

EAST CAROLINA UNIVERSITY

Facility Condition Assessment

Speight Building (012)

Asset SPEI

Inspected May 11, 2021



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FACILITY CONDITION ASSESSMENT

SECTION 1

ASSET OVERVIEW

ASSET EXECUTIVE SUMMARY

All costs shown as Present Value

ASSET CODE	SPEI	CURRENT REPLACEMENT VALUE	\$23,030,000
ASSET NAME	SPEIGHT BUILDING (012)	FACILITY CONDITION NEEDS INDEX	0.38
ASSET USE	Office / Administrative	FACILITY CONDITION INDEX	0.25
YEAR BUILT	1965	10-YEAR \$/SF	171.29
GSF	50,562		
INSPECTION DATE	05/11/2021		

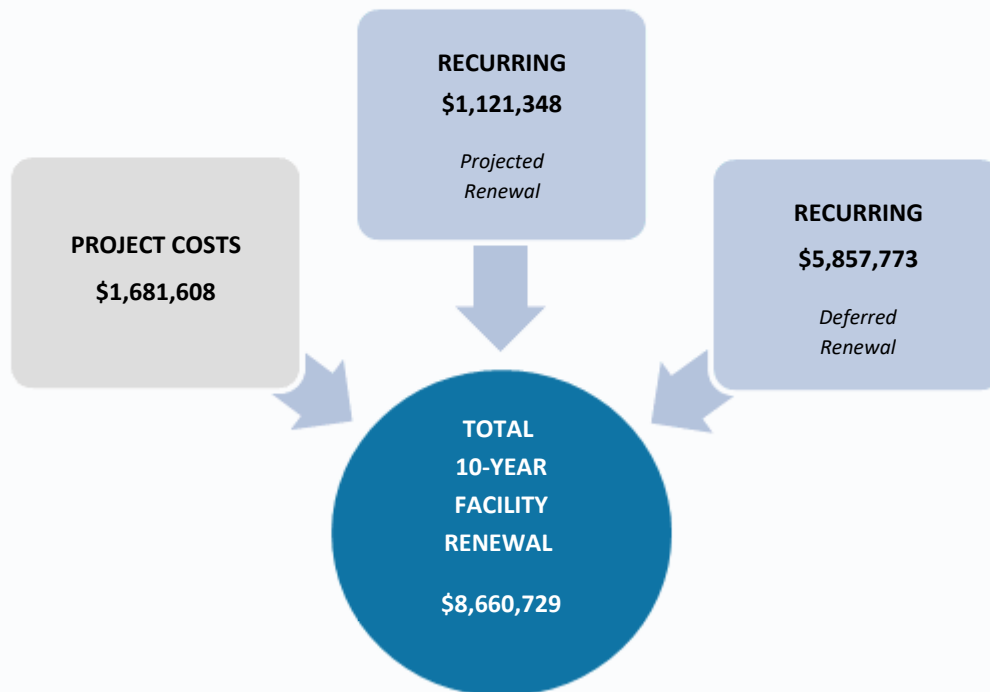
FCNI Scale

The FCNI for this asset is **0.38**

- Excellent Condition (typically new construction)
- Good Condition (maintained within lifecycle)
- Fair Condition (normal renovations required)
- Below Average Condition (major renovation required)
- Poor Condition (total renovation required)
- Replacement Indicated (unless historic)



