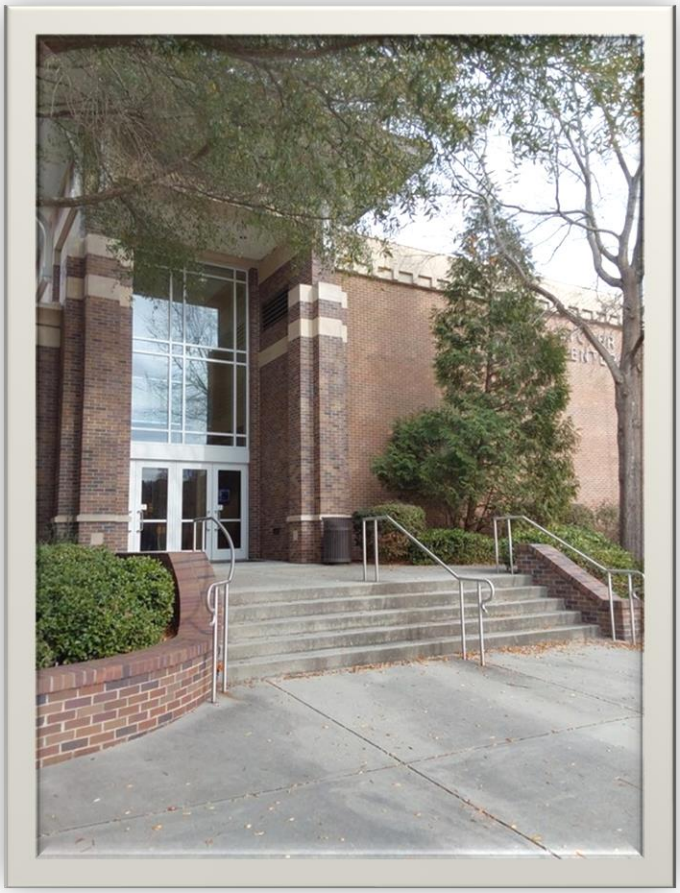
EAST CAROLINA UNIVERSITY

Facility Condition Assessment

Fletcher Music Center
Asset 009

Inspected January 10, 2023



ISES CORPORATION

TABLE OF CONTENTS

FACILITY CONDITION ASSESSMENT

SECTION 1

ASSET OVERVIEW

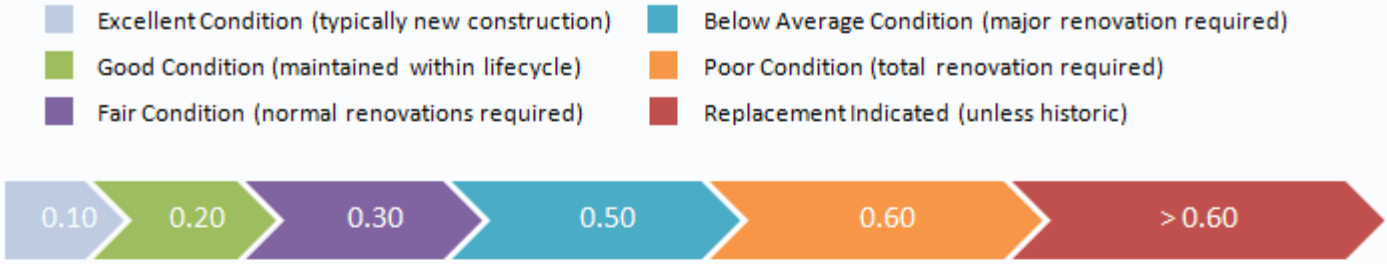
ASSET EXECUTIVE SUMMARY

All costs shown as Present Value

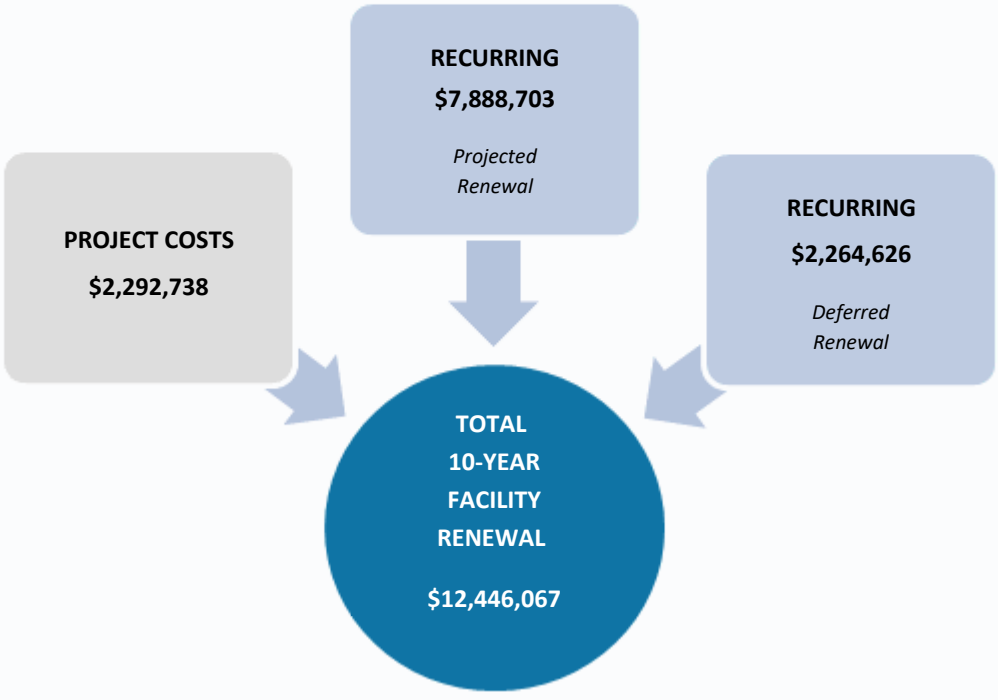
ASSET CODE	009	**CURRENT REPLACEMENT VALUE**	$29,204,000
ASSET NAME	FLETCHER MUSIC CENTER	**FACILITY CONDITION NEEDS INDEX**	0.43
ASSET USE	Classroom / Academic	**FACILITY CONDITION INDEX**	0.08
YEAR BUILT	1966	**10-YEAR $/SF**	211.13
GSF	58,950		
INSPECTION DATE	01/10/2023		

FCNI Scale

The FCNI for this asset is **0.43**



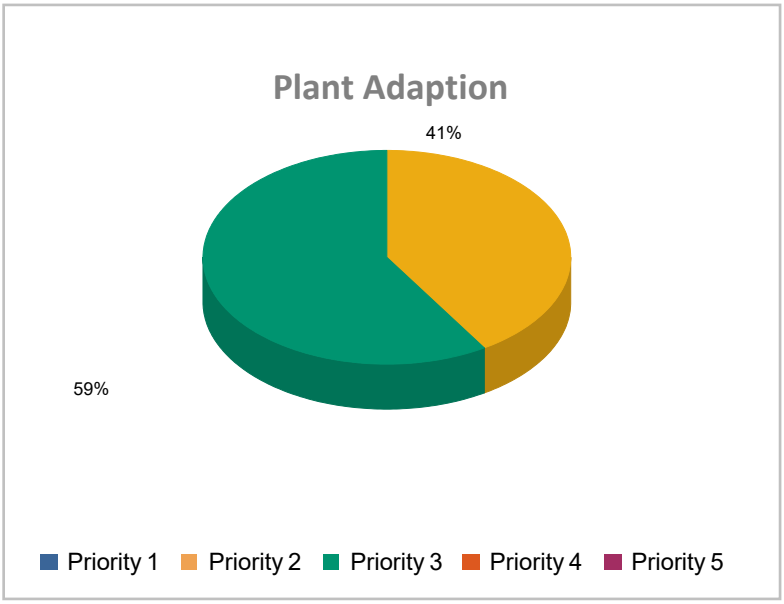
Total Facility Renewal Costs



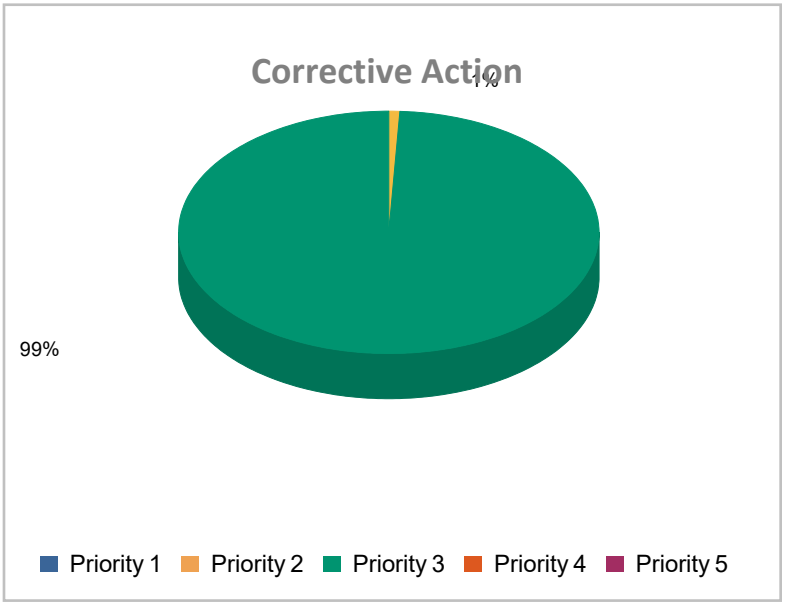
Project Costs

Project Cost by Priority

PLANT ADAPTION	
Priority 1	**$0**
Priority 2	**$555,566**
Priority 3	**$796,782**
Priority 4	**$0**
Priority 5	**$0**

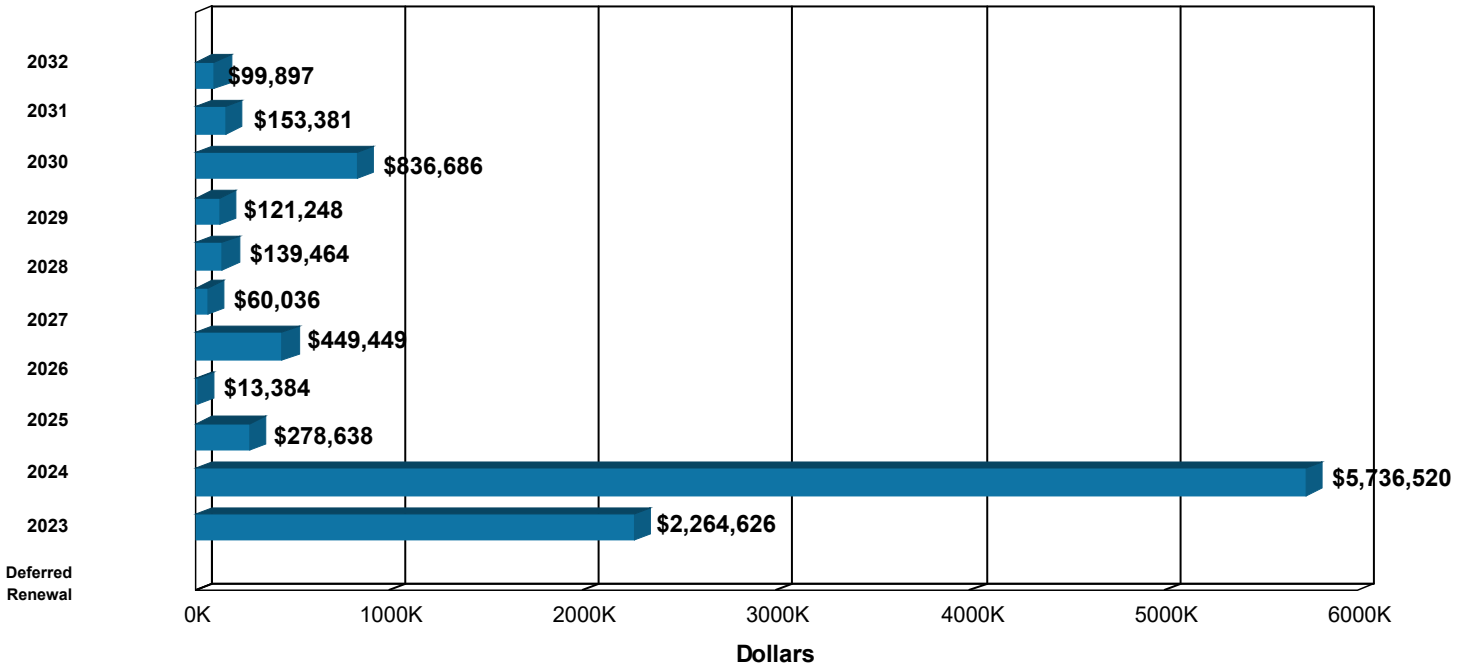


CORRECTIVE ACTION	
Priority 1	**$0**
Priority 2	**$6,866**
Priority 3	**$933,525**
Priority 4	**$0**
Priority 5	**$0**

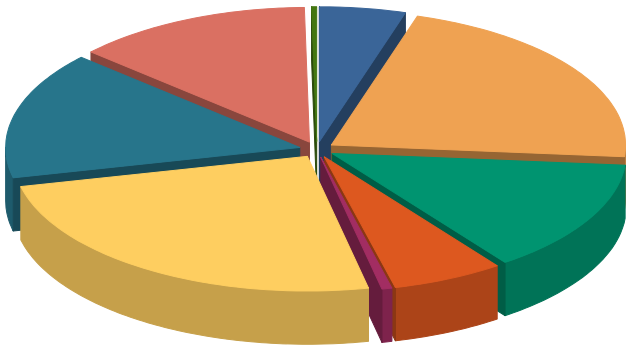


Recurring Costs

Component Replacement Cost by Year



Facilities Renewal Cost by System



Accessibility	$602,999	5%
Electrical	$2,677,314	22%
Exterior	$1,684,720	14%
Fire/Life Safety	$772,335	6%
Health	$63,236	1%
HVAC	$3,089,104	25%
Interiors	$1,881,522	15%
Plumbing	$1,645,683	13%
Site	$29,155	0.2%
Vert. Trans.	$0	0%
Security	$29,155	0.0%
TOTAL	**$12,446,067**	

ASSET SUMMARY

Fletcher Music Center on the East Carolina University campus was constructed in 1966 and added onto in 2006. This modern style facility has three stories and a reinforced concrete slab foundation. The 1966 section is a rectangular three-story structure. The 2006 section has three rehearsal halls and a formal recital hall with fixed seating. Totaling 58,950 gross square feet, the facility is predominately utilized as music rehearsal and recital space and also includes classrooms, practice rooms, and offices.

Information for this report was gathered during a site visit conducted on January 10, 2023.

Site

The building sits on a flat parcel of land. Landscaping consists of ornamental planting beds, shrubbery, specimen trees, and areas of turf. Vehicular access is from the south via Tenth Street. The building is served by two small parking lots to the east and south. The parking lots require sealcoating and restriping, as well as some crack sealing to prevent further degradation. Pedestrian concrete walkways will require routine joint maintenance.

Exterior Structure

The flat roof structure is covered with a modified bitumen system. Additionally, there are architectural accent shed roofs with flat terracotta tile at the south and west elevations and elevated portions of the older roof with insulated concrete panels. The existing stress conditions around the seams and at the perimeter flashing of the modified bitumen roofs will lead to failure if left unattended. It is recommended that the modified bitumen roofing system on the older portions of the building be replaced with a similar application including the flashing. The newer modified bitumen portion will need replacement in six to eight years. A roof hatch on the older portion of the modified bitumen roof also needs to be replaced.

The exterior is brick veneer with stone accents. While the brick and stone are fundamentally sound, exposure to the elements has caused some deterioration of the mortar and expansion joints. Cleaning, surface preparation, selective repairs, and applied finish or penetrating sealant upgrades are recommended to restore the aesthetics and integrity of the building envelope. There are also multiple areas with efflorescence and grime that require a light chemical treatment and power washing.

The 1966 section of the building has aluminum-framed window systems with single-pane glazing. The 2006 section has energy-efficient thermal glazing. It is recommended that the single-pane, aluminum-frame windows be upgraded to thermal-pane systems, which will reduce the energy required to operate the building. Repair or replacement of the windowsills and trim may also be necessary. The exterior aluminum storefront doors and power operators will reach the end of their service life in ten years and require replacement. The hollow-metal doors should outlast the scope of this report.

Interior Finishes/Systems

The wall finishes are generally painted sheetrock, with insulated acoustical material lining the practice rooms. The interior walls are in fair condition, with minor damage and finish discoloration. Ceilings are a combination of painted sheetrock and suspended, acoustical tile systems. They are also in fair condition, with minor areas of damaged tile and discoloration. Floors are typically carpet, vinyl tile, or ceramic tile. The stage in the recital hall has hardwood flooring that is in overall good condition with no recommendations.

Both the older and newer loom carpets are due for near-term replacement. The ceramic tile in the restrooms is also due for replacement along with refinishing of the terrazzo floor in the north lobby. The stained and sealed concrete floors should be refinished in the next year along with replacement of the older vinyl tile. The newer vinyl tile should be replaced in the next five to six years. The older acoustical ceiling tiles need to be replaced and the painted gypsum, concrete, and steel ceilings will need to be repainted in ten years. A small portion of the acoustical ceiling tiles in OB123 is also water damaged and needs to be repaired and replaced in the near term. All of the interior painted walls are due for repainting.

The interior nonrated doors of the north wing are old and should be replaced in the near term. The newer interior doors should outlast the scope. The interior knob hardware is addressed in the Accessibility section. The recital hall seating appears to be new and is in good condition with proper ADA seating designated. The wood instrument storage cabinetry is worn out and should be replaced. The newer partitions in the restrooms will need to be replaced in four years, but those in the older recital lobby restrooms are overdue for upgrade.

Accessibility

ADA-compliant parking spaces in the south lot lead to curb cuts and a sidewalk system serving all entrances. The ADA parking space is missing a curb ramp and will require a new one.

Current accessibility legislation requires that building entrance wheelchair ramps have handrails. The south entrance wheelchair ramp does not have handrails or an intermediate landing. To comply with the intent of this legislation, it is recommended that an intermediate landing be installed at this location and that compliant painted metal handrails be installed at all entrances as required. The east entrance ramp is also wide enough to require an additional intermediate handrail.

The men’s and women’s restrooms on the second and third floors are partially ADA compliant, and the new set of restrooms on the first floor outside the recital hall is fully ADA compliant. The overall level of restroom accessibility is fair, but short of full compliance with modern accessibility legislation. The restrooms in the north wing of the building require a complete remodel of existing stalls and fixtures. Installation of power door operators is also recommended, along with ADA-compliant signage.

The formal recital hall does not provide wheelchair access to the stage area. In order to provide adequate access, it is recommended that a wheelchair lift be installed at the stage. Also, it is recommended that ADA-compliant, painted metal handrails be installed as they are lacking at the

ramps. As listening assist devices are not present, it is recommended that an inductive loop or infrared system be installed to meet ADA legislation.

The stairs have older rubber treads and painted metal railing and the tread finishes on the fire stairs are old and do not have the proper gripping ability for safety. Current accessibility legislation requires that stairs have graspable handrails on both sides, that the rails have a specific end geometry, and that the handrails continue horizontally at the landings. In addition, guardrails must prevent the passage of a four-inch diameter sphere (six inches in the triangle formed by the lower rail and tread/riser angle). The stair railing systems should be replaced and treads upgraded. Additionally, the stage stairs and the loading area stairs do not have proper handrails on either side. It is recommended that compliant handrails and guardrails be installed in these areas.

There are a number of single-level drinking fountains on each floor that are a barrier to accessibility. All single-level drinking fountains should be replaced with dual-level, refrigerated units. Many of the interior doors have older knob hardware which is a barrier to accessibility. It is recommended that all knob hardware be replaced with lever actuated hardware.

Health

Asbestos-containing materials (ACMs) are suspected to exist in the 9x9 vinyl tile flooring. Prior to replacing these systems, the ACMs should be properly investigated and abated.

Fire/Life Safety

The lack of parapet walls on the older portions of the roof requires the installation of dispersed roof tie-off davits to ensure the safety of workers. Additionally, install compliant guardrails around all of the roof hatches. The roof ladder leading to the stage roof is unprotected by a safety cage. Installation of a safety cage is recommended to ensure worker safety.

This facility is protected by a central fire alarm system with the point addressable fire alarm control panel (FACP) in the main lobby that was updated in 2022. The devices that serve this system include manual pull stations, audible/visible devices, and smoke detectors. The system is adequate and in proper working condition, but the devices in the 2006 addition will require renewal in the next five years. The remaining devices in the original portion of the facility were updated in 2022.

The 2006 addition of this facility is protected by an automatic, comprehensive, wet-pipe sprinkler system. With proper testing and maintenance, the fire system and components will outlast the scope of this report. However, it is recommended that the original three-story portion of the building be equipped with a dedicated fire suppression system.

HVAC

This facility is on the campus steam loop. Hot water is generated via a steam-to-water heat exchanger, and hot water is circulated as the heating medium. The cooling medium is supplied by the campus chilled water loop, which was introduced to the facility in 2006.

The main incoming steam is delivered to a central pressure reducing station that is equipped with multiple pressure reducing valves and associated safety relief valve in mechanical room A124. This equipment is currently serviceable but will require renewal within the next ten years. The shell-and-tube heat exchanger was installed in 2006. Four central heating water pumps and one central chilled water pump are also in mechanical space A124. This equipment is currently in proper working condition. It is however recommended that the five pumps and the variable speed drives that serve heating water pumps HWP-1 and HWP-2 and the chilled water pump be considered for renewal in the next ten years due to age.

The original three-story section is served by a dual duct, forced-air HVAC system. The air handling units have hot water heating and chilled water-cooling coils. The ventilation system delivers 100 percent outside air to specific interior spaces. The air distribution network furnishes some constant volume air to the occupied spaces. Steam reheat coils are mounted in the duct. Air is returned via hallways and ductwork linking each floor to the air handlers on the ground floor. Air handlers 1 and 2 are original but have been retrofitted with modern supply fan wall systems served by variable frequency drives (VFD). This update occurred in 2012. An additional original air handler, AHU-3, is in room C208. The condensate drain pan systems in AHU-1, 2, and 3 as well as the piping in units 2 and 3 were repaired/replaced in the last five years. While this equipment is currently serviceable and has been subject to major reinvestment, it will again reach the end of statistical service life within the purview of this report period and should be considered for replacement. In addition, the dual duct constant volume system is largely aged and inefficient. The metal ductwork showed areas of repair and the local reheat coils are aged. It is recommended that the HVAC system for the original, three-story portion of the facility be updated to include a more efficient design that mirrors that of the 2006 addition.

