, missing components and in poor condition. The associated exhaust fan located on the roof is non-operable, well beyond their serviceable life and should be replaced. The three existing Mr. Slim units are also beyond their serviceable life of 10 years and should be replaced.

Corridors are conditioned with hot water radiation only. These areas are not equipped with ventilation required by current code or cooling.

The Media Center and nearby offices are served by an AAON rooftop unit with dx cooling coil and gas fired burner. The unit provides cooling, heating, and ventilation to the space. The equipment tag indicates the unit was replaced in the year 2009. With proper maintenance of the equipment, the life expectancy of the unit is 15 years. The unit is 15 years old and should be replaced.

The Multi-purpose/Gymnasium is conditioned with heating only via hot water radiators located below the windows on the northern and southern exterior walls. Ventilation is achieved mechanically by an exhaust fan transferring air from a grille located on each side of the stage to an exterior louver. The existing ventilation means is not acceptable to the current code. The equipment is beyond its service life expectancy.

The Stage is conditioned with heating only via hot water unit heater hung from the underside of structure. Ventilation is achieved mechanically by the exhaust fan serving the Multi-purpose/Gymnasium louver. The existing ventilation means is not acceptable to the current code.

Staff Lounge is served by perimeter hot water radiation, operable windows, central exhaust system and a Mr. Slim wall mounted split system. The existing exhaust system appears to be damaged, missing components and in poor condition. The associated exhaust fan located on the roof is non-operable, well beyond their serviceable life and should be replaced. The existing Mr. Slim unit is in poor condition and beyond its serviceable life of 10 years. The split system should be replaced as well.

Toilet rooms and janitor closets are ventilated by independent exhaust fans. Make-up air to the spaces is provided by operable windows, ceiling mounted transfer air grilles and/or undercuts of doors. Perimeter hot water radiation provides heating to these spaces.

The Cafeteria is served by two (3) floor mounted unit ventilators. These units provide heating and ventilating to the space. Both units are equipped with a hot water coil and have a dedicated outside air louver within the exterior wall for ventilation.

The Kitchen area has two dedicated exhaust fans, one serving the kitchen hood and the other an abandoned dishwasher hood. There is no means of make-up air, and the space is heated via ceiling mounted radiation.

Potential Proposed Systems

Heating Plant: The Central Heating Plant will consist of natural gas fired high efficiency condensing boilers. Combustion air may be supplied directly to each boiler with a dedicated duct or it may be supplied to the boiler room by combustion air fans. The boilers will be vented outside either individually or into common venting. A microprocessor-based boiler controller will be provided to optimize boiler plant operation by sequencing boilers, pumps, and resetting supply water temperature based on outside air temperature. The boilers will have an automatic water treatment system. Hot water system will be piped in primary/secondary configuration. Each boiler will have a dedicated primary circulator. The secondary loop will be variable flow. Hot water distribution system will consist of either in-line centrifugal or end suction pumps to circulate hot water within the loop that serves the heating equipment and heating zones.

Automatic Temperature Controls/Energy Management System: A Direct Digital Control (DDC) type Energy Management System will be provided for the facility to meet the facilities' requirements. The system can be compatible with existing systems serving other town facilities if this is a desired feature. Compatibility with existing systems will be determined based on the owner's requirements. The controls will be based on BACnet controls.

Areas such as Offices, Cafeteria, Conference Rooms, Teacher Lounge, Corridors, etc. will be served by a new state-of-the-art Variable Refrigerant Flow (VRF) system. The VRF system provides the benefit of free energy exchange while in simultaneous heating and cooling modes and without the need for seasonal equipment changeovers. When units operating along one exposure are in cooling mode, while the others across the hall on the opposite exposure are heating, or vice versa (both common scenarios in this specific building), the refrigerant streams effectively transfer energy from one another providing "free energy exchange". Therefore, the outdoor compressors operate at lower capacities resulting in a significant portion of the system's energy consumption being negated. They provide one of the most viable retrofit options available as well and potentially have the advantage of being much less disruptive during the upgrade of a building's HVAC infrastructure, requiring only additional circuiting for the added number of terminals and routing small-diameter flexible pipe sets above the ceilings. They are also highly maintenance friendly.

The VRF system consists of multiple "fan coil units", similar to the split ductless-indoor units which have become commonplace, and which can be configured to be mounted in a myriad of configurations, such as:

- High-wall mounted
- Low-wall (floor) mounted
- Lay-in cassettes at the ceiling level
- Ceiling mounted
- Above the ceiling (concealed) with duct connections to diffusers serving the space

The benefit to this HVAC retrofit application is that there is no addition of ductwork, duct insulation, dampers, diffusers, registers and grilles (except for the aforementioned concealed units, thus minimizing space disruption. In addition, the flexible refrigerant piping and small electrical power and control circuits serving the fan coil units is more easily run through an existing space. The refrigerant piping is run from the fan coil unit to a branch-circuit controller/junction box serving a building zone, wherein all the free-energy exchange takes place. The branch-circuit controller then connects to an outdoor condensing unit, along with other branch-circuit connections, to reject or absorb heat as required. These outdoor units could easily be placed on grade or at rooftop level as applicable.