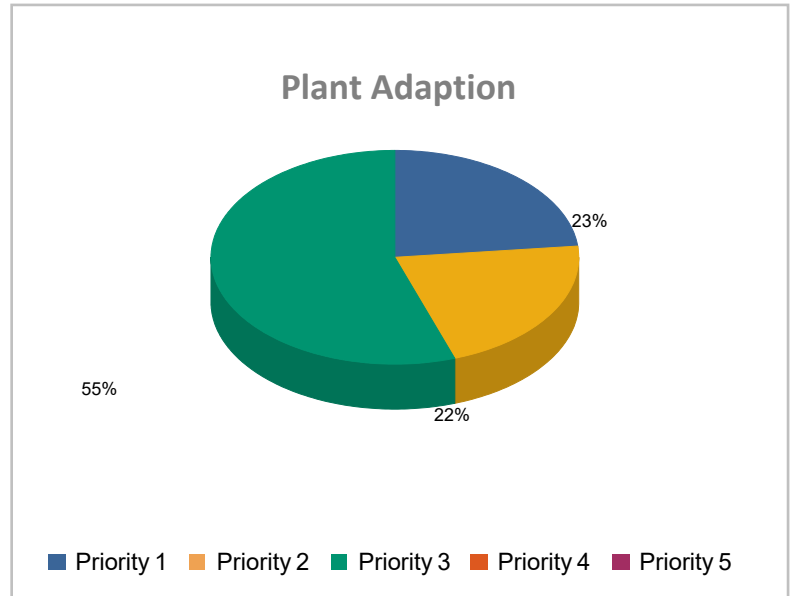
Total Facility Renewal Costs



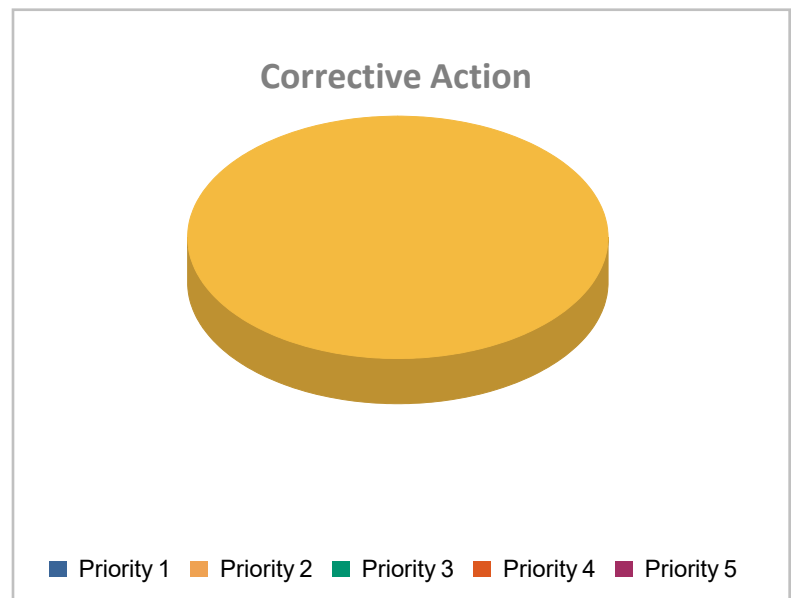
Project Costs

Project Cost by Priority

PLANT ADAPTION	
Priority 1	\$388,715
Priority 2	\$362,647
Priority 3	\$923,592
Priority 4	\$0
Priority 5	\$0