The portion of the facility that was added in 2006 is served by a forced-air HVAC system with single-zone, air handling units. The air handling units have hot water heating coils and chilled water-cooling coils. The ventilation system delivers 100 percent outside air to all of the interior spaces. The air distribution network furnishes variable air volume (VAV) to the occupied spaces. Hot water reheat coils are mounted in the duct. Two air handlers identified as AHU-4 and AHU-5 are equipped with variable speed drives, electric humification, and dedicated inline return fans. An additional air handler was reported to be in room B136E but was not accessible at the time of inspection. The VAV distribution system, air handlers, and return fans have remaining life. It will be necessary to update most of the VFDs and the electric humidifiers due to age.

The controls for the HVAC system throughout the facility are a hybrid design that utilizes direct digital control manufactured and designed by Trane as well as pneumatic actuation. A comprehensive effort has been made to update the central and local control panel system and software. Additionally, more modern Belimo electronic damper and valve actuation was observed throughout both portions of the building. The modernization also included the update of the central station air compressor, associated refrigerated air dryer, and percentage of local thermostats. While this modernization has greatly

improved the efficiency and reliability of the HVAC system, reinvestment will be required in the next ten years due to technological obsolescence and the age of the control components.

Additional components that serve the central HVAC systems include condensate return systems, expansion tanks, and an air separator. While this equipment is currently in proper working condition, the two duplex condensate return systems will require renewal due to age and condition.

Supplemental HVAC in the music library areas is provided by split systems that utilize DX cooling and heat and are controlled with electronic thermostats. This system is installed to provide the library areas with cooling during turndown times of the year when the central chilled water system is not in use. An additional ductless system is installed to provide cooling to the elevator machine room. Hydronic unit heaters were observed in select areas such as mechanical spaces and the main fire riser room. This equipment is all in proper working condition but the split systems serving the library are recommended for renewal due to age.

Facility exhaust in some mechanical spaces is achieved with standard, through wall type exhaust fans that are in proper working condition. There are no recommendations for these fans.

Electrical

An oil-filled transformer rated for 500-kVA service steps the incoming power down from 12,470 to 277/480 volts. This transformer has been assessed as part of a comprehensive, campus wide high voltage electrical distribution report.

The electrical distribution network is a dual-voltage configuration. 277/480 volt power is distributed to branch transformers that step the power down to 120/208 volts. The lighting and major mechanical systems are supported by the 277/480-volt circuit. Most of the system was installed in 1966. A 300-amp main switchboard was observed in room A124. The secondary electrical panels for the original portion of the building were manufactured predominantly by General Electric. The 2006 addition is served primarily by Square D products. Overall, the majority of the facility is served by an aging and deficient electrical distribution system. The original 300-amp switchboard and secondary electrical equipment in the original portion of the building is recommended for renewal. It is also recommended that the main switchboard be upsized. The aged motor control center in room A124 is also recommended for renewal due to age.

Power for the emergency circuits is provided from an exterior, diesel-fired emergency generator that is rated for 110 kW. Two automatic transfer switches in room B135 support the emergency power system. The equipment did not reveal any observable deficiencies and was reported to be operationally reliable and well maintained. There are no recommendations.

Interior lighting includes a combination of recessed, pendant, and surface-mounted fixtures. Most of the lighting system was subject to an energy retrofit which included the installation of more modern, energy-efficient LED lamp packs. Occupancy sensors were observed in some select spaces but some less efficient fluorescent lighting with T12 lamps are located in mechanical and storage spaces. The interior lighting is currently serviceable but will require renewal within the next ten years due to age.

The exterior is illuminated by recessed, wall, ceiling, and pole-mounted fixtures. LED and HID lamps were observed. The lighting is currently serviceable but will require renewal in the next ten years due to age and condition.

Plumbing

Potable water is distributed throughout this facility via an insulated, copper piping network. Sanitary waste and stormwater piping is cast-iron construction in the original portion of the building and cast-steel in the 2006 addition. The supply and drain piping networks in the original portion of the building are recommended for renewal due to age. Multiple backflow prevention devices were observed for the potable, irrigation, and fire water systems. These devices are currently serviceable but all six inspected will reach the end of their statistical service life in the next ten years and are recommended for renewal.

Domestic water is heated by an aged heat exchanger that utilizes steam. This unit has served beyond its expected lifecycle. The insulation is damaged in areas and moderate corrosion was observed. It is recommended that this unit be replaced.

The lavatory counters in the newer restrooms will need to be replaced within ten years. The custodial mop sink is currently overdue for replacement as well.

Vertical Transportation

This facility is provided vertical transportation by a hydraulic elevator system that has a passenger car rated for a 3,500 pound capacity. This three-stop elevator car and hydraulic machine are in proper working condition with no recommendations at this time.

Note: The renewal needs outlined in this report were identified from the visual inspection and staff interviews. Our professional architectural and engineering inspectors examined the accessible equipment and various building components to determine what repairs or modifications may be necessary to restore the systems and asset to an acceptable condition, or to a level defined by the Client. The estimated costs represent correction of existing deficiencies and anticipated lifecycle failures within a ten-year period. These recommendations are to bring the facility to modern standards without any anticipation of change to facility space layout or function. The total costs include variable project delivery costs as determined by the Owner. The costs developed do not represent the cost of a complete facility renovation. Soft costs not represented in this report include telecommunications, security, furniture, window treatment, space change, program issues, relocation, swing space, contingency, or costs that could not be identified or determined from the visual inspection and available building information.

INSPECTION TEAM DATA

Report Development

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Date of Inspection

January 10, 2023

Inspection Team Personnel

NAME	POSITION	SPECIALTY
Rob Camperlino	Facility Assessor	Mechanical, Electrical, Plumbing, Energy, Fire/Life Safety, Health
Noah Porter	Project Architect	Interior Finishes, Exterior Structure, ADA Compliance, Site, Fire/Life Safety, Health

Client Contact

NAME	POSITION
Griffin L. Avin, CEFP	Director of Facilities Services, Health Sciences Campus Chief Sustainability Officer

DEFINITIONS

The following information is a clarification of the Facility Condition Assessment report using example definitions.

Overview

Recurring and Nonrecurring Facility Renewal Costs

Facility renewal costs are divided into two main categories – recurring and nonrecurring. Recurring costs are cyclical and consist primarily of major repairs to or replacement/rebuilding of facility systems and components (e.g., roof or HVAC system replacement at or past the end of its normal useful life). The tool for projecting the recurring renewal costs is the Renewable Component Inventory, which is explained in detail below. Nonrecurring costs typically consist of modifications or repairs necessary to comply with fire/life safety or accessibility code requirements or to address isolated, nonrecurring deficiencies that could negatively affect the structure of the facility or the systems and components within. For these nonrecurring costs, projects have been developed and include estimated material and labor costs.

Facility Condition Needs Index (FCNI)

The FCNI provides a lifecycle cost comparison. It is a ratio of the sum of the recurring and nonrecurring renewal costs over ten years to the current replacement value of the asset. The current replacement value is based on replacement with current construction standards for the facility use type, and not original design parameters. This index gives the university a comparison within all buildings for identifying worst case/best case building conditions.

$$\text{FCNI} = \frac{\text{Nonrecurring Projects + 10-Year Recurring Component Renewal}}{\text{Current Replacement Value}}$$

Facility Condition Index (FCI)

The FCI is a ratio of the Deferred Renewal costs to the current replacement value.

$$\text{FCI} = \frac{\text{Deferred Renewal}}{\text{Current Replacement Value}}$$

Material and Labor Cost Factors and Additional Markups

The project costs are adjusted from the national averages to reflect conditions in Greenville using the R. S. Means City Cost Index for material and labor cost factors. The percentage adjustment of the national average is shown in the table below. Also included in the renewal costs are the construction markup (general contractor profit and overhead, construction management, permitting, accounting, site security, insurance, bonds, sales tax, institutional fees, site utilities, refuse fees, and insurance) and professional fees (architect or engineer design fees and in-house design costs).

GLOBAL MARKUP	%
Local Labor Index	71.3
Local Materials Index	100.7
Construction Markup	20.0
Professional Fees	16.0

Recurring Costs

Renewable Component Inventory and Cost Projections

The Renewable Component Inventory (starting on page 4.1.1) is based on industry standard lifecycle expectancies applied to an inventory of major systems and components within a facility. Each indicated component has the following associated information:

CATEGORY	DESCRIPTION
Component Code	A four-digit code assigned by AMS to the component
Component Description	Description of the individual component
Identifier	Identifying information can be entered as necessary.
Customer ID	Customer-provided equipment ID number
Location	The location of each component can be entered if applicable.
Quantity	The quantity of the listed component
Units	The unit of measure associated with the quantity
Complexity Factor	Adjusts the component replacement costs when it is anticipated that the actual cost will deviate from the average for that component
Total Cost	The unit cost multiplied by quantity, in today's dollars (note that this is a one-time renewal/replacement cost)
Install Date	This is the year that the component was or is estimated to have been installed. When this data is not available, the default is the year the asset was constructed.
Useful Life	Average life expectancy of the component
Useful Life Adjustment	An optional adjustment that lengthens or reduces the first lifecycle of the component
Replacement Year	Expresses when the next replacement should occur and is the sum of the install date, useful life, and any useful life adjustment

The component listing forms the basis of the Recurring Costs by Year report, which provides a year-by-year list of projected recurring renewal costs (in future year dollars) over the next ten years. Each individual component is assigned a replacement year based on lifecycles. For items already past the end of their lifecycle, the replacement year is shown as Deferred Renewal.

For a longer term perspective, the Recurring Component Expenditure Projections Graph presents recurring renewal cost projections over a 50-year period (starting from the date the report is run) based on each individual item's renewal cost and life span. Some components might require renewal several times within the 50-year model, while others might not occur at all. The vertical bars on the graph represent the accumulated total costs for each individual year. The average annual cost per gross square foot ($/GSF) is shown at the bottom of the graph. In this calculation, costs are not escalated. This figure can be utilized to assess the adequacy of existing capital renewal and repair budgets.

Recurring Cost Classifications

- Deferred Renewal
  Recurring repairs, generated by the Renewable Component Inventory, that are past due for completion and have not yet been accomplished as part of normal maintenance or capital repair efforts. Further deferral could impair the proper functioning of the facility. Deferred Renewal upgrades should include compliance with applicable codes, even if such compliance requires expenditures beyond those essential to effect the needed repairs.

- Projected Renewal
  Recurring renewal efforts, generated by the Renewable Component Inventory, that will be due within the scope of the assessment. These are regular or normal facility maintenance, repair, or renovation efforts that should be planned in the near future.

Nonrecurring Costs

As previously mentioned, modifications or repairs necessary to comply with fire/life safety or accessibility code requirements and those that address isolated, nonrecurring deficiencies that could negatively affect the structure of the facility or the systems and components within are not included in the Renewable Component Inventory. For each such deficiency identified during the facility inspection, a project with an estimated cost to rectify said deficiency is recommended. These projects each have a unique identifier and are categorized by system type, priority, and classification, which are defined below. The costs in these projects are also indexed to local conditions and markups applied as the situation dictates.

Project Number

Each project has a unique number consisting of three elements, the asset identification number, system code, and a sequential number assigned by the FCA software. For example, the third fire/life safety project identified for asset 0001 would have a project number of 0001FS03 (0001 for the asset number, FS for fire/life safety, and 03 being the next sequential number for a fire/life safety project).

Project Classifications

- Plant Adaption
  Nonrecurring expenditures, stored in the Projects module, required to adapt the physical plant to the evolving needs of the institution and to changing codes or standards. These are expenditures beyond normal maintenance. Examples include compliance with changing codes (e.g., accessibility), facility alterations required by changing teaching or research methods, and improvements occasioned by the adoption of modern technology (e.g., the use of personal computer networks).

- Corrective Action
  Nonrecurring expenditures, stored in the Projects module, for repairs needed to correct random and unpredictable deficiencies. Such projects are not related to aligning a building with codes or standards. Deficiencies classified as Corrective Action could have an effect on building aesthetics, safety, or usability.

Priority Classes

Recurring renewal needs do not receive individual prioritization, as the entire data set of needs in this category is year-based. Each separate component has a distinct need year, rendering further prioritization unnecessary. Each nonrecurring renewal project, however, has a priority assigned to indicate the criticality of the recommended work. The prioritization utilized for this subset of the data is as follows.

- Priority 1 – High

  Items in this category include:

  a. correcting a cited safety hazard
  b. stopping accelerated deterioration
  c. returning a facility to normal operation

- Priority 2 – Medium

  Items in this category include:

  a. repairs to prevent further deterioration
  b. improvements to facility approach/entry and access to goods and services (DOJ ADA title III, priorities 1 and 2)
  c. correction of potential safety hazards

- Priority 3 – Low

  Items in this category include:

  a. improving access to restrooms and other amenities (DOJ ADA title III, priorities 3 and 4)

  b. bringing a facility into compliance with current building codes as grandfather clauses expire

  c. increasing usability following an occupancy or use change

  d. actions that are recommended but not required by code

Project Subclass

Subclass ratings are assigned to accessibility upgrade activities based on the four Department of Justice priority rankings recommended by the Title III regulations for planning readily achievable barrier removal projects. These ratings are:

- DOJ1 Accessible approach and entrance
- DOJ2 Access to goods and services
- DOJ3 Access to restrooms
- DOJ4 Any other necessary measures

Category Codes

CATEGORY CODE*	SYSTEM DESCRIPTION
AC1A – AC4B	ACCESSIBILITY
EL1A – EL8A	ELECTRICAL
ES1A – ES6E	EXTERIOR STRUCTURE
FS1A – FS6A	FIRE/LIFE SAFETY
HE1A – HE7A	HEALTH
HV1A – HV8B	HVAC
IS1A – IS6D	INTERIOR FINISHES/SYSTEMS
PL1A – PL5A	PLUMBING
SI1A – SI4A	SITE
VT1A – VT7A	VERTICAL TRANSPORTATION

Example: **Category Code = EL5A**	
EL	System Description
5	Component Description
A	Element Description

Priority Sequence

A Priority Sequence number is automatically assigned to each project to rank the projects in order of relative criticality and show the recommended execution order. This number is calculated based on the Priority Class and identified system of each project.

Example			
Priority Class	**Category Code**	**Project Number**	**Priority Sequence**
1	HV2C	0001HV04	01
1	PL1D	0001PL02	02
2	IS1E	0001IS06	03
2	EL4C	0001EL03	04

Drawings

Floor plans for this facility are provided as a reference.

Photographs

A code shown on the Photo Log identifies the asset number, photo sequence, and a letter designation for architect (a) or engineer (e).

Example: **Photo Number: 0001006e**	
0001	Asset Number
006	Photo Sequence
e	Engineering Photo

Sustainability/Energy Analysis

Energy/resource conservation measures (ECMs) are recommendations that will reduce resource consumption or the rate of growth in consumption. Examples include improving the efficiency of an HVAC system (e.g., digital motor speed controls, exhaust energy recovery, retrocommissioning) or directly reducing the consumption of a resource (e.g., low flow plumbing fixtures, high-efficiency lighting, or structural insulation improvement). Where significant conservation opportunities are evident for this facility, ECMs are identified and tabulated in Section 7 as a basis for further viability investigation.

FACILITY CONDITION ASSESSMENT

SECTION 2

COST SUMMARIES AND TOTALS

RENEWAL NEEDS MATRIX

All dollars shown as Present Value

CATEGORY	NONRECURRING PROJECT NEEDS			RECURRING COMPONENT REPLACEMENT NEEDS											
	Immediate	Critical	Noncritical	Deferred Renewal	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	TOTAL
ACCESSIBILITY	0	533,934	69,065	0	0	0	0	0	0	0	0	0	0	0	$602,999
EXTERIOR	0	0	923,748	664,151	0	0	0	10,508	0	0	53,521	5,706	27,085	0	$1,684,720
INTERIOR	0	0	751	1,484,734	0	0	0	118,121	0	0	0	277,914	0	0	$1,881,522
PLUMBING	0	0	0	2,158	1,459,220	177,410	4,079	0	0	0	0	0	2,816	0	$1,645,683
HVAC	0	3,883	0	0	2,205,421	10,341	0	93,018	0	0	0	553,065	123,480	99,897	$3,089,104
FIRE/LIFE SAFETY	0	24,614	664,481	0	0	83,240	0	0	0	0	0	0	0	0	$772,335
ELECTRICAL	0	0	0	103,519	2,071,880	7,647	9,305	227,801	60,036	129,399	67,726	0	0	0	$2,677,314
SITE	0	0	9,026	10,065	0	0	0	0	0	10,065	0	0	0	0	$29,155
VERT. TRANS.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0
HEALTH/EQUIP.	0	0	63,236	0	0	0	0	0	0	0	0	0	0	0	$63,236
SUBTOTAL	$0	$562,431	$1,730,307	$2,264,626	$5,736,520	$278,638	$13,384	$449,449	$60,036	$139,464	$121,248	$836,686	$153,381	$99,897	$12,446,067
TOTAL NONRECURRING PROJECT NEEDS			$2,292,738	TOTAL RECURRING COMPONENT REPLACEMENT NEEDS										$10,153,329	

CURRENT REPLACEMENT VALUE	$29,204,000
FACILITY CONDITION NEEDS INDEX	0.43
FACILITY CONDITION INDEX	0.08

GSF	TOTAL 10-YEAR FACILITY RENEWAL NEEDS	10-YEAR NEEDS/SF
58,950	$12,446,067	$211.13

RENEWAL NEEDS BY SYSTEM

All costs shown as Present Value

CATEGORY	NONRECURRING PROJECT COSTS	RECURRING COMPONENT REPLACEMENT COSTS	TOTAL 10-YEAR FACILITY RENEWAL COSTS
ACCESSIBILITY	$602,999	$0	$602,999
EXTERIOR	$923,748	$760,972	$1,684,720
INTERIOR	$751	$1,880,770	$1,881,522
PLUMBING	$0	$1,645,683	$1,645,683
HVAC	$3,883	$3,085,221	$3,089,104
FIRE/LIFE SAFETY	$689,095	$83,240	$772,335
ELECTRICAL	$0	$2,677,314	$2,677,314
SITE	$9,026	$20,129	$29,155
VERT. TRANS	$0	$0	$0
HEALTH	$63,236	$0	$63,236
TOTALS	**$2,292,738**	**$10,153,329**	**$12,446,067**

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	STATIONARY STOREFRONT		NORTH WING	B2010	Deferred Renewal	202,258
009	WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	OPERABLE PANEL		NORTH WING	B2010	Deferred Renewal	301,323
009	RR07	ROOF - BITUMINOUS, 2-PLY, APPLIED MODIFIED BITUMEN, TORCH	OLD MOD BIT	10575	ROOF	B3010	Deferred Renewal	160,570
009	IW14	TOILET PARTITION WITH ACCESSORIES	OLD LOBBY		OB108, OB109	C1010	Deferred Renewal	12,543
009	IW15	URINAL PARTITION WITH ACCESSORIES	OLD LOBBY		OB108	C1010	Deferred Renewal	585
009	DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD NRTD ALUM DOORS		278	C1020	Deferred Renewal	10,424
009	DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD RESTROOM DOORS		116A, 117, 284B, OA273, 0A381, OA370	C1020	Deferred Renewal	15,635
009	DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD WD DOORS		NORTH WING	C1020	Deferred Renewal	52,118
009	DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	OLD CORRIDOR DOORS		NORTH WING CORRIDORS	C1020	Deferred Renewal	819,140
009	CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	WOOD STORAGE CABINETS		ROOM 129	C1030	Deferred Renewal	32,459
009	IW01	WALL FINISH - PAINT, STANDARD	STD PAINT		MOST AREAS	C3010	Deferred Renewal	176,925
009	IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	NEW LOOM		OB113, OB101, 0C107	C3020	Deferred Renewal	65,155
009	IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	OLD LOOM		OA38	C3020	Deferred Renewal	65,155
009	IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	OLD ACM 9X9		MOST AREAS IN NORTH WING, STAIRTOWERS	C3020	Deferred Renewal	155,226

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	IF08	FLOORING - TILE, CERAMIC / STONE / QUARRY ECONOMY	1X TILE		116A, 117, 284B, OA273, 0A381, OA370	C3020	Deferred Renewal	56,527
009	IF09	FLOORING - TERRAZZO RESURFACE	WHITE TERRAZZO		101	C3020	Deferred Renewal	16,294
009	IF15	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL	SEALED CONCRETE		LOADING AREA	C3020	Deferred Renewal	333
009	IF15	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL	STAINED & SEALED CONCRETE		OB101	C3020	Deferred Renewal	6,215
009	FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	IN GROUND SINK		OC107C	D2010	Deferred Renewal	2,158
009	SG01	MAIN SWITCHBOARD W/BREAKERS (<400 AMP)	MAIN SWITCHBOARD		A124	D5010	Deferred Renewal	103,519
009	SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE	ASPHALT		SOUTH, EAST ELEVATIONS	G2020	Deferred Renewal	10,005
009	SI01	CONCRETE PEDESTRIAN PAVING - JOINT MAINTENANCE			SOUTH, WEST ELEVATIONS	G2030	Deferred Renewal	60
009	PS02	SUPPLY PIPING SYSTEM - CLASSROOM	INSULATED COPPER		ORIGINAL BUILDING	D2020	2023	581,283
009	PD02	DRAIN PIPING SYSTEM - CLASSROOM	GALVANIZED STEEL		ORIGINAL BUILDING	D2030	2023	877,937
009	AH06	AIR HANDLING UNIT - INDOOR (6-9 HP)	FMUS-AHU-003	10583	C208	D3040	2023	64,975
009	HV02	HVAC DISTRIBUTION NETWORKS - CLASSROOM	DUCT, PIPE, ASSEMBLIES		ORIGINAL BUILDING	D3040	2023	1,919,529
009	PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	FMUS-CRS-001	10591, 10604, 10607	A124	D3040	2023	35,811
009	BA02	HVAC CONTROLS - TERMINAL ASSEMBLIES - CLASSROOM	MIXING TERMINALS			D3060	2023	185,105