Ventilation will still need to be addressed. Specialized energy recovery units will distribute tempered, dehumidified, outside air to the building via a duct system.

The Media Center will be served by a dedicated variable air volume gas-fired packaged rooftop unit with integral Direct

Expansion (DX) refrigerant cooling coils, gas-fired heating section and new ductwork distribution to provide heating, cooling and ventilation to all spaces. All roof mounted RTUs will be provided with seismic spring isolation curb with sound attenuating panels.

The Multi-purpose/Gymnasium will be served by a dedicated variable air volume gas-fired packaged rooftop unit with integral Direct Expansion (DX) refrigerant cooling coils, gas-fired heating section and new ductwork distribution to provide heating, cooling and ventilation to all spaces. All roof mounted RTUs will be provided with seismic spring isolation curb with sound attenuating panels.

The Kitchen will be served by a dedicated gas-fired packaged makeup air unit (MAU) with integral Direct Expansion (DX) refrigerant cooling coils, gas-fired heating section and new ductwork distribution to provide heating, cooling and ventilation to the space. The MAU will be used to heat and cool some surrounding spaces as well. The roof mounted MAU will be provided with seismic spring isolation curb with sound attenuating panels. The roof mounted kitchen hood exhaust fan tested to UL 762 and UL 705 will be incorporated. The unit will be equipped with grease filters and a removable grease trough.

Toilet/Janitor/Locker/Storage Room Exhaust: Each Toilet Room and Locker Room will be provided with exhaust as required by the Building Code. Energy Recovery Ventilators (ERVs) will be reviewed as an option for additional energy efficiency.

New Server / Data areas will be served by split-ductless systems consisting of an indoor unit with integral Direct Expansion (DX) refrigerant cooling and an outdoor condensing unit equipped with low ambient cooling capability. The outdoor condensing unit will either be mounted on the roof or at grade.

Energy Conservation Measures

Various energy conservation measures will be employed in the mechanical systems to ensure that the building runs as efficiently as possible.

The boiler plant will consist of high efficient condensing type, with modulating burners so the boilers can more precisely meet heating demand and to minimize boiler cycling. This will also aid in extending the life of the boilers.

Demand controlled ventilation is a method of ensuring adequate ventilation for building occupants, while eliminating unnecessary ventilation and reducing energy consumption. The ventilation process requires a substantial amount of energy because outside air needs to be heated or cooled to acceptable levels. Energy is conserved by controlling ventilation rates based on the actual number of occupants based, indirectly, on the use of carbon dioxide (CO_2) as an indicator of occupant load. Concentrations of CO_2 are measured by a sensor located in the space or return air duct and the outside air dampers are modulated to maintain concentrations below an established baseline. This technique can be applied throughout the building and is especially effective in high occupancy spaces that are not continuously occupied. Demand Controlled Ventilation can be easily implemented by the addition of sensors and required programming when an Energy Management System is provided.

Outside air economizers will be employed on all air handling systems with a capacity of 4 tons and greater. If there is a demand for cooling within the building and the outside air temperature is less than the inside space temperature, the cooling system will be disabled and fresh air will be brought in and used to cool the space. This will be particularly useful for areas with high occupancy such as conference and meeting rooms, classrooms, high occupancy spaces, etc., where a load is generated by a large group of people and cooling is often required when it is cool outside and other spaces may require heating.

Variable frequency drives (VFD's) will be used on air handling units and pumps to minimize electrical demand. As demand increases, the heating or cooling system calls for more water flow. The VFD's will modulate the pump to provide greater flow. At times where there is minimal load the VFD's will modulate the pumps to minimum settings to reduce the electrical load on the building.

An Energy Management System (EMS) provides a building owner with the ability to monitor, control, and adjust all HVAC (along with plumbing and electrical if desired) systems from a central location. An operator workstation consisting of a personal computer and printer can be located in the building, and this station can be accessed remotely via the internet. The owner can set occupancy schedules, adjust set points, and monitor trouble/alarm conditions in an efficient manner with this tool. Features such as night setback, holiday scheduling and weekend scheduling will be included to allow the system to minimize energy expenditure during unoccupied periods. An alarm feature will be added which can remotely notify facilities staff of any pre-determined, alarm conditions.

Incentives, Grants, and other programs may be available to offset construction costs. They may be in the form of rebates for implementing certain energy conservation measures such as high efficiency air conditioning equipment and premium efficiency motors. In addition, other incentives may be available for high efficiency systems by participating in a utility companies comprehensive design program. The incentives offered are designed to offset some or all of the additional cost for higher efficiency systems. Possible funding sources will be investigated as part of the design process.