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	MC02	MOTOR CONTROL CENTER VERTICAL SECTION, 600V (400-600A) W/STARTERS	MOTOR CONTROL CENTER		A124	D5010	2023	111,278
009	SE02	ELECTRICAL DISTRIBUTION NETWORK - CLASSROOM	SECONDARY ELECTRIC		ORIGINAL BUILDING	D5010	2023	1,315,808
009	TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-003	10625	A125	D5010	2023	10,613
009	LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	CEILING HID		EXTERIOR, LOADING AREA	D5020	2023	1,412
009	LI02	LIGHTING SYSTEM, INTERIOR - CLASSROOM	ORIGINAL LIGHTING		ORIGINAL BUILDING	D5020	2023	632,769
009	BF02	BACKFLOW PREVENTER (1-2 INCHES)	IRRIGATION BF	WILKENS	EXTERIOR	D2020	2024	2,816
009	BF04	BACKFLOW PREVENTER (3-4 INCHES)	MAIN DW BACKFLOW		EXTERIOR	D2020	2024	42,199
009	BF04	BACKFLOW PREVENTER (3-4 INCHES)	MAIN DW BACKFLOW	WATTS SERIAL#211830	EXTERIOR	D2020	2024	42,199
009	WH28	WATER HEATER - SHELL & TUBE (93-105 GPM)	DW HEATER		A124	D2020	2024	90,197
009	HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	MINI SPLIT LIBRARY #1	23932	EXTERIOR, A110	D3030	2024	5,170
009	HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	MINI SPLIT LIBRARY #2	23933	EXTERIOR, A110	D3030	2024	5,170
009	FA02	FIRE ALARM SYSTEM - DEVICES	DETECTORS, NOTIFIERS, PULL BOXES	10587	2006 ADDITION	D4030	2024	83,240
009	VF02	VARIABLE FREQUENCY DRIVE (5-7.5 HP)	HWP-1		A124	D5010	2024	3,824
009	VF02	VARIABLE FREQUENCY DRIVE (5-7.5 HP)	HWP-2		A124	D5010	2024	3,824
009	BF01	BACKFLOW PREVENTER (<=1 INCH)	FMUS-BFP-002, DW	10588	A124	D2020	2025	1,263

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	BF02	BACKFLOW PREVENTER (1-2 INCHES)	FMUS-BFP-001	10590	A124	D2020	2025	2,816
009	VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	AHU-5 RETURN FAN		B135	D5010	2025	2,530
009	LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	RECESSED CAN		EXTERIOR	D5020	2025	6,775
009	DR28	DOOR OPERATOR, POWER-ASSIST	ANOD ALUM ASSIST	10639	SOUTH ELEVATION	B2030	2026	10,508
009	IW14	TOILET PARTITION WITH ACCESSORIES	NEW PARTITIONS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	C1010	2026	43,900
009	IW15	URINAL PARTITION WITH ACCESSORIES	NEW PARTITIONS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	C1010	2026	2,340
009	DR24	DOOR LOCK, COMMERCIAL-GRADE	ANOD ALUM ASSIST		SOUTH, WEST ELEVATIONS	C1020	2026	1,793
009	DR24	DOOR LOCK, COMMERCIAL-GRADE	ANOD ALUM		SOUTH, WEST ELEVATIONS	C1020	2026	3,586
009	IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	NEW 12X12 TILE		OB117	C3020	2026	66,503
009	AH46	HUMIDIFIER, ELECTRIC, POINT-OF-USE	AJF.AHU5.HMV		B135	D3040	2026	8,173
009	AH46	HUMIDIFIER, ELECTRIC, POINT-OF-USE	AJF.AHU4.HMV		B201	D3040	2026	8,173
009	PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	CONDENSATE RECOVERY SYSTEM	22072, 22073, 22074	A124	D3040	2026	53,716
009	RV01	SAFETY RELIEF VALVE	2 1/2 " STEAM RELIEF VALVE	22078	A124	D3040	2026	22,955

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	VF06	VARIABLE FREQUENCY DRIVE (20-25 HP)	AHU-5 SUPPLY FAN		B135	D5010	2026	8,542
009	LI02	LIGHTING SYSTEM, INTERIOR - CLASSROOM	2006 ADDITIONAL LIGHTING		2006 ADDITION	D5020	2026	159,006
009	LI22	LIGHTING SYSTEM, INTERIOR - THEATER	RECITAL AND STAGE LIGHTING		C107, C107A	D5020	2026	60,253
009	TX24	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (9-30 KVA)	FMUS-TRA-005	10621	A380	D5010	2027	11,092
009	TX24	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (9-30 KVA)	FMUS-TRA-004	10622	A272	D5010	2027	11,092
009	TX27	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (75-112.5 KVA)	FMUS-TRA-008	10620	A272	D5010	2027	13,145
009	VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	AHU-4 RETURN FAN		B201	D5010	2027	1,265
009	LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	RECESSED FOOT LED		EXTERIOR	D5020	2027	1,976
009	LE04	LIGHTING - EXTERIOR, STANCHION LUMINAIRE, 12-FOOT	POLE MOUNTED LED		EXTERIOR	D5020	2027	13,136
009	LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	SURFACE LED		EXTERIOR	D5020	2027	8,329
009	TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-009	10627	B136E	D5010	2028	10,613
009	TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-001	10624	A124	D5010	2028	10,613
009	VF09	VARIABLE FREQUENCY DRIVE (40-50 HP)	AHU-1 FAN WALL		A124	D5010	2028	54,087
009	VF09	VARIABLE FREQUENCY DRIVE (40-50 HP)	AHU-2 FAN WALL		A124	D5010	2028	54,087
009	SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE	ASPHALT		SOUTH, EAST ELEVATIONS	G2020	2028	10,005

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	SI01	CONCRETE PEDESTRIAN PAVING - JOINT MAINTENANCE			SOUTH, WEST ELEVATIONS	G2030	2028	60
009	RR07	ROOF - BITUMINOUS, 2-PLY, APPLIED MODIFIED BITUMEN, TORCH	NEW MOD BIT	10575	ROOF	B3010	2029	53,521
009	VF05	VARIABLE FREQUENCY DRIVE (15-20 HP)	CHWP		A124	D5010	2029	67,726
009	RR29	ROOF HATCH - ACCESS	MODULAR STEEL		ROOF	B3020	2030	5,706
009	IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	OLD ACT		NORTH WING, STAIR TOWERS	C3030	2030	254,394
009	IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED CONCRETE		129	C3030	2030	2,344
009	IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED STEEL		OB110A	C3030	2030	7,059
009	IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED GYPSUM		116A, 117, 284B, OA273, 0A381, OA370	C3030	2030	14,117
009	AH13	AIR HANDLING UNIT - INDOOR (45-63 HP)	FMUS-AHU-001	10585	A124	D3040	2030	276,533
009	AH13	AIR HANDLING UNIT - INDOOR (45-63 HP)	FMUS-AHU-002	10582	A124	D3040	2030	276,533
009	DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ANOD ALUM ASSIST		SOUTH, WEST ELEVATIONS	B2030	2031	9,028
009	DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ANOD ALUM		SOUTH, WEST ELEVATIONS	B2030	2031	18,057
009	BF02	BACKFLOW PREVENTER (1-2 INCHES)	FMUS-BFP-003	10589	A124	D2020	2031	2,816
009	PH01	PUMP - ELECTRIC (<=10 HP)	HWP-3	22292	A124	D3040	2031	3,961
009	PH01	PUMP - ELECTRIC (<=10 HP)	HWP-4	22293	A124	D3040	2031	3,961

FACILITIES RENEWAL PLAN

RECURRING COMPONENT REPLACEMENT COSTS

All costs shown as Present Value

ASSET CODE	COMP CODE	COMPONENT	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	REPLACEMENT YEAR	REPLACEMENT COST
009	PH01	PUMP - ELECTRIC (<=10 HP)	FMUS-PMP-001, HWP-1	10602	A124	D3040	2031	9,903
009	PH01	PUMP - ELECTRIC (<=10 HP)	FMUS-PMP-002, HWP-2	10603	A124	D3040	2031	9,903
009	PH02	PUMP - ELECTRIC (10 - 15 HP)	FMUS-PMP-003, CHWP	10606	A124	D3040	2031	25,867
009	BA02	HVAC CONTROLS - TERMINAL ASSEMBLIES - CLASSROOM	VAV ASSEMBLIES			D3060	2031	69,885
009	HX09	PRESSURE REDUCING VALVE, STEAM SYSTEM (2")	FMUS-PRV-002, 45 TO 7 PSI	10608	A124	D3040	2032	5,376
009	HX09	PRESSURE REDUCING VALVE, STEAM SYSTEM (2")	FMUS-PRV-006, 75 TO 45 PSI	10609	A124	D3040	2032	5,376
009	BA25	HVAC CONTROLS - FIELD PANELS/OPS SOFTWARE - CLASSROOM	CONTROLS HARDWARE, SOFTWARE		BUILDING WIDE	D3060	2032	89,144
							TOTAL	**$10,153,329**

FACILITIES RENEWAL PLAN

NONRECURRING PROJECT COSTS

All costs shown as Present Value

PROJECT NUMBER	PROJECT TITLE	UNI-FORMAT	PRIORITY CLASS	PROJECT CLASSIFICATION	PROJECT COST
009AC01	BUILDING ENTRY ACCESSIBILITY UPGRADES	B2030	2	Plant Adaption	45,448
009AC02	INSTALL CURB RAMP FOR ADA PARKING	G2010	2	Plant Adaption	1,972
009AC04	AUDITORIUM ACCESSIBILITY UPGRADES	C1010	2	Plant Adaption	39,622
009AC05	INTERIOR DOOR ACCESSIBILITY UPGRADES	C1010	2	Plant Adaption	186,442
009AC06	RESTROOM ACCESSIBILITY UPGRADES	D2010	2	Plant Adaption	164,723
009AC07	INTERIOR STAIR UPGRADES	C2020	2	Plant Adaption	95,727
009FS02	ADD ROPE DAVITS TO SUPPORT WORKER FALL PROTECTION	B3010	2	Plant Adaption	17,583
009FS03	INSTALL COMPLIANT LADDER WITH SAFETY CAGE	C1010	2	Plant Adaption	165
009FS04	ROOF HATCH FALL PROTECTION	B3010	2	Corrective Action	6,866
009HV01	INSTALL DRIP PAN ABOVE SERVE RACK	D3090	2	Plant Adaption	3,883
009AC03	REPLACE SINGLE LEVEL DRINKING FOUNTAINS	C1010	3	Plant Adaption	69,065
009ES01	EXTERIOR MASONRY WALL RENEWAL	B2010	3	Corrective Action	916,496
009ES02	EXTERIOR WALL FINISH RENEWAL	B2010	3	Corrective Action	7,252
009FS01	FIRE SPRINKLER SYSTEM EXTENSION	D4010	3	Plant Adaption	664,481
009HE01	ASBESTOS ABATEMENT - INTERIOR FINISH SYSTEMS	F2020	3	Plant Adaption	63,236
009IS01	REPAIR ACOUSTICAL TILE CEILING SYSTEM	C3020	3	Corrective Action	751
009SI01	SITE PAVING RENEWAL	G2040	3	Corrective Action	9,026
				TOTAL	**$2,292,738**

FACILITY CONDITION ASSESSMENT

SECTION 3

NONRECURRING PROJECT DETAILS

All costs shown as Present Value

INSTALL COMPLIANT LADDER WITH SAFETY CAGE

Project Number:	009FS03	**Category Code:** FS5A	
Priority Sequence:	1		
Priority Class:	Medium	**System:**	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	**Component:**	EGRESS PATH
Date Basis:	2/13/2023	**Element:**	DESIGNATION

Code Application:		Subclass/Savings:	Project Location:
OSHA	1910.27	Not Applicable	Item Only: Floor(s) 1

Description

The vertical access ladder behind the stage lacks an OSHA-compliant safety cage and platform. Install a new ladder, cage, and platform to promote user safety and limit liability.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Vertical safety ladder with cage	LF	1	$65.20	$65	$74.08	$74	$139
Base Material/Labor Costs				**$65**		**$74**	
Indexed Material/Labor Costs				**$66**		**$53**	**$118**
Construction Mark Up at 20.0%							**$24**
Original Construction Cost							**$142**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$142**
Professional Fees at 16.0%							**$23**
TOTAL PROJECT COST							**$165**

All costs shown as Present Value

ADD ROPE DAVITS TO SUPPORT WORKER FALL PROTECTION

Project Number:	009FS02	**Category Code:**	FS6A
Priority Sequence:	2		
Priority Class:	Medium	**System:**	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	**Component:**	GENERAL
Date Basis:	2/13/2023	**Element:**	OTHER

Code Application:		Subclass/Savings:	Project Location:
OSHA	1910.28	Not Applicable	Floor-wide: Floor(s) R

Description

Fall protection is required for roofing installations to protect the welfare of workers on roofing systems located over six feet above grade. The installation of hard looped tie-off points is recommended at intervals throughout the roof to support workers associated lifelines and harness personal protective equipment.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Allocation to install metal rope davits to support PPE equipment on roof	EA	15	$391	$5,871	$628	$9,425	$15,296
Base Material/Labor Costs				**$5,871**		**$9,425**	
Indexed Material/Labor Costs				**$5,912**		**$6,720**	**$12,632**
Construction Mark Up at 20.0%							**$2,526**
Original Construction Cost							**$15,158**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$15,158**
Professional Fees at 16.0%							**$2,425**
TOTAL PROJECT COST							**$17,583**

All costs shown as Present Value

ROOF HATCH FALL PROTECTION

Project Number:	009FS04	**Category Code:** FS6A	
Priority Sequence:	3		
Priority Class:	Medium	**System:**	FIRE/LIFE SAFETY
Project Class:	Corrective Action	**Component:**	GENERAL
Date Basis:	2/13/2023	**Element:**	OTHER

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Item Only: Floor(s) R

Description

All roof hatches are missing adequate fall protection. It is recommended that fall protection be added to all roof hatches.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Metal pipe guard rail, average	LF	42	$98.97	$4,157	$24.93	$1,047	$5,204
Base Material/Labor Costs				**$4,157**		**$1,047**	
Indexed Material/Labor Costs				**$4,186**		**$747**	**$4,932**
Construction Mark Up at 20.0%							**$986**
Original Construction Cost							**$5,919**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$5,919**
Professional Fees at 16.0%							**$947**
TOTAL PROJECT COST							**$6,866**

All costs shown as Present Value

BUILDING ENTRY ACCESSIBILITY UPGRADES

Project Number:	009AC01	**Category Code:** AC2A	
Priority Sequence:	4		
Priority Class:	Medium	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	BUILDING ENTRY
Date Basis:	2/13/2023	**Element:**	GENERAL

Code Application:		Subclass/Savings:	Project Location:
ADAAG	403.6, 505	DOJ1 - Approach & Entrance	Item Only: Floor(s) 1

Description

Current accessibility legislation requires that building entrance wheelchair ramps have handrails. The south entrance wheelchair ramp does not have handrails or an intermediate landing. To comply with the intent of this legislation, it is recommended that compliant painted metal handrails and an intermediate landing be installed at all entrances as required.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Freestanding handrail system, painted	LF	80	$149	$11,954	$246	$19,672	$31,626
Intermediate landing construction	LOT	1	$3,000	$3,000	$5,000	$5,000	$8,000
			Base Material/Labor Costs	**$14,954**		**$24,672**	
			Indexed Material/Labor Costs	**$15,058**		**$17,591**	**$32,649**
					Construction Mark Up at 20.0%		**$6,530**
					Original Construction Cost		**$39,179**
Date of Original Estimate:	2/13/2023				**Inflation**		**$0**
					Current Year Construction Cost		**$39,179**
					Professional Fees at 16.0%		**$6,269**
					TOTAL PROJECT COST		**$45,448**

All costs shown as Present Value

RESTROOM ACCESSIBILITY UPGRADES

Project Number:	009AC06	**Category Code:** AC3E	
Priority Sequence:	5		
Priority Class:	Medium	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	INTERIOR PATH OF TRAVEL
Date Basis:	2/13/2023	**Element:**	RESTROOMS/BATHROOMS

Code Application:		Subclass/Savings:	Project Location:
ADAAG	309, 604, 605, 606, 607, 608	DOJ3 - Restrooms	Room Only: Floor(s) 2,3

Description

The restrooms in the north wing of the building do not have accessible stalls and lavatories. It is recommended that these restrooms be remodeled to include a compliant configuration with properly accessible fixtures and stall dimensions that include grab bars. Proper signage and power door openers are also recommended on all accessible restrooms.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Door operator, signage, and controls	EA	9	$6,021	$54,193	$2,083	$18,744	$72,937
Grab bars (per stall)	SYS	4	$232	$929	$546	$2,186	$3,115
ADA-compliant signage	EA	18	$87.09	$1,568	$25.61	$461	$2,029
ADA-compliant lavatory	EA	18	$1,008	$18,145	$375	$6,756	$24,901
ADA-compliant toilet	EA	4	$1,584	$6,334	$418	$1,674	$8,008
High density polymer toilet partition modification	EA	4	$2,647	$10,587	$1,639	$6,557	$17,145
			Base Material/Labor Costs	**$91,756**		**$36,378**	
			Indexed Material/Labor Costs	**$92,398**		**$25,937**	**$118,336**
						Construction Mark Up at 20.0%	**$23,667**
						Original Construction Cost	**$142,003**
Date of Original Estimate:	2/13/2023					**Inflation**	**$0**
						Current Year Construction Cost	**$142,003**
						Professional Fees at 16.0%	**$22,720**
						TOTAL PROJECT COST	**$164,723**

All costs shown as Present Value

INSTALL CURB RAMP FOR ADA PARKING

Project Number:	009AC02	**Category Code:** AC1C	
Priority Sequence:	6		
Priority Class:	Medium	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	SITE
Date Basis:	2/13/2023	**Element:**	PARKING

Code Application:		Subclass/Savings:	Project Location:
ADAAG	502	DOJ1 - Approach & Entrance	Item Only: Floor(s) 1

Description

Current legislation pertaining to handicapped access requires that handicap accessible parking spots have wheelchair curb ramps.
It is recommended that a ramp be installed adjacent to the handicap parking spot.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Concrete curb ramp construction	EA	1	$857	$857	$776	$776	$1,633
Base Material/Labor Costs				**$857**		**$776**	
Indexed Material/Labor Costs				**$863**		**$554**	**$1,417**
Construction Mark Up at 20.0%							**$283**
Original Construction Cost							**$1,700**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$1,700**
Professional Fees at 16.0%							**$272**
TOTAL PROJECT COST							**$1,972**

All costs shown as Present Value

AUDITORIUM ACCESSIBILITY UPGRADES

Project Number:	009AC04	**Category Code:** AC3A	
Priority Sequence:	7		
Priority Class:	Medium	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	INTERIOR PATH OF TRAVEL
Date Basis:	2/13/2023	**Element:**	LIFTS/RAMPS/ELEVATORS

Code Application:		Subclass/Savings:	Project Location:
ADAAG	219.3, 706.1, 806, 505	DOJ2 - Access to Goods & Services	Undefined: Floor(s) 1

Description

Current accessibility legislation requires that places of assembly be accessible to the handicapped. The auditorium has multiple barriers to accessibility. Install transmitter and headphone receiver sets to accommodate those individuals that require audible assistance. Additionally, the stage is inaccessible and a wheelchair lift be installed at the stage in order to provide adequate access. Also, the aisles do not have handrails and it is recommended that handrails be installed in order to increase the accessibility of the assembly space.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Infrared transmitter and headphone receiver sets	SYS	1	$2,493	$2,493	$2,186	$2,186	$4,679
Stage wheelchair lift	SYS	1	$11,953	$11,953	$6,830	$6,830	$18,784
Freestanding handrail system	LF	60	$82.83	$4,970	$58.05	$3,483	$8,453
Base Material/Labor Costs				**$19,416**		**$12,499**	
Indexed Material/Labor Costs				**$19,552**		**$8,912**	**$28,464**
Construction Mark Up at 20.0%							**$5,693**
Original Construction Cost							**$34,157**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$34,157**
Professional Fees at 16.0%							**$5,465**
TOTAL PROJECT COST							**$39,622**

All costs shown as Present Value

INTERIOR DOOR ACCESSIBILITY UPGRADES

Project Number:	009AC05
Priority Sequence:	8
Priority Class:	Medium
Project Class:	Plant Adaption
Date Basis:	2/13/2023

Category Code: AC3C

System:	ACCESSIBILITY
Component:	INTERIOR PATH OF TRAVEL
Element:	DOORS AND HARDWARE

Code Application:		Subclass/Savings:	Project Location:
ADAAG	309.4, 703.1	DOJ2 - Access to Goods & Services	Floor-wide: Floor(s) 1,2,3

Description

Accessibility legislation requires that door hardware be designed for operation by people with little or no ability to grasp objects with their hands. To comply with the intent of this legislation, it is recommended that lever handle door hardware be installed on all doors that still have knobs.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Lever actuated door hardware	EA	208	$498	$103,617	$200	$41,508	$145,126
Base Material/Labor Costs				**$103,617**		**$41,508**	
Indexed Material/Labor Costs				**$104,343**		**$29,596**	**$133,938**
Construction Mark Up at 20.0%							**$26,788**
Original Construction Cost							**$160,726**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$160,726**
Professional Fees at 16.0%							**$25,716**
TOTAL PROJECT COST							**$186,442**

All costs shown as Present Value

INTERIOR STAIR UPGRADES

Project Number:	009AC07	**Category Code:** AC3B	
Priority Sequence:	9		
Priority Class:	Medium	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	INTERIOR PATH OF TRAVEL
Date Basis:	2/13/2023	**Element:**	STAIRS AND RAILINGS

Code Application:		Subclass/Savings:	Project Location:
IBC	1003.3	DOJ2 - Access to Goods & Services	Floor-wide: Floor(s) 1,2,3
ADAAG	505		

Description

Accessibility legislation requires that stairs have graspable handrails on both sides, that the rails have a specific end geometry, and that the handrails continue horizontally at the landings. In addition, guardrails must prevent the passage of a four-inch diameter sphere (six inches in the triangle formed by the lower rail and tread/riser angle). The tread finishes on the fire stairs are old and do not have the proper gripping ability for safety. The stage stairs and the loading area stairs also do not have proper handrails on either side. It is recommended that compliant handrails and guardrails be installed along with an upgraded tread finish where needed.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Wall-mounted handrail system per floor	FLR	7	$939	$6,574	$854	$5,977	$12,551
Switchback handrail/guardrail system per floor	FLR	9	$2,128	$19,149	$1,366	$12,295	$31,444
Stair tread and landing finish upgrades per floor	FLR	7	$2,377	$16,639	$1,267	$8,869	$25,508
Wall-mounted handrail system, painted	LF	15	$82.83	$1,242	$58.05	$871	$2,113
Freestanding handrail system, painted	LF	15	$149	$2,241	$246	$3,689	$5,930
			Base Material/Labor Costs	**$45,846**		**$31,700**	
			Indexed Material/Labor Costs	**$46,167**		**$22,602**	**$68,770**
						Construction Mark Up at 20.0%	**$13,754**
						Original Construction Cost	**$82,523**
Date of Original Estimate:	2/13/2023					**Inflation**	**$0**
						Current Year Construction Cost	**$82,523**
						Professional Fees at 16.0%	**$13,204**
						TOTAL PROJECT COST	**$95,727**

All costs shown as Present Value

INSTALL DRIP PAN ABOVE SERVE RACK

Project Number:	009HV01	**Category Code:** HV8B	
Priority Sequence:	10		
Priority Class:	Medium	**System:**	HVAC
Project Class:	Plant Adaption	**Component:**	GENERAL
Date Basis:	2/9/2023	**Element:**	OTHER

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Item Only: Floor(s) 1

Description

The IT server rack in Data Room B112 has various HVAC distribution piping directly above the rack which could result in damage to the equipment if any of the pipe or fittings ruptured. It is recommended that a drip pan with drainage be installed to protect the electronic equipment.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Install drip pan	EA	1	$1,000	$1,000	$2,500	$2,500	$3,500
			Base Material/Labor Costs	**$1,000**		**$2,500**	
			Indexed Material/Labor Costs	**$1,007**		**$1,783**	**$2,790**
						Construction Mark Up at 20.0%	**$558**
						Original Construction Cost	**$3,347**
Date of Original Estimate: 2/9/2023						**Inflation**	**$0**
						Current Year Construction Cost	**$3,347**
						Professional Fees at 16.0%	**$536**
						TOTAL PROJECT COST	**$3,883**

All costs shown as Present Value

FIRE SPRINKLER SYSTEM EXTENSION

Project Number:	009FS01	**Category Code:** FS3A	
Priority Sequence:	11		
Priority Class:	Low	**System:**	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	**Component:**	SUPPRESSION
Date Basis:	2/11/2023	**Element:**	SPRINKLERS

Code Application:		Subclass/Savings:	Project Location:
NFPA	1, 13, 13R, 101	Not Applicable	Floor-wide: Floor(s) 1,2,3

Description

As a part of future renovation efforts, it is recommended that this facility be fully protected by an automatic, wet-pipe sprinkler system.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Install a wet-pipe sprinkler system, including valves, piping, sprinkler heads, piping supports, etc.	SF	43,950	$5.78	$254,031	$7.07	$310,727	$564,758
Base Material/Labor Costs				**$254,031**		**$310,727**	
Indexed Material/Labor Costs				**$255,809**		**$221,548**	**$477,357**
Construction Mark Up at 20.0%							**$95,471**
Original Construction Cost							**$572,829**
Date of Original Estimate: 2/11/2023						**Inflation**	**$0**
Current Year Construction Cost							**$572,829**
Professional Fees at 16.0%							**$91,653**
TOTAL PROJECT COST							**$664,481**

All costs shown as Present Value

ASBESTOS ABATEMENT - INTERIOR FINISH SYSTEMS

Project Number:	009HE01
Priority Sequence:	12
Priority Class:	Low
Project Class:	Plant Adaption
Date Basis:	2/13/2023

Category Code: HE6F

System:	HEALTH
Component:	HAZARDOUS MATERIAL
Element:	OTHER

Code Application:		Subclass/Savings:	Project Location:
EPA	40 CFR 61.M, 763	Not Applicable	Building-wide: Floor(s) 1,2,3
OSHA	29 CFR 1910.1001, 1926.1101		

Description

Asbestos-containing materials (ACMs) are suspected to exist in the 9x9 vinyl tile flooring. Prior to replacing these systems, the ACMs should be properly investigated and abated. This project provides a budget for the abatement of ACMs prior to the renewal of the affected finishes.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Typical asbestos abatement of floor tile and mastic	SF	20,120	$0.38	$7,646	$2.63	$52,916	$60,561
Base Material/Labor Costs				**$7,646**		**$52,916**	
Indexed Material/Labor Costs				**$7,699**		**$37,729**	**$45,428**
Construction Mark Up at 20.0%							**$9,086**
Original Construction Cost							**$54,514**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$54,514**
Professional Fees at 16.0%							**$8,722**
TOTAL PROJECT COST							**$63,236**

All costs shown as Present Value

REPLACE SINGLE LEVEL DRINKING FOUNTAINS

Project Number:	009AC03	**Category Code:** AC3F	
Priority Sequence:	13		
Priority Class:	Low	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	INTERIOR PATH OF TRAVEL
Date Basis:	2/13/2023	**Element:**	DRINKING FOUNTAINS

Code Application:		Subclass/Savings:	Project Location:
ADAAG	211, 602	DOJ4 - Other	Floor-wide: Floor(s) 1,2,3

Description

Current legislation requires that building amenities be generally accessible to all persons. The configuration of older drinking fountains is a barrier to accessibility. All single-level refrigerated drinking fountains should be replaced with dual-level units and alcoves should be constructed around units that protrude into an egress path.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Dual-level drinking fountain	EA	6	$1,995	$11,967	$613	$3,678	$15,645
Alcove construction for drinking fountain	EA	6	$1,438	$8,627	$6,137	$36,823	$45,450
			Base Material/Labor Costs	**$20,594**		**$40,501**	
			Indexed Material/Labor Costs	**$20,738**		**$28,877**	**$49,616**
					Construction Mark Up at 20.0%		**$9,923**
					Original Construction Cost		**$59,539**
Date of Original Estimate:	2/13/2023				**Inflation**		**$0**
					Current Year Construction Cost		**$59,539**
					Professional Fees at 16.0%		**$9,526**
					TOTAL PROJECT COST		**$69,065**

All costs shown as Present Value

EXTERIOR MASONRY WALL RENEWAL

Project Number:	009ES01
Priority Sequence:	14
Priority Class:	Low
Project Class:	Corrective Action
Date Basis:	2/13/2023

Category Code: ES2B

System:	EXTERIOR
Component:	COLUMNS/BEAMS/WALLS
Element:	FINISH

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Building-wide: Floor(s) 1

Description

A portion of the south east brick wall has begun to crack and multiple locations along the knee wall need repointing. It is recommended that the damaged masonry be replaced and crack sealed to prevent water infiltration. The seals on the stone portion of the southeast wall have also deteriorated and the sealant should be replaced.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Repair brick exterior wall, average bond	SF	17,260	$9.51	$164,143	$28.37	$489,666	$653,809
Repair standard face stone wall (ashlar, lime, sandstone, or travertine stones)	SF	2,660	$20.82	$55,381	$46.51	$123,717	$179,098
			Base Material/Labor Costs	**$219,524**		**$613,383**	
			Indexed Material/Labor Costs	**$221,060**		**$437,342**	**$658,402**
					Construction Mark Up at 20.0%		**$131,680**
					Original Construction Cost		**$790,083**
Date of Original Estimate:	2/13/2023				**Inflation**		**$0**
					Current Year Construction Cost		**$790,083**
					Professional Fees at 16.0%		**$126,413**
					TOTAL PROJECT COST		**$916,496**

All costs shown as Present Value

EXTERIOR WALL FINISH RENEWAL

Project Number:	009ES02	**Category Code:** ES2B	
Priority Sequence:	15		
Priority Class:	Low	**System:**	EXTERIOR
Project Class:	Corrective Action	**Component:**	COLUMNS/BEAMS/WALLS
Date Basis:	2/13/2023	**Element:**	FINISH

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Building-wide: Floor(s) 1

Description

Multiple exterior brick, stone, and painted surfaces have efflorescence and grime build up. A light chemical treatment and power washing are recommended to restore the appearance of the building.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
General exterior wall surface clean and pressure wash with light chemical	SF	2,930	$0.30	$879	$2.07	$6,065	$6,944
Base Material/Labor Costs				**$879**		**$6,065**	
Indexed Material/Labor Costs				**$885**		**$4,324**	**$5,210**
Construction Mark Up at 20.0%							**$1,042**
Original Construction Cost							**$6,251**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$6,251**
Professional Fees at 16.0%							**$1,000**
TOTAL PROJECT COST							**$7,252**

All costs shown as Present Value

REPAIR ACOUSTICAL TILE CEILING SYSTEM

Project Number:	009IS01	**Category Code:** IS1A	
Priority Sequence:	16		
Priority Class:	Low	**System:**	INTERIOR/FINISH SYS.
Project Class:	Corrective Action	**Component:**	FLOOR
Date Basis:	2/13/2023	**Element:**	FINISHES-DRY

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Area Wide: Floor(s) 1

Description

The acoustical tile ceiling system in OB123 is worn. Past water damage has resulted in a timeworn and partially stained finish. It is recommended that select ceiling tiles be replaced and the grid repaired.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Repair damaged acoustical tile ceiling system	SF	100	$2.96	$296	$3.39	$339	$635
Base Material/Labor Costs				**$296**		**$339**	
Indexed Material/Labor Costs				**$298**		**$242**	**$540**
Construction Mark Up at 20.0%							**$108**
Original Construction Cost							**$648**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$648**
Professional Fees at 16.0%							**$104**
TOTAL PROJECT COST							**$751**

All costs shown as Present Value

SITE PAVING RENEWAL

Project Number:	009SI01
Priority Sequence:	17
Priority Class:	Low
Project Class:	Corrective Action
Date Basis:	2/13/2023

Category Code: SI1B

System:	SITE
Component:	ACCESS
Element:	VEHICULAR

Code Application:	Subclass/Savings:	Project Location:
Not Applicable	Not Applicable	Undefined: Floor(s) 1

Description

The south and east parking lots and drives are beginning to show signs of cracking and deterioration of striping. A seal coat, as well as crack sealant and restriping are recommended.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qnty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Direct applied crack sealant for asphalt paving	SY	2,300	$1.61	$3,703	$1.68	$3,864	$7,567
Base Material/Labor Costs				**$3,703**		**$3,864**	
Indexed Material/Labor Costs				**$3,729**		**$2,755**	**$6,484**
Construction Mark Up at 20.0%							**$1,297**
Original Construction Cost							**$7,781**
Date of Original Estimate: 2/13/2023						**Inflation**	**$0**
Current Year Construction Cost							**$7,781**
Professional Fees at 16.0%							**$1,245**
TOTAL PROJECT COST							**$9,026**

FACILITY CONDITION ASSESSMENT

SECTION 4

LIFECYCLE COMPONENT INVENTORY

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
EW02	WALL, EXTERIOR, STUCCO OR CONCRETE RESTORE	PAINTED ENTRY SOFFIT		SOUTH ELEVATION	270	SF	1.12	$3,514	2006	30		2036
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	STATIONARY STOREFRONT		NORTH WING	980	SF	1.12	$202,258	1966	40	16	DR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	OPERABLE PANEL		NORTH WING	1,460	SF	1.12	$301,323	1966	40	16	DR
WN04	GLASS, CURTAIN WALL, PREMIUM	FRONT ENTRY		SOUTH ELEVATION	270	SF	1.12	$139,787	2006	60		2066
DR08	DOOR AND FRAME, EXTERIOR, SWINGING, HOLLOW METAL	PAINTED HM		EAST ELEVATION	18	LEAF	1.00	$44,007	2006	40		2046
DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ANOD ALUM		SOUTH, WEST ELEVATIONS	4	LEAF	1.00	$18,057	2006	25		2031
DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ANOD ALUM ASSIST		SOUTH, WEST ELEVATIONS	2	LEAF	1.00	$9,028	2006	25		2031
DR28	DOOR OPERATOR, POWER-ASSIST	ANOD ALUM ASSIST	10639	SOUTH ELEVATION	1	EA	1.00	$10,508	2006	20		2026
RR07	ROOF - BITUMINOUS, 2-PLY, APPLIED MODIFIED BITUMEN, TORCH	OLD MOD BIT	10575	ROOF	26,353	SF	1.00	$160,570	1999	20	3	DR
RR07	ROOF - BITUMINOUS, 2-PLY, APPLIED MODIFIED BITUMEN, TORCH	NEW MOD BIT	10575	ROOF	8,784	SF	1.00	$53,521	2009	20		2029
RR16	ROOF - TILE, CONCRETE	INSULATED CONCRETE TILE	10575	ROOF	4,392	SF	1.02	$55,205	1999	50		2049
RR18	ROOF - TILE, CLAY, FLAT	TERRACOTTA	10575	ROOF	4,392	SF	1.21	$277,499	2009	70		2079
RR29	ROOF HATCH - ACCESS		10575	OLD MOD BIT ROOF	2	EA	1.00	$11,412	2009	30		2039
RR29	ROOF HATCH - ACCESS		10575	NEW MOD BIT ROOF	1	EA	1.00	$5,706	2009	30		2039
RR29	ROOF HATCH - ACCESS	MODULAR STEEL		ROOF	1	EA	1.00	$5,706	2005	30	-5	2030

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
IW14	TOILET PARTITION WITH ACCESSORIES	NEW PARTITIONS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	14	SYS	1.00	$43,900	2006	20		2026
IW14	TOILET PARTITION WITH ACCESSORIES	OLD LOBBY		OB108, OB109	4	SYS	1.00	$12,543	1966	20	36	DR
IW15	URINAL PARTITION WITH ACCESSORIES	NEW PARTITIONS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	4	EA	1.00	$2,340	2006	20		2026
IW15	URINAL PARTITION WITH ACCESSORIES	OLD LOBBY		OB108	1	EA	1.00	$585	1966	20	36	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	NEW WD DOORS		SOUTH WING	27	LEAF	1.00	$70,359	2006	40		2046
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD WD DOORS		NORTH WING	20	LEAF	1.00	$52,118	1966	40	16	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD RESTROOM DOORS		116A, 117, 284B, OA273, 0A381, OA370	6	LEAF	1.00	$15,635	1966	40	16	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD NRTD ALUM DOORS		278	4	LEAF	1.00	$10,424	1966	40	16	DR
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	OLD CORRIDOR DOORS		NORTH WING CORRIDORS	182	LEAF	1.00	$819,140	1966	40	16	DR
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	NEW RTD HM DOORS		SOUTH WING CORRIDORS	38	LEAF	1.00	$171,029	2006	40		2046
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	NEW RTD WD DOORS		SOUTH WING CORRIDORS	12	LEAF	1.00	$54,009	2006	40		2046
DR24	DOOR LOCK, COMMERCIAL-GRADE	ANOD ALUM		SOUTH, WEST ELEVATIONS	4	EA	1.00	$3,586	2006	20		2026
DR24	DOOR LOCK, COMMERCIAL-GRADE	ANOD ALUM ASSIST		SOUTH, WEST ELEVATIONS	2	EA	1.00	$1,793	2006	20		2026

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	WOOD STORAGE CABINETS		ROOM 129	50	LF	1.00	$32,459	1966	20	36	DR
IW01	WALL FINISH - PAINT, STANDARD	STD PAINT		MOST AREAS	65,670	SF	1.00	$176,925	2006	12	3	DR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	OLD LOOM		OA38	4,420	SF	1.00	$65,155	2000	12	10	DR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	NEW LOOM		OB113, OB101, 0C107	4,420	SF	1.00	$65,155	2006	12	3	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	NEW 12X12 TILE		OB117	8,620	SF	1.00	$66,503	2006	20		2026
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	OLD ACM 9X9		MOST AREAS IN NORTH WING, STAIRTOWERS	20,120	SF	1.00	$155,226	1966	20	36	DR
IF08	FLOORING - TILE, CERAMIC / STONE / QUARRY ECONOMY	1X TILE		116A, 117, 284B, OA273, 0A381, OA370	2,210	SF	1.00	$56,527	1966	20	36	DR
IF09	FLOORING - TERRAZZO RESURFACE	WHITE TERRAZZO		101	1,330	SF	1.00	$16,294	1966	50	6	DR
IF10	FLOORING - HARDWOOD STRIP, STANDARD	1X4 HARDWOOD		OC107	1,330	SF	1.00	$22,539	2006	50		2056
IF15	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL	STAINED & SEALED CONCRETE		OB101	1,680	SF	1.00	$6,215	2006	10	5	DR
IF15	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL	SEALED CONCRETE		LOADING AREA	90	SF	1.00	$333	2006	10	5	DR
IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	OLD ACT		NORTH WING, STAIR TOWERS	20,940	SF	1.00	$254,394	2000	30		2030
IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	NEW ACT		SOUTH WING	13,960	SF	1.00	$169,596	2006	30		2036

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED GYPSUM		116A, 117, 284B, OA273, 0A381, OA370	5,240	SF	1.00	$14,117	2006	24		2030
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED CONCRETE		129	870	SF	1.00	$2,344	2006	24		2030
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED STEEL		OB110A	2,620	SF	1.00	$7,059	2006	24		2030
VT03	ELEVATOR MODERNIZATION - HYDRAULIC	FMUS-ELV-001	10596	A126	1	EA	1.00	$363,640	2014	25		2039
VT04	ELEVATOR CAB RENOVATION - PASSENGER	FMUS-ELV-001	10596	ELEV A	1	EA	1.00	$64,123	2014	12	7	2033
FX01	PLUMBING FIXTURE - LAVATORY, COUNTER	NEW SOLID SURF		OB103, OB102	6	EA	1.00	$9,520	2006	35		2041
FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	WALL HUNG		116A, 117, 284B, OA273, 0A381, OA370	18	EA	1.00	$28,825	2006	35		2041
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	IN GROUND SINK		OC107C	1	EA	1.00	$2,158	1966	35		DR
FX10	PLUMBING FIXTURE - URINAL	URINALS		OB102, OA273, OA381, OA381	9	EA	1.00	$22,947	2006	35		2041
FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	TANKLESS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	22	EA	1.00	$51,605	2006	35		2041
BF01	BACKFLOW PREVENTER (<=1 INCH)	FMUS-BFP-002, DW	10588	A124	1	EA	1.00	$1,263	2006	10	9	2025
BF02	BACKFLOW PREVENTER (1-2 INCHES)	FMUS-BFP-003	10589	A124	1	EA	1.00	$2,816	2016	10	5	2031
BF02	BACKFLOW PREVENTER (1-2 INCHES)	FMUS-BFP-001	10590	A124	1	EA	1.00	$2,816	2006	10	9	2025

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
BF02	BACKFLOW PREVENTER (1-2 INCHES)	IRRIGATION BF	WILKENS	EXTERIOR	1	EA	1.00	$2,816	2006	10	8	2024
BF04	BACKFLOW PREVENTER (3-4 INCHES)	MAIN DW BACKFLOW		EXTERIOR	4	EA	1.00	$42,199	2006	10	8	2024
BF04	BACKFLOW PREVENTER (3-4 INCHES)	MAIN DW BACKFLOW	WATTS SERIAL#211830	EXTERIOR	4	EA	1.00	$42,199	2006	10	8	2024
PS02	SUPPLY PIPING SYSTEM - CLASSROOM	INSULATED COPPER		ORIGINAL BUILDING	43,950	SF	1.13	$581,283	1966	35	22	2023
PS02	SUPPLY PIPING SYSTEM - CLASSROOM	INSULATED COPPER		2006 ADDITION	15,000	SF	1.13	$198,390	2006	35		2041
WH28	WATER HEATER - SHELL & TUBE (93-105 GPM)	DW HEATER		A124	100	GPM	1.15	$90,197	1994	30		2024
PD02	DRAIN PIPING SYSTEM - CLASSROOM	GALVANIZED STEEL		ORIGINAL BUILDING	43,950	SF	1.13	$877,937	1966	40	17	2023
PD02	DRAIN PIPING SYSTEM - CLASSROOM	CAST STEEL		2006 ADDITION	15,000	SF	1.13	$299,637	2006	40		2046
HU53	UNIT HEATER, STEAM/HYDRONIC STD (TO 250 MBH)	FMUS-UHT-003	10636	B135	1	EA	1.00	$1,346	2006	35		2041
HU53	UNIT HEATER, STEAM/HYDRONIC STD (TO 250 MBH)	FMUS-UHT-004	10637	B135	1	EA	1.00	$1,346	2006	35		2041
HU53	UNIT HEATER, STEAM/HYDRONIC STD (TO 250 MBH)	FMUS-UHT-002	10633	B201	1	EA	1.00	$1,346	2006	35		2041
HU53	UNIT HEATER, STEAM/HYDRONIC STD (TO 250 MBH)	FMUS-UHT-001	10635	B201	1	EA	1.00	$1,346	2006	35		2041
HU53	UNIT HEATER, STEAM/HYDRONIC STD (TO 250 MBH)	FMUS-UHT-005	10634	B132	1	EA	1.00	$1,346	2006	35		2041
TK02	EXPANSION TANK (0-20 GAL)	EXP. TANK	AMTROL SERIAL#350908	A124	20	GAL	1.00	$5,895	2017	25		2042
TK04	EXPANSION TANK (41-60 GAL)	HW AIR SEPARATOR		A124	50	GAL	1.15	$12,656	2006	25	5	2036