Energy Recovery can be accomplished through a variety of technologies, and for this project, the use of energy recovery ventilators and energy recovery wheels is anticipated. These devices capture a portion of energy from the exhaust air stream and add it to the supply air stream thus reducing the amount of energy input required.

Refrigerants used in air conditioning systems will be hydrofluorocarbons having low ozone depletion and global warming potentials. Equipment will most likely use HFC-410A or HFC-134a.

Premium Efficiency Motors will be utilized wherever their application is feasible and per the latest energy codes.

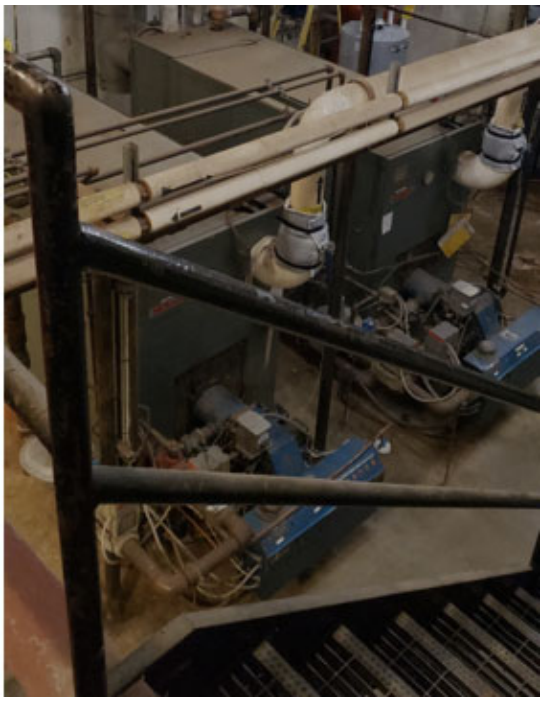
Applicable Codes

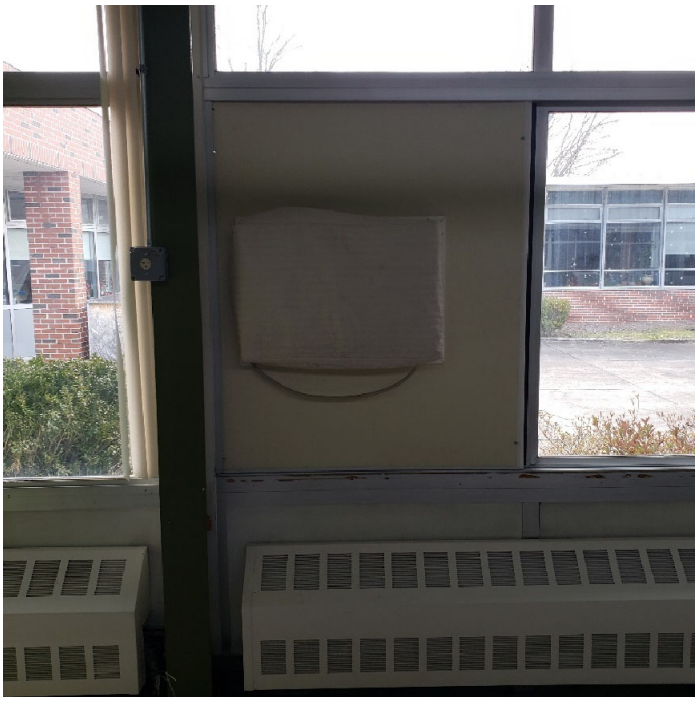
The proposed upgrades require that the building be brought up to full current code standards. It is expected that the State of Connecticut will adopt the following Codes on October 1, 2022, prior to the completion of the design documents. Therefore, our project will fall under the requirements of these following codes:

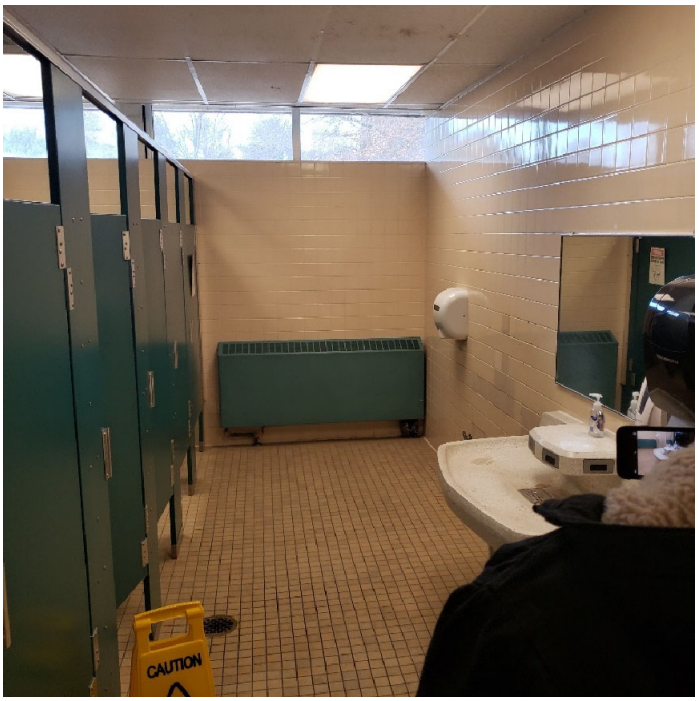
- 2022 Connecticut State Building Code (CSBC)
- 2021 International Building Code (IBC)
- 2021 International Mechanical Code (IMC)
- 2021 International Energy Conservation Code (IECC)
- 2020 NFPA 70 National Electric Code (NEC)