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
TK05	EXPANSION TANK (61-100 GAL)	FMUS-TAN-001	10619	A124	100	GAL	1.00	$19,620	2006	25	5	2036
HU18	DUCTLESS DX SPLIT SYSTEM (1-2 TON)	FMUS-ACU-001	10580	A126	1.50	TON	1.00	$4,237	2014	23		2037
HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	MINI SPLIT LIBRARY #1	23932	EXTERIOR, A110	3	TON	1.00	$5,170	2001	23		2024
HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	MINI SPLIT LIBRARY #2	23933	EXTERIOR, A110	3	TON	1.00	$5,170	2001	23		2024
AH04	AIR HANDLING UNIT - INDOOR (2.75-3.25 HP)	AIR HANDLER		B136E	3	HP	1.00	$29,647	2006	25	4	2035
AH06	AIR HANDLING UNIT - INDOOR (6-9 HP)	FMUS-AHU-003	10583	C208	5	HP	1.45	$64,975	1966	25	32	2023
AH09	AIR HANDLING UNIT - INDOOR (17-23 HP)	FMUS-AHU-005	10584	B135	20	HP	1.00	$156,817	2006	25	5	2036
AH09	AIR HANDLING UNIT - INDOOR (17-23 HP)	FMUS-AHU-004	10581	B201	20	HP	1.00	$156,817	2006	25	5	2036
AH13	AIR HANDLING UNIT - INDOOR (45-63 HP)	FMUS-AHU-001	10585	A124	48	HP	1.00	$276,533	1966	25	39	2030
AH13	AIR HANDLING UNIT - INDOOR (45-63 HP)	FMUS-AHU-002	10582	A124	48	HP	1.00	$276,533	1966	25	39	2030
AH46	HUMIDIFIER, ELECTRIC, POINT-OF-USE	AJF.AHU5.HMV		B135	1	EA	1.00	$8,173	2006	20		2026
AH46	HUMIDIFIER, ELECTRIC, POINT-OF-USE	AJF.AHU4.HMV		B201	1	EA	1.00	$8,173	2006	20		2026
FN02	FAN - AXIAL, RETURN, 1.5" SP (3-5 HP) 13,200 CFM	AHU-5 RETURN FAN		B135	3	HP	1.00	$8,772	2006	20	10	2036
FN02	FAN - AXIAL, RETURN, 1.5" SP (3-5 HP) 13,200 CFM	AHU-4 RETURN FAN		B201	3	HP	1.00	$8,772	2006	20	10	2036
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	FMUS-EAF-002	10593	B135	1	HP	1.00	$3,337	2006	20	10	2036

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EXHAUST FAN		B201	1	HP	1.00	$3,337	2006	20	10	2036
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	FMUS-EAF-004	10594	B132	1	HP	1.00	$3,337	2006	20	10	2036
HV02	HVAC DISTRIBUTION NETWORKS - CLASSROOM	DUCT, PIPE, ASSEMBLIES		ORIGINAL BUILDING	43,950	SF	1.13	$1,919,529	1966	40	17	2023
HV02	HVAC DISTRIBUTION NETWORKS - CLASSROOM	DUCT, PIPE, ASSEMBLIES		2006 ADDITION	15,000	SF	1.13	$655,129	2006	40		2046
HX05	HEAT EXCHANGER - SHELL & TUBE STEAM TO WATER (>85 GPM)	FMUS-HEX-002	10600	A124	108	GPM	1.00	$19,117	2006	35		2041
HX09	PRESSURE REDUCING VALVE, STEAM SYSTEM (2")	FMUS-PRV-002, 45 TO 7 PSI	10608	A124	1	EA	1.00	$5,376	2012	20		2032
HX09	PRESSURE REDUCING VALVE, STEAM SYSTEM (2")	FMUS-PRV-006, 75 TO 45 PSI	10609	A124	1	EA	1.00	$5,376	2012	20		2032
PH01	PUMP - ELECTRIC (<=10 HP)	HWP-3	22292	A124	2	HP	1.00	$3,961	2006	25		2031
PH01	PUMP - ELECTRIC (<=10 HP)	HWP-4	22293	A124	2	HP	1.00	$3,961	2006	25		2031
PH01	PUMP - ELECTRIC (<=10 HP)	FMUS-PMP-001, HWP-1	10602	A124	5	HP	1.00	$9,903	2006	25		2031
PH01	PUMP - ELECTRIC (<=10 HP)	FMUS-PMP-002, HWP-2	10603	A124	5	HP	1.00	$9,903	2006	25		2031
PH02	PUMP - ELECTRIC (10 - 15 HP)	FMUS-PMP-003, CHWP	10606	A124	15	HP	1.00	$25,867	2006	25		2031
PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	FMUS-CRS-001	10591, 10604, 10607	A124	4	HP	1.00	$35,811	1999	20	4	2023
PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	CONDENSATE RECOVERY SYSTEM	22072, 22073, 22074	A124	6	HP	1.00	$53,716	2006	20		2026
RV01	SAFETY RELIEF VALVE	2 1/2 " STEAM RELIEF VALVE	22078	A124	1	EA	1.00	$22,955	1994	25	7	2026

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
AC01	AIR COMPRESSOR SYSTEM - HVAC CONTROLS (<=6 TOTAL HP)	FMUS-AIR-001	10586	A124	5	HP	1.00	$10,799	2021	20		2041
AD02	AIR DRYER - REFRIGERATED - 11-25 CFM	HANKISON AIR DRYER		A124	1	EA	1.00	$2,209	2021	15		2036
BA02	HVAC CONTROLS - TERMINAL ASSEMBLIES - CLASSROOM	VAV ASSEMBLIES			15,000	SF	1.25	$69,885	2006	20	5	2031
BA02	HVAC CONTROLS - TERMINAL ASSEMBLIES - CLASSROOM	MIXING TERMINALS			43,950	SF	1.13	$185,105	1966	20	37	2023
BA25	HVAC CONTROLS - FIELD PANELS/OPS SOFTWARE - CLASSROOM	CONTROLS HARDWARE, SOFTWARE		BUILDING WIDE	58,950	SF	1.45	$89,144	2022	10		2032
BA48	HVAC CONTROLS - MAJOR INSTRUMENTATION - CLASSROOM	AUTOMATION, ACTUATORS			58,950	SF	3.25	$101,846	2022	10	3	2035
FS01	FIRE SPRINKLER SYSTEM	WET PIPE SUPPRESSION	10640	2006 ADDITION	15,000	SF	1.13	$256,167	2006	80		2086
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	FACP		LOBBY	1	EA	1.00	$45,567	2022	15		2037
FA02	FIRE ALARM SYSTEM - DEVICES	DETECTORS, NOTIFIERS, PULL BOXES	10587	2006 ADDITION	15,000	SF	1.13	$83,240	2006	18		2024
FA02	FIRE ALARM SYSTEM - DEVICES	DETECTORS, NOTIFIERS, PULL BOXES		BUILDING WIDE	43,950	SF	1.13	$243,893	2022	18		2040
MC02	MOTOR CONTROL CENTER VERTICAL SECTION, 600V (400-600A) W/STARTERS	MOTOR CONTROL CENTER		A124	1	EA	1.20	$111,278	1966	25	32	2023
SE02	ELECTRICAL DISTRIBUTION NETWORK - CLASSROOM	SECONDARY ELECTRIC		ORIGINAL BUILDING	43,950	SF	1.13	$1,315,808	1966	40	17	2023
SE02	ELECTRICAL DISTRIBUTION NETWORK - CLASSROOM	SECONDARY ELECTRIC		2006 ADDITION	15,000	SF	1.13	$449,081	2006	40		2046
SG01	MAIN SWITCHBOARD W/BREAKERS (<400 AMP)	MAIN SWITCHBOARD		A124	300	AMP	3.50	$103,519	1966	20	36	DR

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
TX24	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (9-30 KVA)	FMUS-TRA-005	10621	A380	30	KVA	1.00	$11,092	1987	30	10	2027
TX24	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (9-30 KVA)	FMUS-TRA-004	10622	A272	30	KVA	1.00	$11,092	1987	30	10	2027
TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-009	10627	B136E	45	KVA	1.00	$10,613	1998	30		2028
TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-001	10624	A124	45	KVA	1.00	$10,613	1998	30		2028
TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-003	10625	A125	45	KVA	1.00	$10,613	1966	30	27	2023
TX27	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (75-112.5 KVA)	FMUS-TRA-008	10620	A272	75	KVA	1.00	$13,145	1993	30	4	2027
TX27	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (75-112.5 KVA)	FMUS-TRA-007	10626	B134	75	KVA	1.00	$13,145	2006	30		2036
TX27	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (75-112.5 KVA)	FMUS-TRA-002	10623	A124	75	KVA	1.00	$13,145	2006	30		2036
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	AHU-5 RETURN FAN		B135	3	HP	1.00	$2,530	2006	12	7	2025
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	AHU-4 RETURN FAN		B201	1.50	HP	1.00	$1,265	2006	12	9	2027
VF02	VARIABLE FREQUENCY DRIVE (5-7.5 HP)	HWP-1		A124	5	HP	1.00	$3,824	2012	12		2024
VF02	VARIABLE FREQUENCY DRIVE (5-7.5 HP)	HWP-2		A124	5	HP	1.00	$3,824	2012	12		2024
VF05	VARIABLE FREQUENCY DRIVE (15-20 HP)	CHWP		A124	150	HP	1.00	$67,726	2012	12	5	2029
VF06	VARIABLE FREQUENCY DRIVE (20-25 HP)	AHU-5 SUPPLY FAN		B135	20	HP	1.00	$8,542	2010	16		2026
VF06	VARIABLE FREQUENCY DRIVE (20-25 HP)	AHU-4 SUPPLY FAN		B201	20	HP	1.00	$8,542	2022	16		2038

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
VF09	VARIABLE FREQUENCY DRIVE (40-50 HP)	AHU-1 FAN WALL		A124	48	HP	3.50	$54,087	2012	16		2028
VF09	VARIABLE FREQUENCY DRIVE (40-50 HP)	AHU-2 FAN WALL		A124	48	HP	3.50	$54,087	2012	16		2028
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	RECESSED CAN		EXTERIOR	8	EA	3.00	$6,775	1998	15	12	2025
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	RECESSED FOOT LED		EXTERIOR	7	EA	1.00	$1,976	2012	15		2027
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	CEILING HID		EXTERIOR, LOADING AREA	5	EA	1.00	$1,412	1998	15	10	2023
LE04	LIGHTING - EXTERIOR, STANCHION LUMINAIRE, 12-FOOT	POLE MOUNTED LED		EXTERIOR	5	EA	1.00	$13,136	2000	15	12	2027
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	SURFACE LED		EXTERIOR	7	EA	1.00	$8,329	2012	15		2027
LI02	LIGHTING SYSTEM, INTERIOR - CLASSROOM	ORIGINAL LIGHTING		ORIGINAL BUILDING	43,950	SF	1.18	$632,769	1996	20	7	2023
LI02	LIGHTING SYSTEM, INTERIOR - CLASSROOM	2006 ADDITIONAL LIGHTING		2006 ADDITION	11,044	SF	1.18	$159,006	2006	20		2026
LI22	LIGHTING SYSTEM, INTERIOR - THEATER	RECITAL AND STAGE LIGHTING		C107, C107A	3,956	SF	1.18	$60,253	2006	20		2026
GN03	GENERATOR - DIESEL (100-200 KW)	FMUS-ENG-001	10597	EXTERIOR	110	KW	1.00	$85,180	2006	25	5	2036
GN10	SWITCH - AUTO TRANSFER, 208 OR 240 V (30-100 AMP)	FMUS-TSW-ATS1	10631	B135	100	AMP	1.00	$7,348	2006	25	5	2036
GN10	SWITCH - AUTO TRANSFER, 208 OR 240 V (30-100 AMP)	FMUS-TSW-ATS2	10630	B135	100	AMP	1.00	$7,348	2006	25	5	2036
SF02	SEATING, FIXED, FOLDING, PREMIUM	RECITAL SEATING		OC107	198	EA	1.00	$201,241	2006	60		2066

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSTL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE	ASPHALT		SOUTH, EAST ELEVATIONS	2,300	SY	1.00	$10,005	2006	7	8	DR
SI01	CONCRETE PEDESTRIAN PAVING - JOINT MAINTENANCE			SOUTH, WEST ELEVATIONS	10	LF	1.00	$60	2006	7	8	DR
							Grand Total:	**$14,746,345**				

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

DEFERRED RENEWAL									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	STATIONARY STOREFRONT		NORTH WING	B2010	980	SF	$202,258	DR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	OPERABLE PANEL		NORTH WING	B2010	1,460	SF	$301,323	DR
RR07	ROOF - BITUMINOUS, 2-PLY, APPLIED MODIFIED BITUMEN, TORCH	OLD MOD BIT	10575	ROOF	B3010	26,353	SF	$160,570	DR
IW14	TOILET PARTITION WITH ACCESSORIES	OLD LOBBY		OB108, OB109	C1010	4	SYS	$12,543	DR
IW15	URINAL PARTITION WITH ACCESSORIES	OLD LOBBY		OB108	C1010	1	EA	$585	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD WD DOORS		NORTH WING	C1020	20	LEAF	$52,118	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD RESTROOM DOORS		116A, 117, 284B, OA273, 0A381, OA370	C1020	6	LEAF	$15,635	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	OLD NRTD ALUM DOORS		278	C1020	4	LEAF	$10,424	DR
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	OLD CORRIDOR DOORS		NORTH WING CORRIDORS	C1020	182	LEAF	$819,140	DR
CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	WOOD STORAGE CABINETS		ROOM 129	C1030	50	LF	$32,459	DR
IW01	WALL FINISH - PAINT, STANDARD	STD PAINT		MOST AREAS	C3010	65,670	SF	$176,925	DR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	OLD LOOM		OA38	C3020	4,420	SF	$65,155	DR

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	NEW LOOM		OB113, OB101, 0C107	C3020	4,420	SF	$65,155	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	OLD ACM 9X9		MOST AREAS IN NORTH WING, STAIRTOWERS	C3020	20,120	SF	$155,226	DR
IF08	FLOORING - TILE, CERAMIC / STONE / QUARRY ECONOMY	1X TILE		116A, 117, 284B, OA273, 0A381, OA370	C3020	2,210	SF	$56,527	DR
IF09	FLOORING - TERRAZZO RESURFACE	WHITE TERRAZZO		101	C3020	1,330	SF	$16,294	DR
IF15	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL	STAINED & SEALED CONCRETE		OB101	C3020	1,680	SF	$6,215	DR
IF15	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL	SEALED CONCRETE		LOADING AREA	C3020	90	SF	$333	DR
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	IN GROUND SINK		OC107C	D2010	1	EA	$2,158	DR
SG01	MAIN SWITCHBOARD W/BREAKERS (<400 AMP)	MAIN SWITCHBOARD		A124	D5010	300	AMP	$103,519	DR
SI06	ASPHALT VEHICULAR PAVING - SEALCOAT AND STRIPE	ASPHALT		SOUTH, EAST ELEVATIONS	G2020	2,300	SY	$10,005	DR
SI01	CONCRETE PEDESTRIAN PAVING - JOINT MAINTENANCE			SOUTH, WEST ELEVATIONS	G2030	10	LF	$60	DR
						TOTAL DEFERRED RENEWAL COST		**$2,264,626**	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2023									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
PS02	SUPPLY PIPING SYSTEM - CLASSROOM	INSULATED COPPER		ORIGINAL BUILDING	D2020	43,950	SF	$581,283	2023
PD02	DRAIN PIPING SYSTEM - CLASSROOM	GALVANIZED STEEL		ORIGINAL BUILDING	D2030	43,950	SF	$877,937	2023
AH06	AIR HANDLING UNIT - INDOOR (6-9 HP)	FMUS-AHU-003	10583	C208	D3040	5	HP	$64,975	2023
HV02	HVAC DISTRIBUTION NETWORKS - CLASSROOM	DUCT, PIPE, ASSEMBLIES		ORIGINAL BUILDING	D3040	43,950	SF	$1,919,529	2023
PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	FMUS-CRS-001	10591, 10604, 10607	A124	D3040	4	HP	$35,811	2023
BA02	HVAC CONTROLS - TERMINAL ASSEMBLIES - CLASSROOM	MIXING TERMINALS			D3060	43,950	SF	$185,105	2023
MC02	MOTOR CONTROL CENTER VERTICAL SECTION, 600V (400-600A) W/STARTERS	MOTOR CONTROL CENTER		A124	D5010	1	EA	$111,278	2023
SE02	ELECTRICAL DISTRIBUTION NETWORK - CLASSROOM	SECONDARY ELECTRIC		ORIGINAL BUILDING	D5010	43,950	SF	$1,315,808	2023
TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-003	10625	A125	D5010	45	KVA	$10,613	2023
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	CEILING HID		EXTERIOR, LOADING AREA	D5020	5	EA	$1,412	2023
LI02	LIGHTING SYSTEM, INTERIOR - CLASSROOM	ORIGINAL LIGHTING		ORIGINAL BUILDING	D5020	43,950	SF	$632,769	2023
					2023 PROJECTED COMPONENT REPLACEMENT COST			$5,736,520	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2024									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
BF02	BACKFLOW PREVENTER (1-2 INCHES)	IRRIGATION BF	WILKENS	EXTERIOR	D2020	1	EA	$2,900	2024
BF04	BACKFLOW PREVENTER (3-4 INCHES)	MAIN DW BACKFLOW		EXTERIOR	D2020	4	EA	$43,465	2024
BF04	BACKFLOW PREVENTER (3-4 INCHES)	MAIN DW BACKFLOW	WATTS SERIAL#211830	EXTERIOR	D2020	4	EA	$43,465	2024
WH28	WATER HEATER - SHELL & TUBE (93-105 GPM)	DW HEATER		A124	D2020	100	GPM	$92,903	2024
HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	MINI SPLIT LIBRARY #1	23932	EXTERIOR, A110	D3030	3	TON	$5,325	2024
HU19	DUCTLESS DX SPLIT SYSTEM (>2 TON)	MINI SPLIT LIBRARY #2	23933	EXTERIOR, A110	D3030	3	TON	$5,325	2024
FA02	FIRE ALARM SYSTEM - DEVICES	DETECTORS, NOTIFIERS, PULL BOXES	10587	2006 ADDITION	D4030	15,000	SF	$85,737	2024
VF02	VARIABLE FREQUENCY DRIVE (5-7.5 HP)	HWP-1		A124	D5010	5	HP	$3,938	2024
VF02	VARIABLE FREQUENCY DRIVE (5-7.5 HP)	HWP-2		A124	D5010	5	HP	$3,938	2024
						2024 PROJECTED COMPONENT REPLACEMENT COST		**$286,998**	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2025									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
BF01	BACKFLOW PREVENTER (<=1 INCH)	FMUS-BFP-002, DW	10588	A124	D2020	1	EA	$1,340	2025
BF02	BACKFLOW PREVENTER (1-2 INCHES)	FMUS-BFP-001	10590	A124	D2020	1	EA	$2,988	2025
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	AHU-5 RETURN FAN		B135	D5010	3	HP	$2,684	2025
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	RECESSED CAN		EXTERIOR	D5020	8	EA	$7,188	2025
					2025 PROJECTED COMPONENT REPLACEMENT COST			$14,199	

2026									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
DR28	DOOR OPERATOR, POWER-ASSIST	ANOD ALUM ASSIST	10639	SOUTH ELEVATION	B2030	1	EA	$11,483	2026

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

IW14	TOILET PARTITION WITH ACCESSORIES	NEW PARTITIONS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	C1010	14	SYS	$47,970	2026
IW15	URINAL PARTITION WITH ACCESSORIES	NEW PARTITIONS		284B, OA273, 0A381, OA370, OB103, OB102, OB1360	C1010	4	EA	$2,557	2026
DR24	DOOR LOCK, COMMERCIAL-GRADE	ANOD ALUM		SOUTH, WEST ELEVATIONS	C1020	4	EA	$3,918	2026
DR24	DOOR LOCK, COMMERCIAL-GRADE	ANOD ALUM ASSIST		SOUTH, WEST ELEVATIONS	C1020	2	EA	$1,959	2026
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	NEW 12X12 TILE		OB117	C3020	8,620	SF	$72,670	2026
AH46	HUMIDIFIER, ELECTRIC, POINT-OF-USE	AJF.AHU5.HMV		B135	D3040	1	EA	$8,931	2026
AH46	HUMIDIFIER, ELECTRIC, POINT-OF-USE	AJF.AHU4.HMV		B201	D3040	1	EA	$8,931	2026
PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	CONDENSATE RECOVERY SYSTEM	22072, 22073, 22074	A124	D3040	6	HP	$58,697	2026
RV01	SAFETY RELIEF VALVE	2 1/2 " STEAM RELIEF VALVE	22078	A124	D3040	1	EA	$25,084	2026
VF06	VARIABLE FREQUENCY DRIVE (20-25 HP)	AHU-5 SUPPLY FAN		B135	D5010	20	HP	$9,334	2026
LI02	LIGHTING SYSTEM, INTERIOR - CLASSROOM	2006 ADDITIONAL LIGHTING		2006 ADDITION	D5020	11,044	SF	$173,750	2026
LI22	LIGHTING SYSTEM, INTERIOR - THEATER	RECITAL AND STAGE LIGHTING		C107, C107A	D5020	3,956	SF	$65,840	2026
				2026 PROJECTED COMPONENT REPLACEMENT COST				**$491,125**	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2027									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
TX24	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (9-30 KVA)	FMUS-TRA-005	10621	A380	D5010	30	KVA	$12,484	2027
TX24	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (9-30 KVA)	FMUS-TRA-004	10622	A272	D5010	30	KVA	$12,484	2027
TX27	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (75-112.5 KVA)	FMUS-TRA-008	10620	A272	D5010	75	KVA	$14,795	2027
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	AHU-4 RETURN FAN		B201	D5010	1.50	HP	$1,424	2027
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	RECESSED FOOT LED		EXTERIOR	D5020	7	EA	$2,224	2027
LE04	LIGHTING - EXTERIOR, STANCHION LUMINAIRE, 12-FOOT	POLE MOUNTED LED		EXTERIOR	D5020	5	EA	$14,785	2027
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	SURFACE LED		EXTERIOR	D5020	7	EA	$9,375	2027
					2027 PROJECTED COMPONENT REPLACEMENT COST			$67,571	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2028									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-009	10627	B136E	D5010	45	KVA	$12,304	2028
TX25	TRANSFORMER - DRY-TYPE, 3PH, 480V SECONDARY (30-50 KVA)	FMUS-TRA-001	10624	A124	D5010	45	KVA	$12,304	2028
VF09	VARIABLE FREQUENCY DRIVE (40-50 HP)	AHU-1 FAN WALL		A124	D5010	48	HP	$62,701	2028
VF09	VARIABLE FREQUENCY DRIVE (40-50 HP)	AHU-2 FAN WALL		A124	D5010	48	HP	$62,701	2028
						2028 PROJECTED COMPONENT REPLACEMENT COST		$150,009	

2029									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
RR07	ROOF - BITUMINOUS, 2-PLY, APPLIED MODIFIED BITUMEN, TORCH	NEW MOD BIT	10575	ROOF	B3010	8,784	SF	$63,907	2029
VF05	VARIABLE FREQUENCY DRIVE (15-20 HP)	CHWP		A124	D5010	150	HP	$80,869	2029
						2029 PROJECTED COMPONENT REPLACEMENT COST		$144,776	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2030									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
RR29	ROOF HATCH - ACCESS	MODULAR STEEL		ROOF	B3020	1	EA	$7,018	2030
IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	OLD ACT		NORTH WING, STAIR TOWERS	C3030	20,940	SF	$312,873	2030
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED GYPSUM		116A, 117, 284B, OA273, 0A381, OA370	C3030	5,240	SF	$17,363	2030
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED CONCRETE		129	C3030	870	SF	$2,883	2030
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PAINTED STEEL		OB110A	C3030	2,620	SF	$8,681	2030
AH13	AIR HANDLING UNIT - INDOOR (45-63 HP)	FMUS-AHU-001	10585	A124	D3040	48	HP	$340,100	2030
AH13	AIR HANDLING UNIT - INDOOR (45-63 HP)	FMUS-AHU-002	10582	A124	D3040	48	HP	$340,100	2030
						2030 PROJECTED COMPONENT REPLACEMENT COST		$1,029,018	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

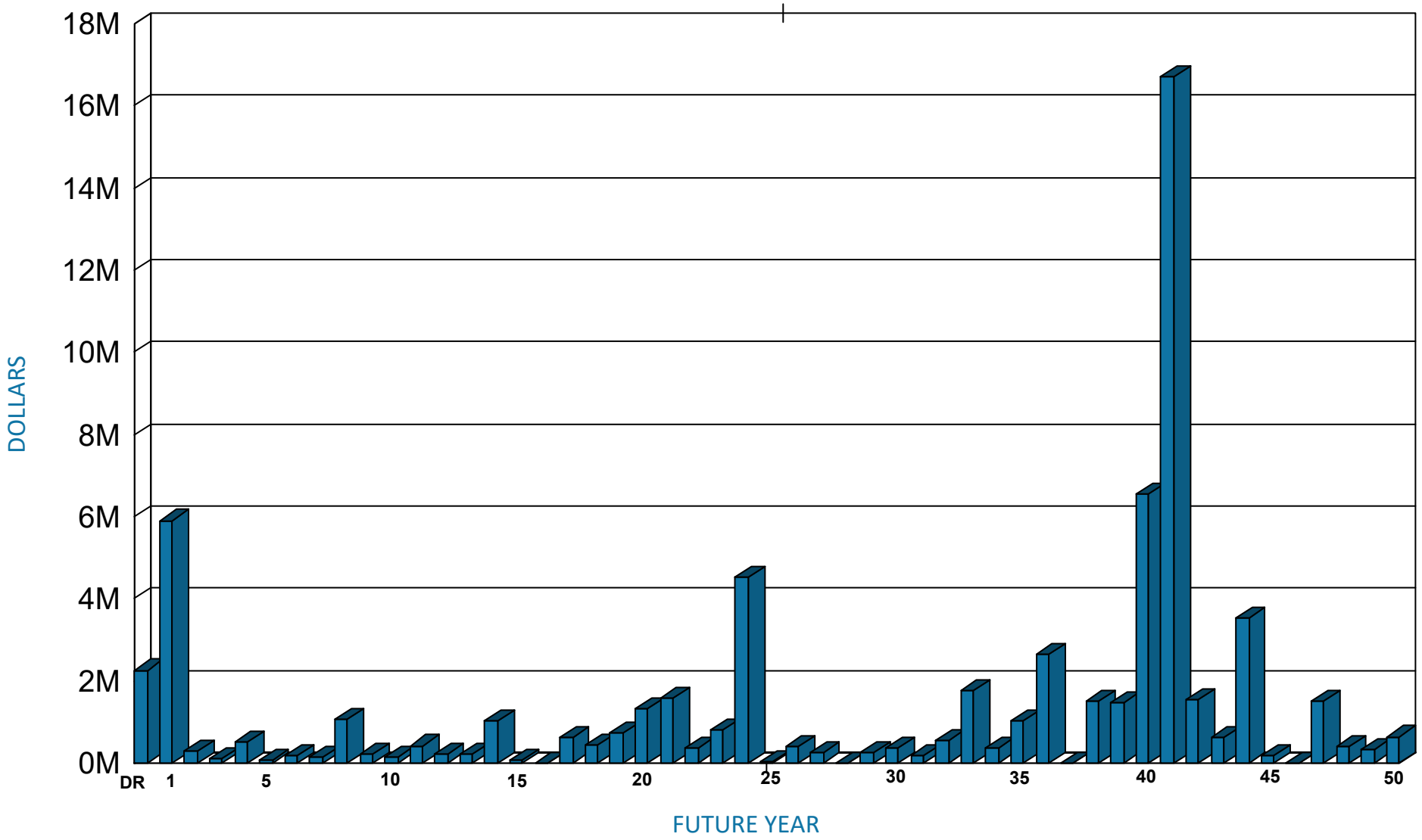
2031									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ANOD ALUM		SOUTH, WEST ELEVATIONS	B2030	4	LEAF	$22,874	2031
DR12	DOOR AND STOREFRONT, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ANOD ALUM ASSIST		SOUTH, WEST ELEVATIONS	B2030	2	LEAF	$11,437	2031
BF02	BACKFLOW PREVENTER (1-2 INCHES)	FMUS-BFP-003	10589	A124	D2020	1	EA	$3,567	2031
PH01	PUMP - ELECTRIC (<=10 HP)	HWP-3	22292	A124	D3040	2	HP	$5,018	2031
PH01	PUMP - ELECTRIC (<=10 HP)	HWP-4	22293	A124	D3040	2	HP	$5,018	2031
PH01	PUMP - ELECTRIC (<=10 HP)	FMUS-PMP-001, HWP-1	10602	A124	D3040	5	HP	$12,545	2031
PH01	PUMP - ELECTRIC (<=10 HP)	FMUS-PMP-002, HWP-2	10603	A124	D3040	5	HP	$12,545	2031
PH02	PUMP - ELECTRIC (10 - 15 HP)	FMUS-PMP-003, CHWP	10606	A124	D3040	15	HP	$32,768	2031
BA02	HVAC CONTROLS - TERMINAL ASSEMBLIES - CLASSROOM	VAV ASSEMBLIES			D3060	15,000	SF	$88,528	2031
					2031 PROJECTED COMPONENT REPLACEMENT COST			$194,299	

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

2032									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
HX09	PRESSURE REDUCING VALVE, STEAM SYSTEM (2")	FMUS-PRV-002, 45 TO 7 PSI	10608	A124	D3040	1	EA	$7,015	2032
HX09	PRESSURE REDUCING VALVE, STEAM SYSTEM (2")	FMUS-PRV-006, 75 TO 45 PSI	10609	A124	D3040	1	EA	$7,015	2032
BA25	HVAC CONTROLS - FIELD PANELS/OPS SOFTWARE - CLASSROOM	CONTROLS HARDWARE, SOFTWARE		BUILDING WIDE	D3060	58,950	SF	$116,312	2032
						2032 PROJECTED COMPONENT REPLACEMENT COST		**$130,342**	

RECURRING COMPONENT EXPENDITURE PROJECTIONS

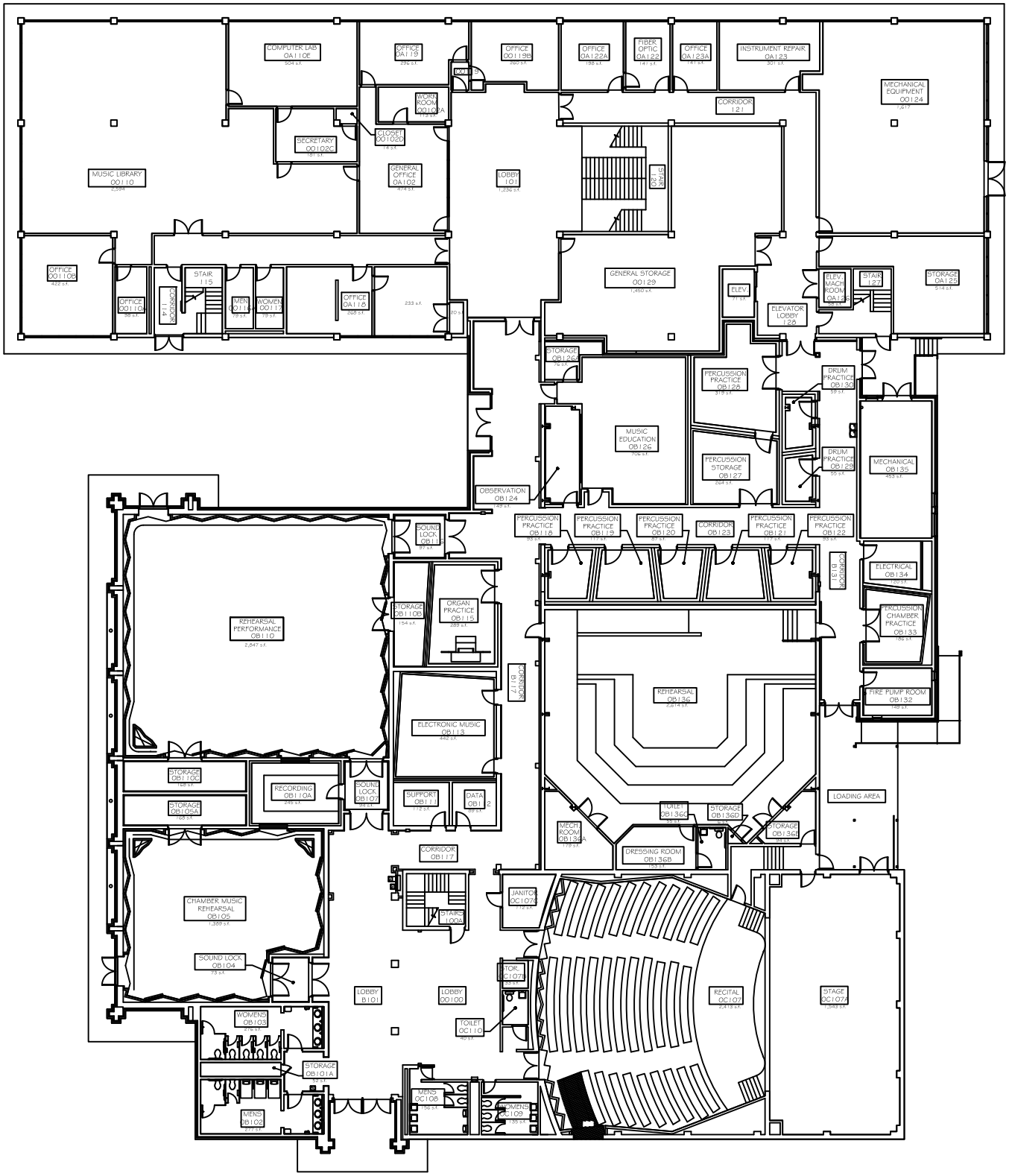


Average Annual Renewal Cost per SF $10.09

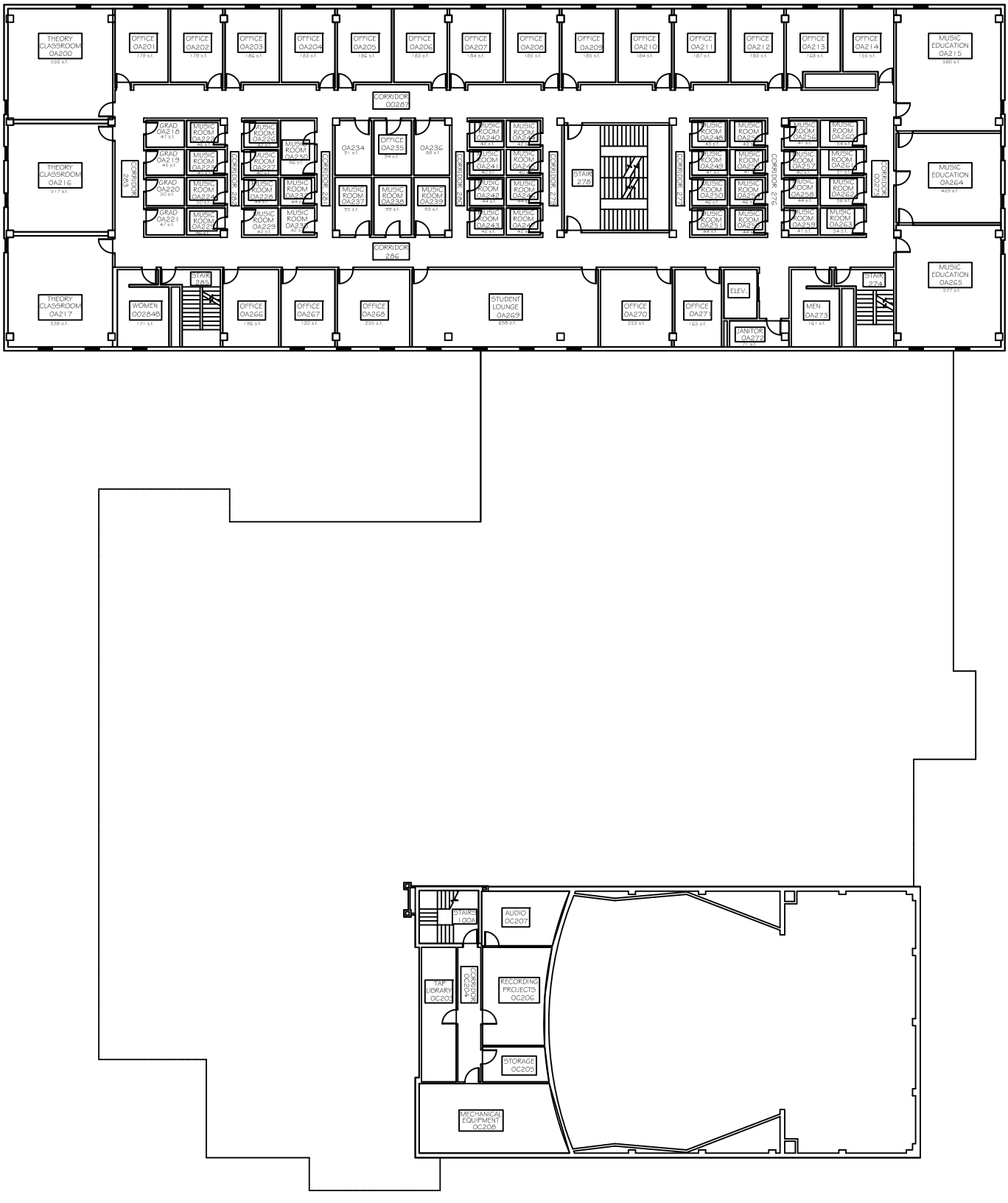
FACILITY CONDITION ASSESSMENT

SECTION 5

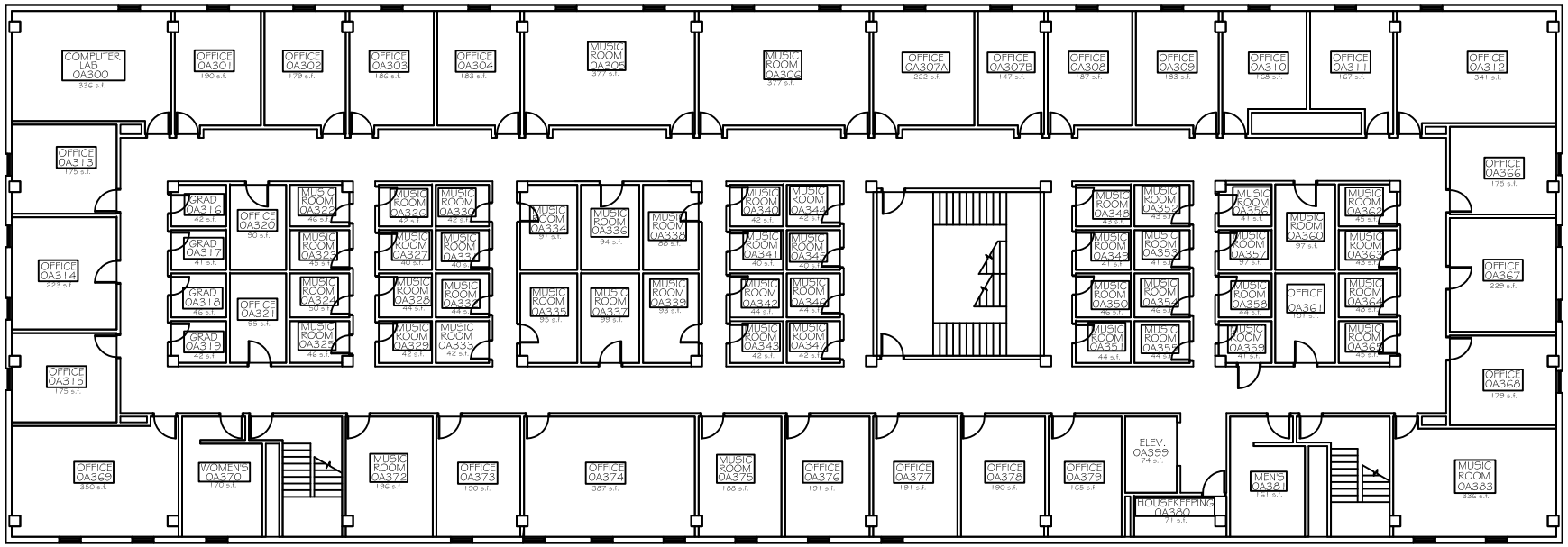
DRAWINGS



FLETCHER MUSIC HALL
FIRST FLOOR PLAN COMPOSITE
SCALE: 1/8" = 1'-0" UPDATE: 3-28-2007



FLETCHER MUSIC HALL
SECOND FLOOR PLAN COMPOSITE
SCALE: 1/8" = 1'-0" UPDATE: 3-28-2007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OFFICE 0A304 183 s.f.
MUSIC ROOM 0A305 377 s.f.
MUSIC ROOM 0A306 377 s.f.
OFFICE 0A307A 222 s.f.
OFFICE 0A307B 147 s.f.
OFFICE 0A308 187 s.f.
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OFFICE 0A368 179 s.f.
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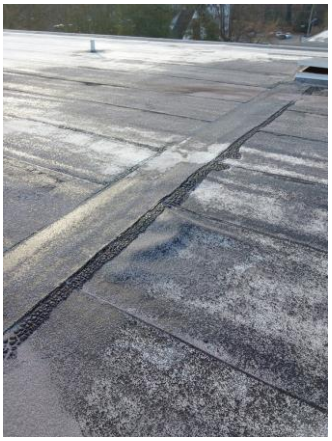
OFFICE 0A361 101 s.f.
MUSIC ROOM 0A362 35 s.f.
MUSIC ROOM 0A363 45 s.f.
MUSIC ROOM 0A364 46 s.f.
MUSIC ROOM 0A365 36 s.f.
OFFICE 0A369 350 s.f.
WOMEN'S 0A370 170 s.f.
MUSIC ROOM 0A372 196 s.f.
OFFICE 0A373 190 s.f.
OFFICE 0A374 387 s.f.
MUSIC ROOM 0A375 188 s.f.
OFFICE 0A376 191 s.f.
OFFICE 0A377 191 s.f.
OFFICE 0A378 190 s.f.
OFFICE 0A379 165 s.f.
ELEV. 0A399 74 s.f.
HOUSEKEEPING 0A380 91 s.f.
MEN'S 0A381 161 s.f.
MUSIC ROOM 0A383 336 s.f.