Opinion of Probable Construction Cost:

$ 5,650,000






CAUTION


NAPCO
Firewolf


Dayton


EXIT


HYDUTY

PLUMBING CONSIDERATIONS

Existing General Conditions:

The building is provided with a 3" domestic water service with full size bypass. A water meter and pressure reducing valve has been provided. Piping material consists of copper with sweated joints and fittings. A cross connection device was not observed on the water service.

The facility is provided with a 75-gallon gas-fired water heater manufactured by AO Smith, model FCG-75-400 which serves the buildings plumbing fixtures. The heater was replaced this year along with the associated pumps, tank, valves, breeching, etc. on February 7, 2024. The system is also provided with 2 hot water recirculation loops with corresponding pumps and aquastats as required by the Energy Code.

Remove all existing hot and cold-water piping, insulation, and hangers as they do not comply with the latest IECC values and the lead (PB) content is unknown.

Remove all existing plumbing fixtures throughout the facility including all water closets, classroom sinks, urinals, lavatories, shower, mop sinks, and all kitchen fixtures as they are in poor condition. Provide new fixtures per the new architectural program. Provide new hot water, cold water, sanitary and vent services to new fixtures as indicated in the new architectural layout.

An existing duplex sewage ejector station is provided for the basement fixtures which cannot discharge by gravity to the site sewer system. An additional ground water simplex sump pump is located in the water storage room. Both systems should be replaced.

Potential Proposed Systems

Domestic water:

Provide a full-size reduced pressure backflow preventer to be incorporated on the building's water service as required by the water company. Replace corroded piping, fittings, and valves with in the water service entry room. Extend domestic hot and cold-water distribution piping and recirculation loops to plumbing fixtures and other points of connection as required by the program.

Freeze-proof exterior hydrants will be located around the building.

Design Criteria: Pipe sizing in accordance with the International Plumbing Code based upon friction loss charts with a maximum of 6 feet per second velocity.

Hot Water

Maintain current water heating setup, but store domestic hot water at 140°F to reduce the growth of legionella. To eliminate potential scald hazards, provide a properly sized thermostatic mixing valve to deliver the required temperature per the following criteria:

- Master Mixer, all water heaters require external temperature controls via ASSE 1017 Thermostatic mixing valve to reduce hot water from 140°F to 120°F.
- Hand washing lavatories (bathroom groups) require Tempered water via ASSE 1070 Thermostatic mixing valve to provide 105°F – 110°F water.
- Emergency Fixtures (eye wash & showers) require Tepid water via ASSE 1071 Thermostatic mixing valve to provide 70°F - 90°F water.

Provide all required, piping, fittings, hangers etc. and all system components shall be lead free. Provide di-electric fittings on all piping components of dissimilar material to avoid galvanic corrosion. Properly ground all electrical equipment where it interfaces with the plumbing system (i.e. pumps, controls, water heater, etc.). To avoid condensation of water piping, insulate all systems accordingly.

Building Sanitary Drainage

The condition of under-slab building sanitary piping mains will need to be further evaluated. It is likely that original mains are viable and can be retained, but if there are any issues discovered upon inspection, the under-slab piping shall require replacement.

It is recommended to snake all floor drains and below slab sanitary and waste piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform recorded camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations.

All new below-slab sanitary drainage shall be cast iron service weight hub and spigot pipe and fittings. Transition couplings and no-hub pipe shall not be installed below slab or in any buried conditions in contact with earth. Use of PVC schedule 40 solid wall pipe and PVC DWV fitting system is to be considered because of the anticipated construction cost savings. Alternates are subject to owner approval prior to substitution.

All above ground sanitary drainage should be cast iron service weight no-hub pipe and fittings. Piping 4" and smaller shall be 4-band super duty "Husky SD4000" clamps. All piping in plenum installations shall be UL listed for this application. Use of PVC schedule 40 solid wall pipe and PVC DWV fitting system with insulation (within sound sensitive areas "Soundfab" shall be provided) is to be considered because of the anticipated construction cost savings. Alternates are subject to owner approval prior to substitution.