SECTION 6

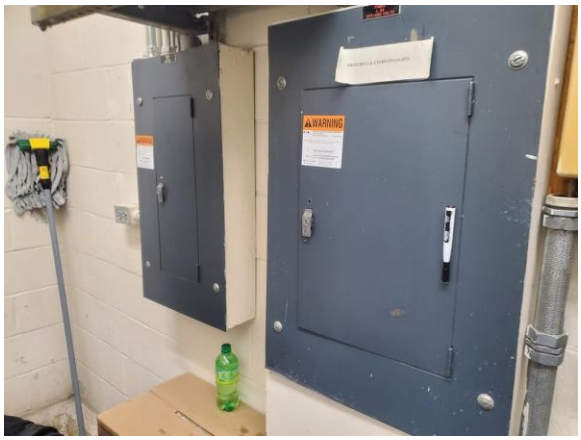
PHOTOGRAPHS

009001a 1/10/2023
Freight elevator panel
Room OA399

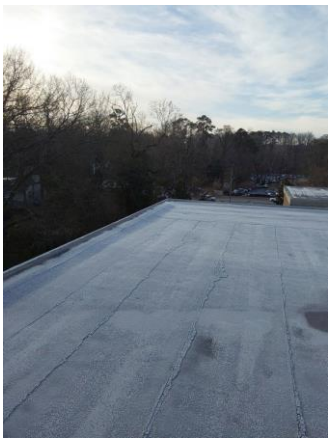
009001e 1/10/2023
Original dry-type transformer
Room A380



009002a 1/10/2023
Roof blistering
Roof



009002e 1/10/2023
Original secondary electric panelboards
Room A380



009003a 1/10/2023
Lack of fall protection on roof perimeter
Roof

009003e 1/10/2023
Passenger elevator car doors
Elevator

009004a 1/10/2023

Overall view of roofs

Roof

009004e 1/10/2023

Overview of corridor lighting

Third floor corridor

009005a 1/10/2023

Roof hatch with very small access

Roof

009005e 1/10/2023

Interior of passenger elevator

Elevator

009006a 1/10/2023

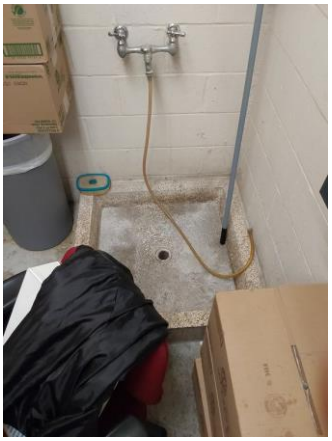
Typical corridor with 9x9 ACT ceiling

South corridor

009006e 1/10/2023

Updated smoke/heat detector

Third floor corridor



009007a 1/10/2023

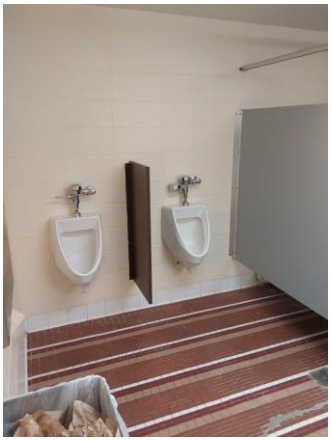
Typical mop sink

Room OA380

009007e 1/10/2023

Updated emergency light fixture

Third floor corridor



009008a 1/10/2023

Urinals

Room OA381

009008e 1/10/2023

Updated manual fire alarm pull station

Third floor corridor

009009a 1/10/2023

Toilet partitions

Room OA381

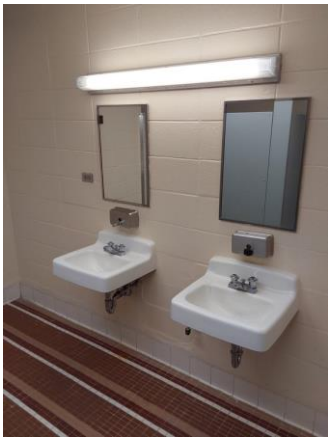
009009e 1/10/2023

Original thermostat to be replaced

Third floor corridor

009010a 1/10/2023
Typical water closet
Room OA381

009010e 1/10/2023
Overview of classroom and office lighting
Room A300

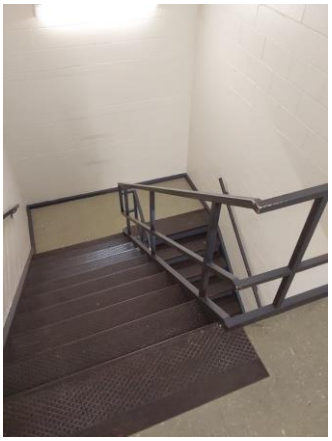


009011a 1/10/2023
Noncompliant wall-hung lavatories
Room OA381

009011e 1/10/2023
Original light switch, outlet, and aged thermostat
Room A300

009012a 1/10/2023
Typical office door with knob hardware
Room OA361

009012e 1/10/2023
Updated fire alarm notifier
Third floor corridor



009013a 1/10/2023
Stair tower railing with noncompliant guardrail
Southeast stair tower

009013e 1/10/2023
Aged electromechanical thermostat to be updated
Third floor corridor

009014a 1/10/2023
Stair tower with noncompliant exit door
Southeast stair tower

009014e 1/10/2023
Original supply and waste piping systems
Third floor pipe chase

009015a 1/10/2023
Safety glass adjacent to corridor
Central stair

009015e 1/10/2023
VAV terminal assembly
Mechanical B135

009016a 1/10/2023
Noncompliant stair railing with missing handrail
Central stair

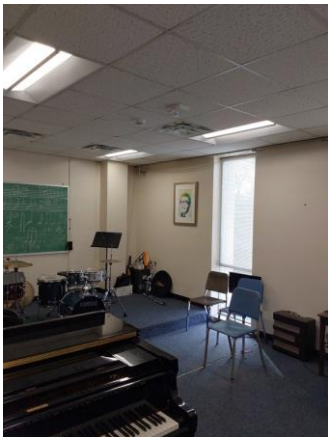
009016e 1/10/2023
Heating water supply pipe and metal ductwork
Mechanical B135

009017a 1/10/2023
Honeycomb light diffusers above central stair
Central stair

009017e 1/10/2023
Automatic transfer switch 1
Mechanical B135

009018a 1/10/2023
Typical music room with finishes shown
Room OA350

009018e 1/10/2023
Circa 2006 electrical panelboard
Mechanical B135



009019a 1/10/2023
Typical corner classroom with finishes shown
Room OA383

009019e 1/10/2023
Automatic transfer switch 2
Mechanical B135

009020a 1/10/2023
Mechanical louver
Room OA310

009020e 1/10/2023
AHU-5 return fan VFD
Mechanical B135

009021a 1/10/2023
Typical lockers
North corridor

009021e 1/10/2023
AHU-5 return fan
Mechanical B135

009022a 1/10/2023
Wall of lockers
North corridor

009022e 1/10/2023
Circa 2006 chilled and heating water piping
Mechanical B135

009023a 1/10/2023
Typical single-pane window
Room OA304

009023e 1/10/2023
Compressed air pipe for pneumatic operation
Mechanical B135

009024a 1/10/2023
Typical room nameplate
Room OA302

009024e 1/10/2023
Fire suppression system sprinkler head for 2006 addition
Mechanical B135

009025a 1/10/2023
Presentation classroom
Room OA300

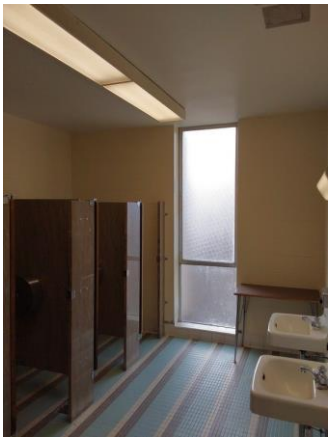
009025e 1/10/2023
Air handler unit AHU-5
Mechanical B135

009026a 1/10/2023
Women's restroom partitions
Room OA370B

009026e 1/10/2023
Hydronic unit heater
Mechanical B135

009027a 1/10/2023
Noncompliant lavatories
Room OA370B

009027e 1/10/2023
Electric humidification for AHU-5
Mechanical B135



009028a 1/10/2023
Women's restroom showing typical finishes
Room OA370B

009028e 1/10/2023
Hybrid HVAC controls
Mechanical B135

009029a 1/10/2023
Offices on east wall
Second floor, room OA264

009029e 1/10/2023
Updated hardware and panelboard for HVAC controls
Mechanical B135

009030a 1/10/2023
Mechanical lover
Second floor, room OA213

009030e 1/10/2023
Surfaced mounted lighting with T12 lamps
Mechanical B201

009031a 1/10/2023

Typical water fountain

North corridor

009031e 1/10/2023

Variable speed AHU-4 and electric humidifier

Mechanical B201

009032a 1/10/2023

Locker wall

Second floor, north corridor

009032e 1/10/2023

Updated electronic Belimo actuating damper

Mechanical B201

009033a 1/10/2023

Typical second floor east and west classrooms

Room OA216

009033e 1/10/2023

Dual duct air handler AHU-3

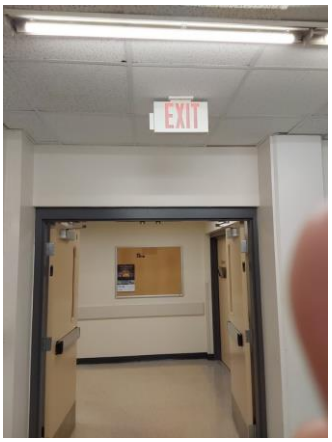
Mechanical C208

009034a 1/10/2023
Typical central stair doors
Central stair

009034e 1/10/2023
Updated electronic Belimo actuating damper
Mechanical C208

009035a 1/10/2023
Exit doors with appropriate signage and hardware
Corridor B131

009035e 1/10/2023
Decorative and recessed lighting
Lobby B101

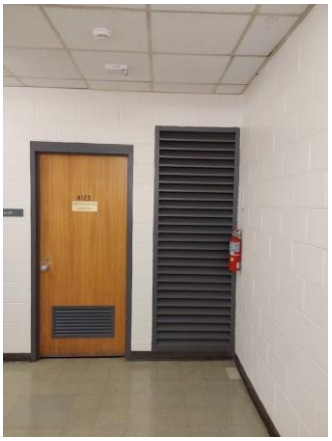


009036a 1/10/2023
Fire doors with inset panic hardware and signage
Room 128

009036e 1/10/2023
Circa 2006 supply and waste piping
First floor pipe chase

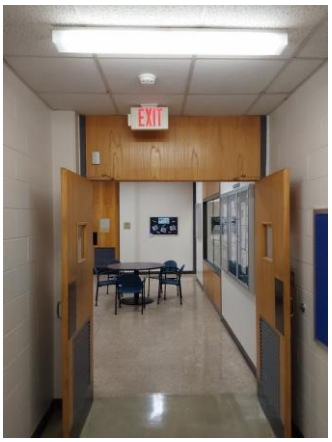
009037a 1/10/2023
Wood storage lockers
Room OO129

009037e 1/10/2023
Overview of performance space lighting
Recital C107

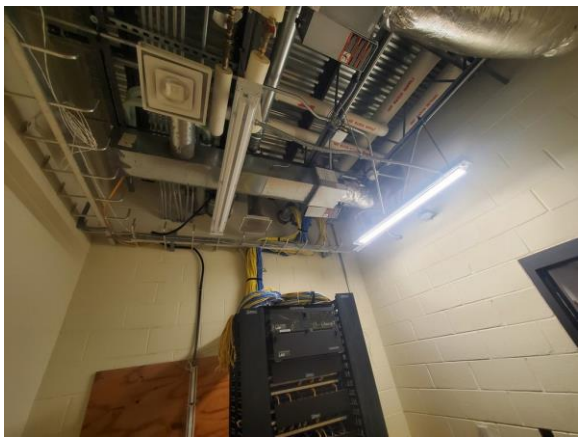


009038a 1/10/2023
Mechanical louver
Room 101

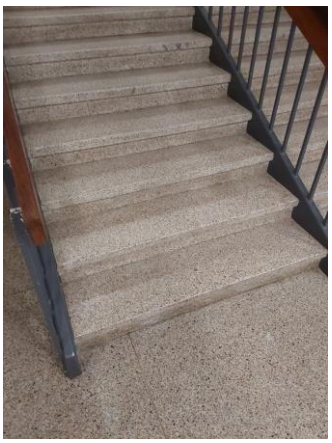
009038e 1/10/2023
Overview of stage lighting
Stage 107A



009039a 1/10/2023
Noncompliant exit doors with safety glass
Room 101



009039e 1/10/2023
Server rack that needs drip pan installed above
Data B112



009040a 1/10/2023

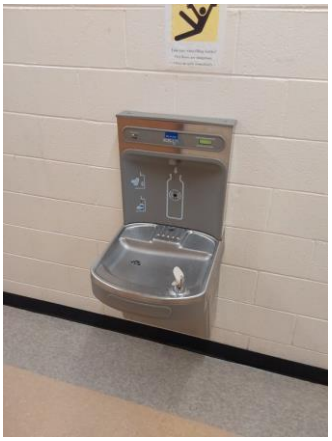
Central stair without tread finish

Room 101

009040e 1/10/2023

Circa 2006 dry type transformer

Electric B134



009041a 1/10/2023

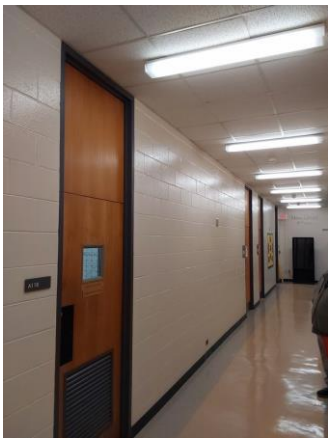
Single water fountain with bottle filler

Room OA118

009041e 1/10/2023

Circa 2006 electrical panelboards

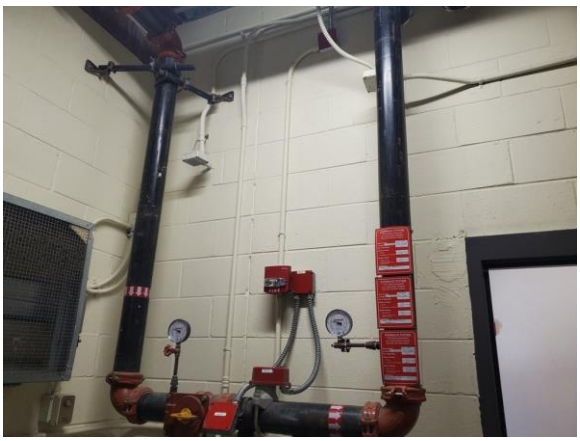
Electric B134



009042a 1/10/2023

First floor corridor doors with transom

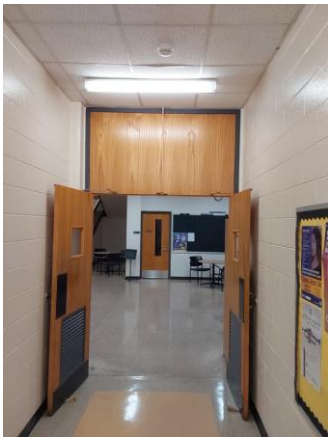
Room OA118



009042e 1/10/2023

Fire suppression system riser for 2006 addition

Fire Pump room B132

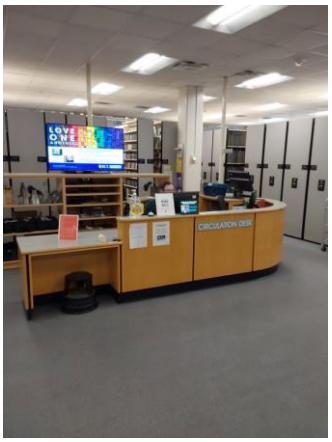


009043a 1/10/2023
Corridor exit doors without safety glass
Room 101

009043e 1/10/2023
Through-wall exhaust fan
Fire Pump room B132

009044a 1/10/2023
Pass through mailboxes on corridor wall
Room OA118

009044e 1/10/2023
Hydraulic elevator machine
Elevator A126

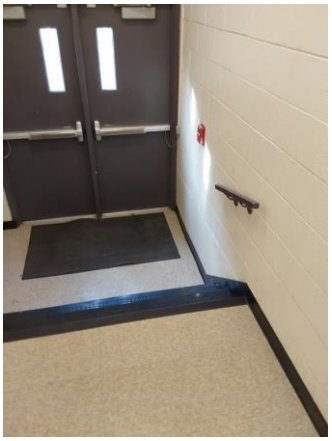


009045a 1/10/2023
Library circulation desk
Room 110

009045e 1/10/2023
Split system blower assembly
Elevator A126

009046a 1/10/2023
Threshold bump
Room OA110 E

009046e 1/10/2023
Main chilled water from utility system
Mechanical 124



009047a 1/10/2023
Noncompliant stair railing
Room 114

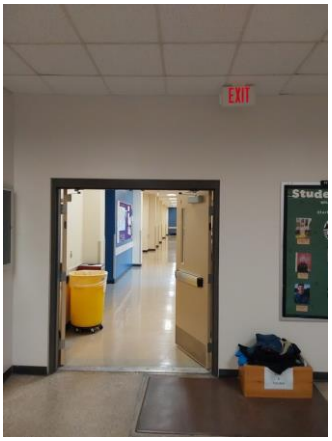
009047e 1/10/2023
Main steam from utility system
Mechanical 124

009048a 1/10/2023
Exit door showing panic hardware
Room 114

009048e 1/10/2023
Steam pressure reducing station and relief valve
Mechanical 124

009049a 1/10/2023
Typical single-user restroom
Room OC116A

009049e 1/10/2023
Duplex condensate return system
Mechanical 124

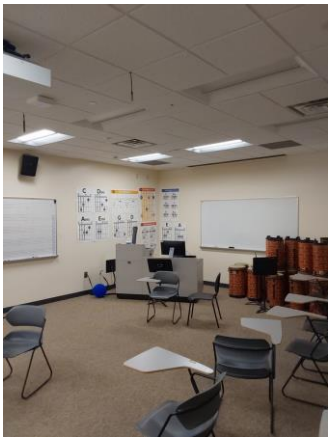


009050a 1/10/2023
Fire exit door with inset panic hardware
Room 101

009050e 1/10/2023
Aged steam to water domestic water heater and pump
Mechanical 124

009051a 1/10/2023
One way observation glass
Room OB126

009051e 1/10/2023
Moderate corrosion on domestic water heater
Mechanical 124



009052a 1/10/2023
Music education room finishes
Room OB126

009052e 1/10/2023
VFDs for AHU-2 fan wall system
Mechanical 124

009053a 1/10/2023
Typical finishes for newer portion of corridors
Room OB117

009053e 1/10/2023
Heating water supply pumps
Mechanical 124

009054a 1/10/2023
Exterior entry doors with power door opener
Room OB117

009054e 1/10/2023
Flaking paint on HVAC system ductwork
Mechanical 124

009055a 1/10/2023
Double egress doors with panic hardware
Room OB110

009055e 1/10/2023
Reciprocating air compressor and dryer for control system
Mechanical 124

009056a 1/10/2023
Full height doors
Room OB115

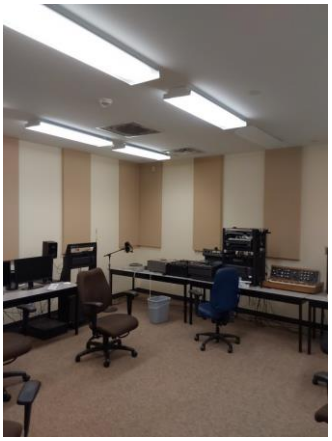
009056e 1/10/2023
Duplex condensate return system
Mechanical 124

009057a 1/10/2023
Wheelchair ramp in music classroom
Room OB136

009057e 1/10/2023
Heating water shell-and-tube heat exchanger
Mechanical 124

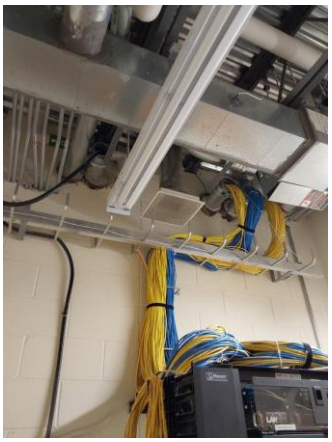
009058a 1/10/2023
Music room with sealed threshold and frame
Room OB113

009058e 1/10/2023
Heating water supply pumps
Mechanical 124



009059a 1/10/2023
Electronic music room with acoustic panels
Room OB113

009059e 1/10/2023
HW pump variable speed drives
Mechanical 124



009060a 1/10/2023
Conduits missing fire stop
Room OB112

009060e 1/10/2023
Heating water air separator
Mechanical 124

009061a 1/10/2023
Typical fire extinguisher cabinet
Room OB117

009061e 1/10/2023
Heating water expansion tank
Mechanical 124

009062a 1/10/2023
Music room finishes
Room OB110A

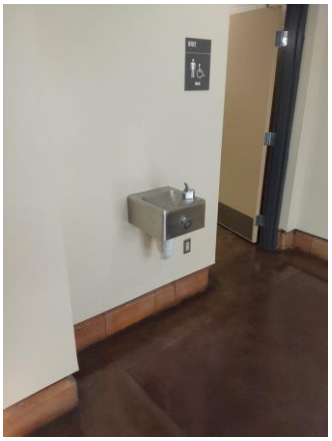
009062e 1/10/2023
Overview of heating water system skid
Mechanical 124

009063a 1/10/2023
Dual height water fountains
Room OB101

009063e 1/10/2023
Air handler AHU-1 with updated fan wall
Mechanical 124

009064a 1/10/2023
Noncompliant inset water fountain
Room OB101

009064e 1/10/2023
Chilled water system pump
Mechanical 124



009065a 1/10/2023
Noncompliant water fountain
Room OB101

009065e 1/10/2023
Original electrical system main switchboard
Mechanical 124

009066a 1/10/2023
Lobby 101 with finishes shown
Room OB101

009066e 1/10/2023
Aged secondary electric panelboard
Mechanical 124

009067a 1/10/2023
Stair tower with noncompliant hardware
Room 100A

009067e 1/10/2023
Corroded spacer covers in original panelboard
Mechanical 124

009068a 1/10/2023
Noncompliant stair handrail
Room 100A

009068e 1/10/2023
Emergency generator
Exterior

009069a 1/10/2023
Projector roll-up fire door
Room OC206

009069e 1/10/2023
Aged motor control center
Mechanical 124

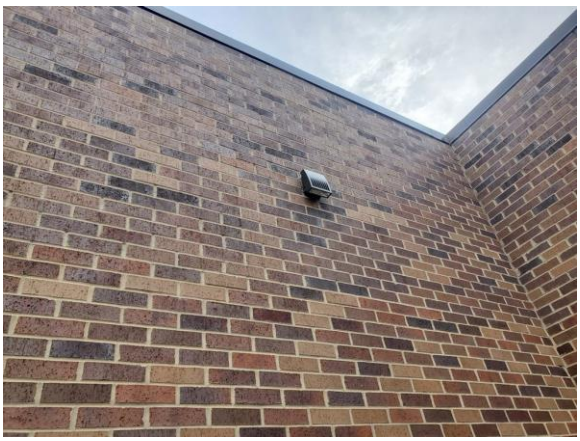
009070a 1/10/2023
Roof hatch with fiberglass fault protection
West roof

009070e 1/10/2023
Split system cassette
Library 110

009071a 1/10/2023
Roof hatch nameplate
West roof

009071e 1/10/2023
Split system air-cooled condensers for library
Exterior

009072a 1/10/2023
Blister on newer portion of roof
West roof



009072e 1/10/2023
Surface mounted LED light fixture
Exterior

009073a 1/10/2023
Painted corrugated metal on newer roof edition
West roof

009073e 1/10/2023
Pole-mounted light fixture
Site

009074a 1/10/2023
Roof blister on older portion of roof
South roof

009074e 1/10/2023
Main backflow preventer housing
Site

009075a 1/10/2023
Roof hatch
South roof

009075e 1/10/2023
Main backflow preventer
Site

009076a 1/10/2023

Missing fall protection

South roof

009076e 1/10/2023

Recessed foot lamp

Exterior

009077a 1/10/2023

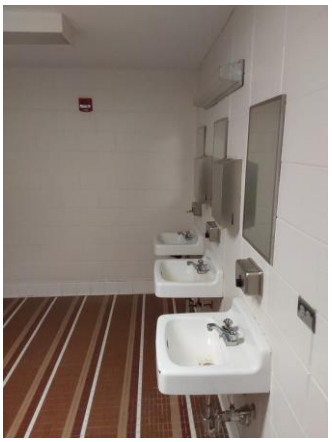
Painted louvers

West roof, mechanical room addition

009077e 1/10/2023

Surface mounted HID light fixtures

Loading dock



009078a 1/10/2023

Men's restroom showing typical finishes

Room OC108

009078e 1/10/2023

Recessed can style lighting

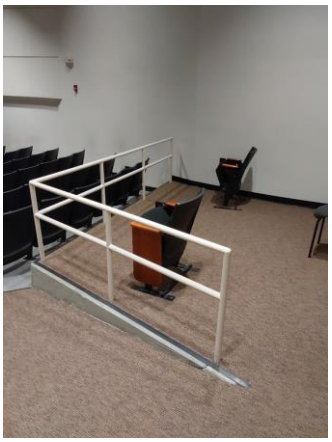
Exterior

009079a 1/10/2023
Women's restroom showing typical finishes
Room OC109

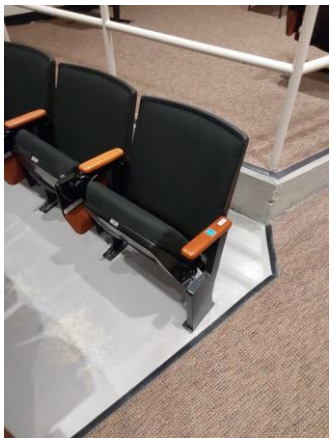
009079e 1/10/2023
Irrigation system backflow
Site

009080a 1/10/2023
Noncompliant lavatories
Room OC109

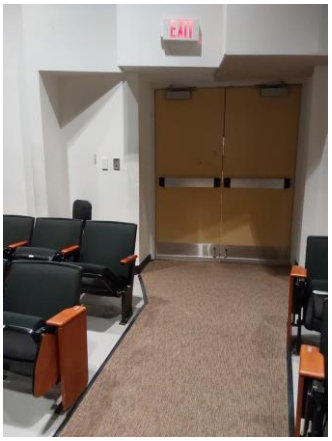
009081a 1/10/2023
Men's restroom fixtures
Room OC108



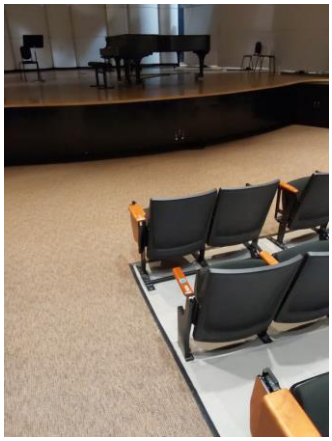
009082a 1/10/2023
Auditorium ADA location
Room OC107



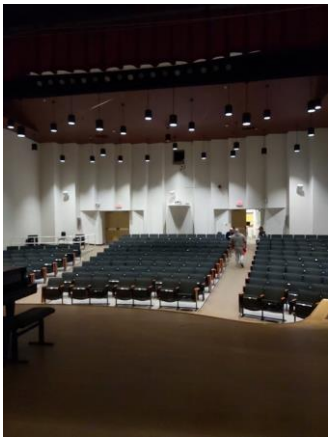
009083a 1/10/2023
ADA-compliant seat in back of auditorium
Room OC107



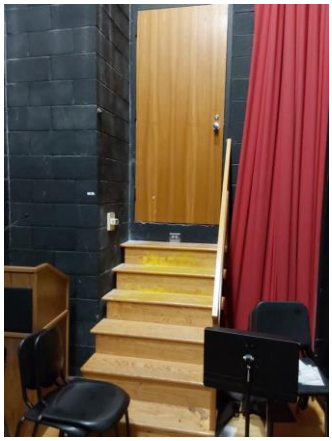
009084a 1/10/2023
Auditorium exit doors
Room OC107



009085a 1/10/2023
ADA-compliant seat in front of auditorium
Room OC107

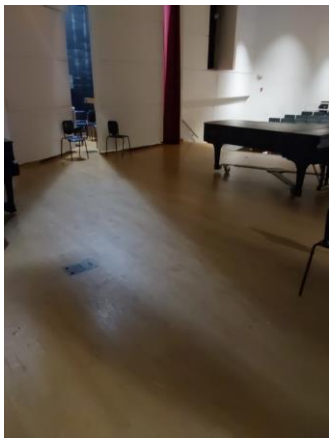


009086a 1/10/2023
Auditorium with no ADA stage access
Room OC107

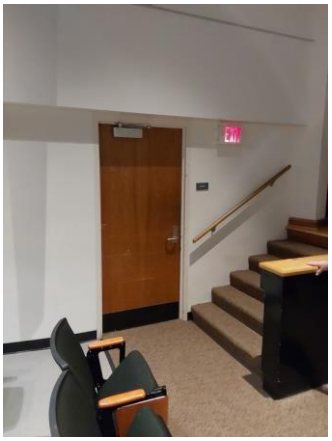


009087a 1/10/2023
Backstage stairs
Room OC107

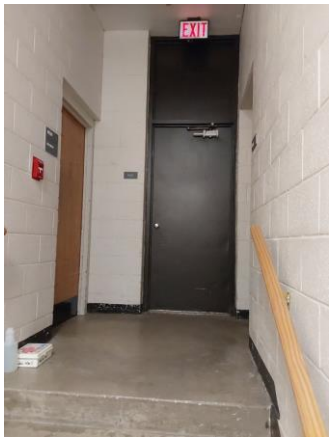
009088a 1/10/2023
Backstage stairs with noncompliant railing
Room OC107



009089a 1/10/2023
Wood stage floor
Room OC107

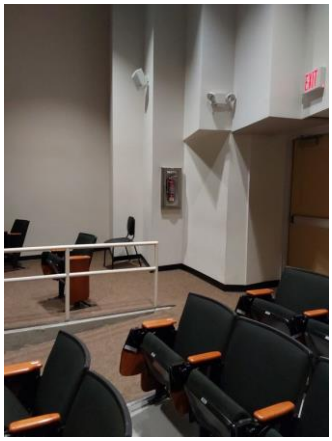


009090a 1/10/2023
Exit door with noncompliant hardware
Room OC107

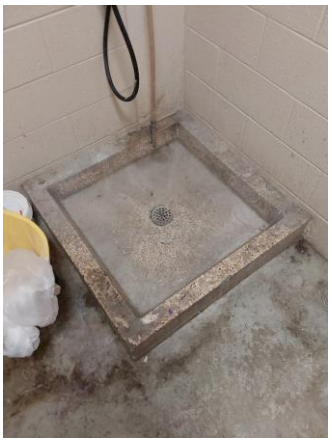


009091a 1/10/2023
Exterior exit door with noncompliant hardware
Loading area

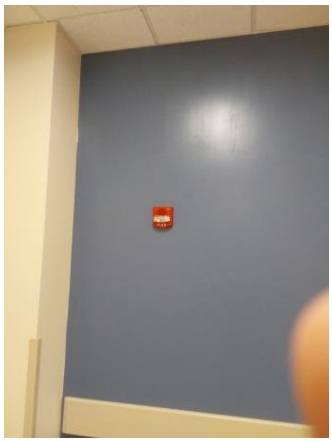
009092a 1/10/2023
Noncompliant handrails
Loading area



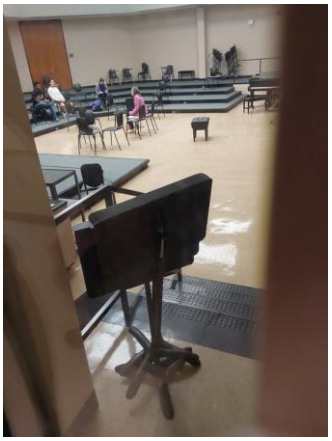
009093a 1/10/2023
Auditorium fire extinguisher cabinet
Room OC107



009094a 1/10/2023
Mop sink
Room OC107C



009095a 1/10/2023
Typical fire alarm for newer edition
Room 101



009096a 1/10/2023
Classroom stair with noncompliant handrails
Room OB136

009097a 1/10/2023
Fire pump room showing typical finishes
Room OB132

009098a 1/10/2023
Stains on ACT ceiling
Room OB123

009099a 1/10/2023
Dual height water fountains
Room OB123

009100a 1/10/2023
Exterior brick, stone, and glazing
East elevation

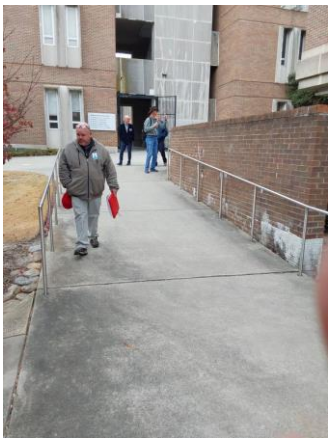
009101a 1/10/2023
Efflorescence on brick
East elevation

009102a 1/10/2023
Exterior brick, stone, and glazing
North elevation

009103a 1/10/2023
Hole along north elevation grade
North elevation

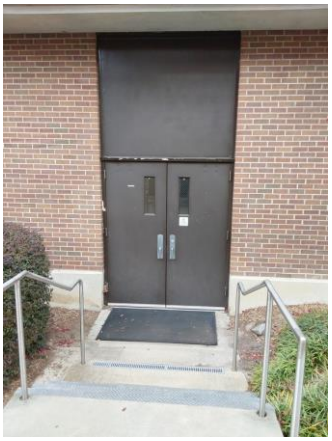
009104a 1/10/2023
Efflorescence on brick retaining wall
West elevation

009105a 1/10/2023
Damaged brick on retaining wall
West elevation

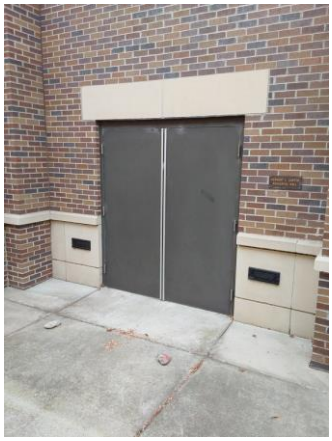


009106a 1/10/2023
Wheelchair ramp with noncompliant handrails
West elevation

009107a 1/10/2023
Dirty roof eave
West elevation



009108a 1/10/2023
Hollow-metal door the safety glass
West elevation



009109a 1/10/2023
Hollow-metal door
West elevation

009110a 1/10/2023
West elevation entrance
West elevation

009111a 1/10/2023
Addition west elevation
West elevation

009112a 1/10/2023
Hollow-metal door west elevation
West elevation

009113a 1/10/2023
Northwest corner brick and eave
Southwest elevation

009114a 1/10/2023
Brick landscaping wall damaged
South elevation

009115a 1/10/2023
Main entrance
South elevation

009116a 1/10/2023
Dirty elevation awning
South elevation

009117a 1/10/2023
Exterior brick and stone
South elevation

009118a 1/10/2023
Missing ADA curb cut
South elevation

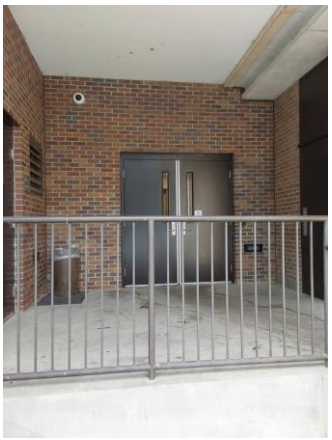
009119a 1/10/2023
ADA ramp needs landing
South elevation

009120a 1/10/2023
Cracks from settling on exterior wall
East elevation

009121a 1/10/2023
Wheelchair ramp with noncompliant handrail
East elevation

009122a 1/10/2023
Crack on exterior east wall
East elevation

009123a 1/10/2023
Hollow-metal doors at loading dock
East elevation



009124a 1/10/2023
Exterior hollow-metal doors
East elevation

009125a 1/10/2023
Louvers and exterior hollow-metal door
East elevation

FACILITY CONDITION ASSESSMENT

SECTION 7

PRELIMINARY ENERGY ASSESSMENT

INTRODUCTION

A Preliminary Energy Assessment (PEA) was conducted to identify energy conservation opportunities. The PEA is intended to be a preliminary energy screening only. The goal is to identify potential energy savings opportunities in a building. It is not equivalent to an American Society of Heating, Refrigeration, or Air Conditioning Engineers (ASHRAE) Level 1, 2, or 3 audit. The PEA has two sections: 1) Benchmarking Data and 2) Energy Conservation Opportunities. Basic building information is provided in **Table 1**.

TABLE 1. BUILDING INFORMATION	
Client	East Carolina University
Asset Number	009
Asset Name	Fletcher Music Center
Year Built or Last Energy Renovation	2007

BENCHMARKING DATA

The purpose of benchmarking building performance is to determine how well a building performs in comparison to other similar buildings. For this analysis, buildings were assessed based on their primary use (e.g., education, food sales, food service, etc.) and year constructed. Two metrics -- energy use intensity and energy end use -- are presented for the building manager to use to assess how efficiently the building performs compared to similar buildings.

Metric #1: Energy Use Intensity (EUI)

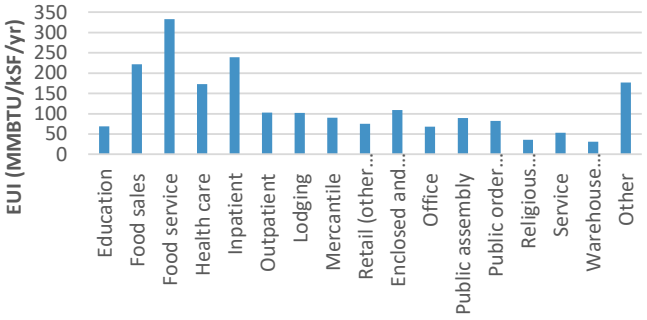
EUI is a measure of energy consumption per square foot of building space per year. The units of measurement are million British thermal units per thousand square foot per year (MMBTU/kSF/yr). The US-DOE EUI can be compared to the actual EUI of the client building to determine how efficient the building is compared to other similar buildings. A building manager can calculate EUI by summing total energy consumption per year (in MMBTU/yr) and dividing it by the building area (in kSF). Benchmarking data from the U.S. Energy Information Administration (EIA) Commercial Building Energy Consumption Survey (CBECS) database was used for this analysis.

Basic information about the building use and the time of the most recent major HVAC or lighting upgrade is provided in **Table 2**. That information is used to determine the Benchmark EUI. The building manager can calculate the Building EUI and compare it to the Benchmark EUI to determine how building efficiency compares to similar buildings (see **Table 3**). In addition, **Figure 1** shows the EUIs of various building types for further comparison.

TABLE 2. BUILDING DETAILS	
FCA Building Type	Classroom
Energy Information Administration Equivalent Building Type	Education
Range of Years Constructed/Last Major Energy Renovation	1990 to present
Benchmark EUI (MMBTU/kSF/yr) =	**69**
Building EUI to be Calculated by Client (MMBTU/kSF/yr) =	

TABLE 3. EUI COMPARISON	
Very Energy Efficient (consumes more than 30% less energy)	EUI < 48.3
Energy Efficient (consumes 10% to 30% less energy)	48.3 <= EUI <= 62.1
Similar (consumes within 10% less or 10% more energy)	62.1 < EUI < 75.9
Energy Inefficient (consumes 10% to 30% more energy)	75.9 <= EUI <= 89.7
Very Energy Inefficient (consumes more than 30% more energy)	EUI > 89.7

Figure 1. EUIs for Buildings Constructed/Renovated 1990 to present

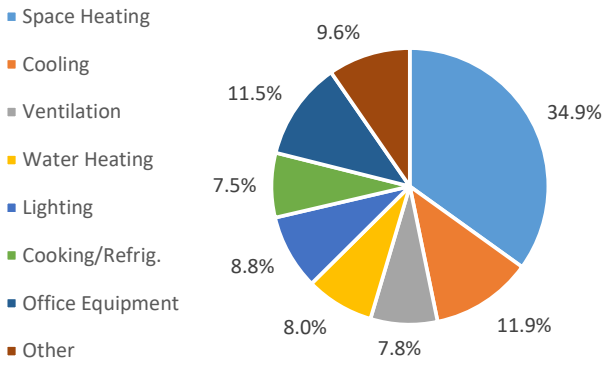


Metric #2: Energy End Use

Energy end use data characterizes how energy is used by profiling energy consumption into end use categories such as space heating, cooling, ventilation, lighting, etc. When energy end use data is presented in a pie chart, high energy-consuming activities are readily identified. A building manager can determine the energy end use profile for a building by analyzing trend data from a Building Automation System and/or Energy Management Control System.

TABLE 4. ENERGY END USE PROFILE: CLASSROOM	
Space Heating	34.9%
Cooling	11.9%
Ventilation	7.8%
Water Heating	8.0%
Lighting	8.8%
Cooking/Refrig.	7.5%
Office Equipment	11.5%
Other	9.6%
Total	100.0%

Figure 2. Energy End Use Profile: Classroom



References:
1. U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. "Technologies and Products by Category." Efficient Technologies and Products for Federal Facilities. DOE. http://energy.gov/eere/femp/efficient-technologies-and-products-federal-facilities. Accessed: June 2016.

2. U.S. Energy Information Administration [EIA]. "2012 CBECS Survey Data." Commercial Building Energy Consumption Survey. EIA. http://www.eia.gov/consumption/commercial/data/2012/index.cfm?view=consumption#c1-c12, Accessed: June 2016.

ENERGY CONSERVATION OPPORTUNITIES

This section presents energy conservation measures (ECMs) recommended for further investigation. Recommended ECMs are categorized into one or more cost categories to indicate an approximate level of resources required to implement the ECM. These cost categories are:

Operation and Maintenance Measures (O&M): O&M actions usually (a) can be completed by in-house maintenance personnel and (b) result in an immediate return on investment.

Low-Cost/No-Cost Measures (LC/NC): LC/NC measures typically (a) can be done by in-house personnel, (b) require little to no investment cost, and (c) result in significant energy savings. In other words, LC/NC measures typically have a quick payback period (less than one year).

Capital Improvement Measures (CAP): CAP measures are major capital investments that usually require significant time (i.e., approximately six months to three years) for planning, design, and implementation. Oftentimes, a request for proposal, design/bid/build (D/B/B), and/or design/build (D/B) package is required. The return on investment for CAP projects ranges significantly, varying from a payback period from one to twenty plus years.

ECM CATEGORY	ECM RECOMMENDED FOR FURTHER CONSIDERATION	COST CATEGORY
Building Envelope - Window/Door Heat Gain/Loss	INCREASE THE R-VALUE OF THE WINDOWS/DOORS. ENERGY STAR qualified fenestration products such as windows and doors can minimize HVAC energy consumption by reducing solar heat gain/loss.	CAP
Building Envelope - Window/Door Air Infiltration	WEATHERSTRIP/CAULK WINDOWS/DOORS. When there is air leakage, weatherstrip around movable components and caulk around rigid components to reduce infiltration and save on heating/cooling costs.	O&M; LC/NC
Lighting - Interior	INSTALL EFFICIENT LIGHTING FIXTURES. While incandescent lamp fixtures have a low initial cost, the lamps are energy inefficient and have a short useful life. Consider CFL and LED lighting instead. HID lamps are necessary in some applications; however, alternatives such as high bay, T5 lighting fixtures or LED fixtures should be considered as an alternate. T12 lamps are an outdated lighting technology that should be replaced with newer technologies such as T8, T5, or LED lamp fixtures.	N/A, Varies
Lighting - Interior, Controls	INSTALL LIGHTING CONTROLS. Oftentimes, lighting fixtures on switches do not get turned off when a space is unoccupied. Occupancy sensors, photocell sensors, and lighting control systems can help reduce lighting energy consumption. For example, consider installing occupancy sensors in offices, common areas, and other areas that have variable occupancy. In areas where there is natural lighting, consider using photocell sensors to dim or shut off fixtures that aren't needed. Alternatively, install a comprehensive light control system that uses time clock schedules, occupancy sensors, photocell sensors, etc., to monitor and control lighting throughout an entire building.	N/A, Varies
Lighting - Exterior	INSTALL EFFICIENT LIGHTING FIXTURES. While incandescent lamp fixtures have a low initial cost, the lamps are energy inefficient and have a short useful life. Consider CFL and LED lighting instead. HID lamps are necessary in some applications; however, alternatives such as high intensity T5 or LED fixtures should be considered. T12 lamps are an outdated lighting technology that should be replaced with newer technologies such as high intensity fluorescent or LED lamp fixtures.	N/A, Varies

ECM CATEGORY	ECM RECOMMENDED FOR FURTHER CONSIDERATION	COST CATEGORY
Lighting - Exterior, Controls	INSTALL LIGHTING CONTROLS. Consider using photocell sensors or timeclocks to shut off building/parking lot fixtures during daylight hours.	N/A, Varies
HVAC - Air Dist. Network Insulation	INSULATE DUCTWORK. Insulating HVAC ductwork reduces heat loss and decreases energy consumption.	CAP
HVAC - Air Dist. Network, VAV	INSTALL VARIABLE AIR VOLUME (VAV) SYSTEM. In constant air volume (CAV) systems, more energy is required to heat, cool, and distribute air than in VAV systems. Consider a VAV system to reduce energy consumption, mainly fan energy consumption.	CAP
HVAC - Unitary Equipment	INSTALL EFFICIENT UNITARY EQUIPMENT. Consider replacing the existing equipment with FEMP recommended/ENERGY STAR qualified unitary equipment.	LC/NC; CAP
Plumbing - DHW Heater Efficiency	INSTALL A HIGH-EFFICIENCY WATER HEATER. High efficiency/ENERGY STAR water heaters consume less energy. Consider condensing water heaters that capture the latent heat from water vapor contained in the flue gases.	LC/NC; CAP