Cleanouts shall be located at minimum intervals of 50 feet for piping 4" and smaller and 100 feet for piping 6" and larger. Cleanouts shall be located at the base of each waste or soil stack. Cleanouts shall be installed at each change of direction greater than 45 degrees.

Gravity discharge to the building sewer is not possible in the lower level for mechanical room floor drains, therefore the existing duplex ejector pump system will be replaced in kind with new. This system will include all controls, valves, and force main piping as required to provide necessary drainage connected back to the building gravity sewer main. System shall be fully vented and with vent termination to atmosphere. Provide a new simplex ground water sump pump with in the water service room.

Building Storm Drainage

The condition of under-slab building storm piping mains will need to be further evaluated. It is likely that original mains are viable and can be retained, but if there are any issues discovered upon inspection, the under-slab piping shall require

replacement. Storm piping above slab is expected to remain and be reused.

It is recommended to snake all floor drains and below slab sanitary and waste piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform recorded camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations.

New roof drainage, including secondary drainage on flat rooves where required, shall be provided. All secondary or overflow drainage shall discharge to grade per code. All interior storm drainage piping, including drain bodies, are to be insulated.

Any new below slab storm drainage shall be cast iron service weight hub and spigot pipe and fittings. Transition couplings and no-hub pipe shall not be installed below slab or in any buried conditions in contact with earth. Use of PVC schedule 40 solid wall pipe and PVC DWV fitting system is to be considered because of the anticipated construction cost savings. Alternates are subject to owner approval prior to substitution.

Any new above ground storm drainage shall be cast iron service weight no-hub pipe and fittings. Piping 4" and smaller shall be 4-band super duty "Husky SD4000" clamps. Piping 6" and larger shall be 6-band super duty "Husky SD4000" clamps. All piping in plenum installations shall be UL listed for this application. Use of PVC schedule 40 solid wall pipe and PVC DWV fitting system with insulation (within sound sensitive areas "Soundfab" shall be provided) is to be considered because of the anticipated construction cost savings. Alternates are subject to owner approval prior to substitution.

Cleanouts shall be located at minimum intervals of 50 feet for piping 4" and smaller and 100 feet for piping 6" and larger. Cleanouts shall be located at the base of each stack. Cleanouts shall be installed at each change of direction greater than 45 degrees.

Fixtures

New low flow fixtures shall be provided, waterclosets shall have 1.6 gallon per flush (gpf), Urinals at .125 gpf, and hand washing lavatories at 0.5 gallons per minute.

Water closets, urinals and lavatories will be fabricated of vitreous china. Water closets and urinals will be wall-hung with floor-mounted carriers and will utilize manual flush valves. Lavatories will also be wall-hung with floor-mounted carriers and will utilize dual handle faucets.

Bi-level water coolers with bottle fillers will be distributed throughout the building.

Plumbing fixtures are to be ADA compliant and installed as such as required. All heights and mounting distances shall be coordinated with the architect.

All newly renovated public hand washing lavatories shall meet the International Energy Conservation Code requirements for Efficient Heated Water Supply Piping by incorporating a hot water recirculation loop routed within two feet of each fixture. Self-actuating thermostatic balancing valves shall be incorporated to control flow rates to each circuit.

Pipe Insulation

Insulation shall be Plenum rated and applied to hot & cold water, interior roof drainage piping and condensate lines. Interior, above ground piping insulation shall be mineral fiber with an all service jacket and self-sealing lap. Interior, above ground pipe fitting insulation shall be molded, pre-formed mineral fiber with a PVC jacket.

Hangers and Supports

All pipe hangers and supports shall be hot dipped galvanized. Threaded rod (min 3/8" diameter) and hardware shall be stainless steel. All fasteners into concrete shall be mechanical wedge type anchors, the use of powder actuated, or gas fastening is not allowed. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers in contact with copper or brass shall be dielectric, compatible with copper and brass alloy or provided with felt sleeve.

Contractor is responsible to provide additional supports for piping and equipment when deck is not capable of support.

Natural Gas Fuel Service

The facility is provided with a natural gas fuel service provided by the local gas company, gas fired equipment includes boilers and the domestic water heater.

Extend gas to new gas fired equipment based on mechanical improvements. Provide with pressure regulator and shut off valves.

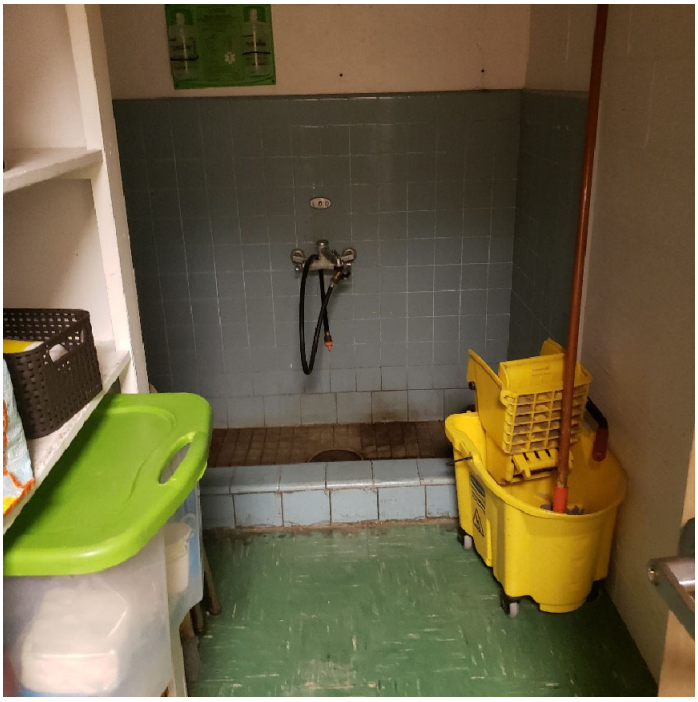
Coordinate revised and final gas loads with the gas company to determine if the current meter arrangement, pressure and capacity can be provided and is acceptable with the new gas demand requirements.

Provide new Sch. 40 black steel gas piping, fittings, regulators, valves, etc. in accordance with NFPA 54 connected to the existing fuel gas distribution system (where possible) in support of new gas fired equipment.

All piping in corrosive environments are to be replaced and painted with a corrosion resistant coating per NFPA 54. All exterior piping with peeling paint or rust to be treated and re-painted with a corrosion resistant coating per NFPA 54.

Provide UL listed Gas service valves, for fuel gas service, including Exterior Emergency gas shut-off valve equipped with sign: "EMERGENCY GAS SHUT-OFF VALVE". Gas pressure regulating valves to be pilot controlled, and actuated.

Opinion of Probable Construction Cost:
$ 2,500,000




RETURN

FIRE PROTECTION CONSIDERATIONS:

General

The existing building is not sprinkled. The entire building will likely need to be sprinklered as part of this project. All materials and system components and their installation shall comply with the 2022 State Building Code, The State of Connecticut Fire Prevention Code (including the 2018 Amendments), all referenced standards and the Owner's insurance carrier. Presently, NFPA 13 – 2015 is referenced by the State Building and State Fire Prevention Codes.

Construction phasing has yet to be determined and may affect the schematic design and cost estimate accordingly.

Existing Conditions

The building is currently not sprinkled.

Potential Proposed Systems

Fire Service

The new sprinkler system shall cover the entire 75,257 s.f. facility. Specific installation requirements will be coordinated with local water authority requirements and the contractor will provide hydraulic calculations based on the results of a flow test involving local site fire hydrants. A fire pump should not be required, because sufficient pressure exists in the water utility's system to supply the hydraulic requirements of the building fire suppression systems, but a flow test will need to be performed to verify this at a later date.

If there exists any small, isolated areas subject to freezing which are adjacent to heated areas, they shall be protected by dry sprinkler assemblies fed from wet systems in adjacent heated areas. The attic, however, will likely be protected with a dry sprinkler assembly due to limited insulation currently in the attic.

Sprinkler Systems

A new distribution system shall be provided throughout the existing facility. Concealed pendent sprinkler heads shall be provided in areas with finished ceilings and exposed upright sprinklers shall be provided in unfinished areas. The color/finish of all exposed sprinkler piping, heads, and appurtenances shall be coordinated with the Interior Designer and piping shall be routed in order to minimize exposed piping. Routing shall be coordinated with all disciplines prior to installation. Areas subject to mechanical damage such as mechanical rooms and the gymnasium shall have sprinkler head guards. All sprinkler heads shall be the quick response type.

The need to provide protection below or within canopies and overhangs will be reviewed with the fire marshal and will be based on the type of construction that is selected.

Additional drain valves, including galvanized pipe and fittings as necessary to completely drain the system to the exterior shall be provided. Inspector's Test Stations per NFPA shall be provided as necessary.

Design Criteria

Compliance with State and Local Codes, Owner's insurance carrier, and NFPA Standards will be required. Systems to be hydraulically calculated based upon the following information as required by NFPA 13.

- General Areas: Wet Pipe, Light Hazard

  Density - 0.10 GPM/SF over the most remote 1,500 SF area with 100 GPM added for hose streams. Sprinkler heads rated at 165° spaced at 225 SF per head (maximum with smooth ceiling) with protection of all combustible concealed spaces.

- Mechanical & Electrical Equipment Rooms: Ordinary Hazard Group 1

  Density - 0.15 GPM/SF over the most remote 1,500 SF area with 250 GPM added for hose streams. Sprinkler heads rated at 165° spaced at 130 SF per head (maximum).

- Storage Rooms, Stage, Janitor's Closets: Ordinary Hazard Group 2

  Density - 0.20 GPM/SF over the most remote 1,500 SF area with 250 GPM added for hose streams. Sprinkler heads rated at 165° spaced at 100 - 130 SF per head (maximum). Storage shall not exceed ten feet in height.

- Building fire protection water supply requirement shall be whichever of the following building demands is greater:

  - Most stringent standpipe system demand
  - Most stringent sprinkler system demand with accompanying inside/outside hose allowances.

Piping Materials

Exterior Piping

Piping shall be equal to U.S. Pipe and Foundry ductile iron class 52 (ANSI) A21.51 (AWWA C151) with push-on rubber gasketed joints and rodding as required. Fittings shall be ductile iron class 250 (ANSI) A21.10 and A21.11 mechanical joint type. Contractor shall use a combination of mechanical joint retainer glands, thrust blocks, tie-rods and pipe clamps, at each fitting. The type of pipe, soil conditions and available space shall determine the proper anchoring method. All ductile iron pipe and fittings shall be cement lined on interior in accordance with ANSI A 21.4 and AWWA C104 and coated on exterior, along with rods and clamps, with coal tar enamel.

Interior Piping

Wet Pipe System

Schedule 40 black steel pipe and threaded fittings. For use with 2" and smaller.

Schedule 10 black steel pipe and roll-grooved fittings. For use with pipe 2-1/2" and larger.

Valves

Sprinkler Room Piping

All piping shall be in accordance with NFPA 13. OS&Y, ball, butterfly and check valves shall be 175 PSI flanged valves. OS&Y and butterfly valves shall be equipped with tamper switches.

Wet Pipe System

2" and Smaller: OS&Y, butterfly, check and ball valves shall be threaded 175 PSI valves with unions installed for serviceability.

2-1/2" and Larger: OS&Y, butterfly, check and ball valves shall be grooved 175 PSI valves.

Hangers and Supports

All pipe hangers and supports shall be hot dipped galvanized. Threaded rod (min 3/8" diameter) and hardware shall be stainless steel. All fasteners into concrete shall be mechanical wedge type anchors, the use of powder actuated, or gas fastening is not allowed. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers in contact with copper or brass shall be dielectric, compatible with copper and brass alloy or provided with felt sleeve.

Equipment

Sprinkler Heads

UL listed and/or FM approved automatic type, of proper temperature range, with installation meeting the conditions of listing and approval. Deflectors shall be marked to indicate proper installation position.

Upright and sidewall sprinkler heads in service areas, and areas not exposed to public view shall be bronze with glass bulb.

Upright and sidewall sprinkler heads in areas exposed to public view shall be bright chrome plated bronze with glass bulb.

Concealed sprinkler heads will be bronze with a frangible glass bulb and the ceiling plate will match the ceiling color.

Head guards are required for heads in areas subject to mechanical damage, such as mechanical rooms, gymnasiums, etc.

Spare sprinkler heads will be provided for each type/rating and at least one sprinkler head wrench with suitable openings will be provided. A minimum of (1) sprinkler head for every 100 of each type will be provided and will be stored in a baked enameled steel cabinet with adequate size to contain spare heads and wrenches. The cabinet will be located in the Water Service Room.

Opinion of Probable Construction Cost:
$ 1,525,000

ELECTRICAL CONSIDERATIONS

Existing Conditions

The building is powered by an old 1600 amp, 120/208 volt, 3-phase service (Federal Pacific) fed from an adjacent utility vault. The service is fed from a bus duct off the back of the switchboard through the wall into the utility vault. The switchboard and about 50% of the local panels are original to the building (1950's) and are at the end of their useful life. A newer 800 amp distribution panel was installed around the corner from the switchboard. This panel feeds local panels of the same age around the building to support the window A/C units installed, renovated kitchen loads along with local branch circuits. Sub-panels are located in several locations throughout the building (both surface and recessed mounted). These panels are all in excellent condition and can be reused. The local panels that are from the original building are all past their useful life and should be replaced. Electrical devices in most of the building are limited in number and will need more devices added to so as to be fully compatible with a future intended use. Some of the existing branch circuit wiring serving the original devices should be replaced. The facility does not have a generator but temporary connections for a portable generator were installed during COVID.

Existing lighting throughout the building is a mix of recessed, surface and pendant mounted fixtures. All have been retrofitted with LED lamps, but with the age of the fixtures and their current condition, we would recommend replacing most of the fixtures with new energy efficient LED fixtures to suit the space they will serve. Several new LED exterior lights are provided. These fixtures could be considered for continued use. Branch circuit wiring to the lights is of an aged state similar to device wiring and should be considered for replacement. Lighting controls within the facility are mostly manual and in poor condition. Replacement with new devices is recommended and can incorporate dimming, occupancy sensing and daylight harvesting for energy savings.

Emergency lighting is provided with twin-head battery units which are limited in number and in fair condition. Some egress paths appear to be lacking emergency lighting completely. There also is a DC emergency lighting system that serves the corridors along the north side of the building. We were told the batteries have been recently replaced, but the system is an old system that most likely will not meet the current code. Many exit signs are non-illuminated type and not in conformance with current code requirements. Full replacement of this life safety equipment is recommended.

The building has a Fire-Lite zoned fire alarm system. The main panel has been replaced with a new control panel by Napco, with most of the peripheral equipment older at the end of their useful life. Smoke detectors are past their expected functional life. Notification devices are not ADA compliant and are provided in insufficient quantity to fully cover the facility. Full replacement of the fire alarm system should be considered.

Low-voltage systems including data network, Wi-Fi, telephone and security are located mostly in the occupied areas of the facility. The network system is newer and in good condition and could be used, but will need to be expanded to serve the entire facility as part of the future building use.

Proposed Systems

Electrical Distribution: We project that a 2400 amp, 208-volt, 3-phase or 1600 amp, 480-volt, 3-phase service will be necessary. This will drive the need for a pad-mounted utility transformer and new main electrical room. New electrical sub-panels should be provided throughout the facility in a quantity consistent with the needs of the new space use along with reusing some of the newer existing panels. All associated wiring should be new throughout. The installation of the new distribution system will provide the opportunity for installation of a generator or at least a transfer switch to allow for a connection of a generator in the future. Electrical devices for convenience power, mechanical equipment and building loads should all be new to coordinate with the new use of the space. All associated wiring should be new.

Lighting: All lighting should be replaced with new LED products of styles suiting the new architectural finishes and uses of the space. Lighting controls in compliance with the current Energy Code should be installed. All exterior lighting should be full cutoff style and located to suit any site modifications.

Emergency Lighting and Exit Signs: New emergency lighting can be easily provided in conjunction with the proposed lighting replacement. Small inverter systems or fixture mounted batteries can be provided to power a portion of the normal lights during an outage. This can include code-mandated exterior lighting. Exit signs shall be internally illuminated and provided with battery backup power. These shall be located in accordance with current Building Code requirements and include appropriate ADA symbols to mark the accessible route.

A complete new addressable fire alarm system should be provided, including all associated wiring. The exact needs of this system will vary based on the future use of the space and the installation of a fire protection system. The use of a voice system should be considered as it would be required for some likely space uses.

The existing data network & Wi-Fi will be expanded, new telephone and security systems should be provided. The exact needs of such systems can be coordinated with the proposed use of the facility and may need to be separated if multiple organizations (or tenants) are intended to occupy the space. Security system scope can vary significantly in scope based on the occupants needs and can include access control, intrusion detection, communication, and video surveillance.

Energy Conservation Measures

New lighting fixtures and controls will provide significant energy savings for utilization of the facility and may be eligible for a small Utility incentive. The installation of a rooftop solar photovoltaic (PV) system in the south and west facing roofs could be considered in conjunction with a roof replacement. Installation of electric vehicle charging stations will likely be mandated by current zoning regulations if the future parking capacity exceeds 30 spaces.

Opinion of Probable Construction Cost:
$ 3,100,000

SECTION VII - OPINION OF PROBABLE CONSTRUCTION/RENOVATIONS COSTS:

Proposed Site Improvements:	**$1,080,000**
Proposed Building Exterior Improvements:	**$8,455,000**
Proposed Building Interior Improvements (code & ada compliance):	**$1,294,500**
Proposed Building Interior Improvements (general):	**$1,605,000**
Proposed Mechanical Improvements:	**$5,650,000**
Proposed Plumbing Improvements:	**$2,500,000**
Proposed Fire Protection Improvements:	**$1,525,000**
Proposed Electrical Improvements:	**$3,100,000**
Total Facility Improvements:	**$25,209,500**

These final costs exclude the following:

Environmental cleanup costs
Architecture and Engineering costs
CM or owner's representatives
Offsite improvements.
Specific costs associated with potential future building uses.

SECTION VIII - ESCALATION

Silver Petrucelli & Associates was not told when this project is projected to be renovated and/or constructed. Since our opinion of probable construction costs is based on Construction rates for the year 2024, below is an escalation schedule based on 5% increase per year, which has been the average annual construction increase percentage in Connecticut in recent years. Escalation is due to labor and material increases year after year.

	2024	2025	2026	2027	2028	2029
Projected Costs	$25,209,500	$26,469,975	$27,793,473	$29,183,146	$30,642,303	$32,174,418