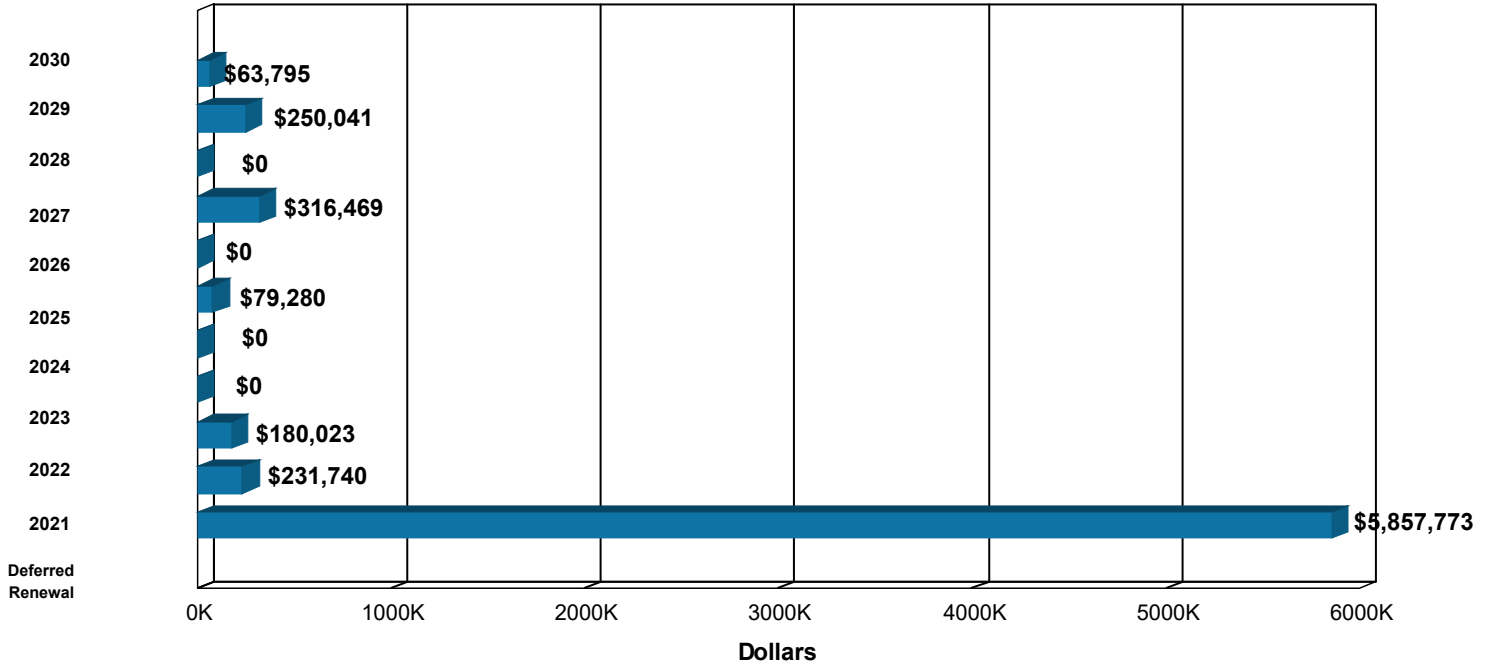


CORRECTIVE ACTION	
Priority 1	\$0
Priority 2	\$6,654
Priority 3	\$0
Priority 4	\$0
Priority 5	\$0

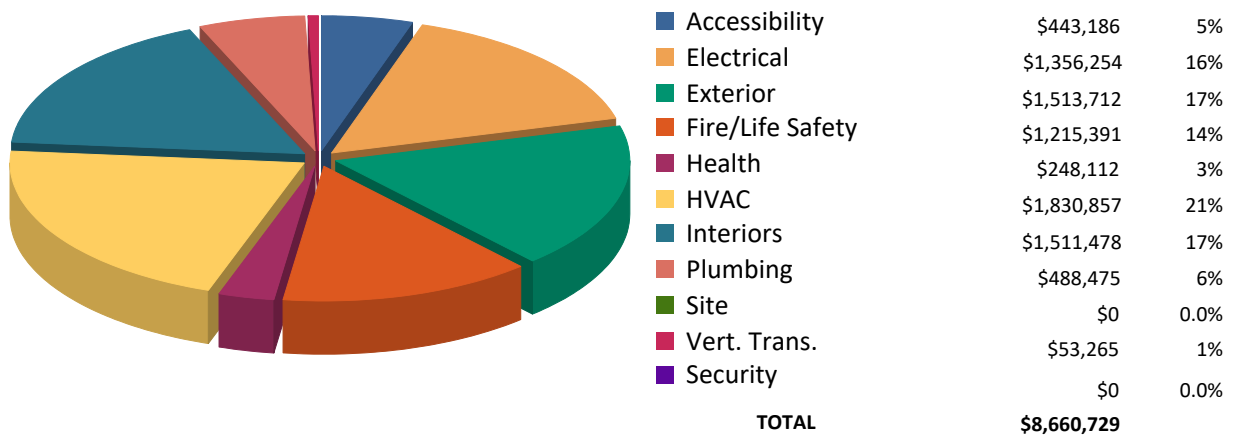


Recurring Costs

Component Replacement Cost by Year



Facilities Renewal Cost by System



ASSET SUMMARY

The Speight Building is a 1965, three-story, classroom and office building on the main campus of East Carolina University. Each floor is organized around central double-loaded corridors that pinwheel around a central service core. The exterior facades are a mixture of yellow brick and precast concrete panels. The glazing is original, metal-framed aging windows and the main entry/egress doors are newer glass assemblies with hollow-metal service doors. The upper central roof and the lower four roofs have older built-up systems. The Speight Building totals approximately 50,562 gross square feet.

The information for this report was gathered during an inspection conducted on May 11, 2021.

Site

The site has a gentle slope and the landscaping consists mostly of turf grass and ornamental shrubs and trees. No additional planting is recommended at this time. The concrete sidewalk layouts around the building are adequate and there are no parking lots directly associated with this building.

Exterior Structure

The exterior facades are a mixture of yellow brick and precast concrete panels that are stained. There are also numerous step cracks that need to be repaired. Cleaning, surface preparation, selective repairs, and applied finish or penetrating sealant upgrades are recommended to restore the aesthetics and integrity of the building envelope.

The primary and secondary doors have been upgraded to glass and metal assemblies and are in good overall condition. The hollow-metal service doors are older, but serviceable, and no upgrades are recommended at this time. While many of the window systems have been retrofitted with storm windows, the original windows continue to degrade and should be upgraded with new thermal-pane, metal-framed glazing on all elevations.

The multi-level flat roofs are aging and should be upgraded in the near few years. The roof hatch in the #3 stair tower has a newer top hatch but the lower hatch is poor and the ladder lacks any handrail extension features. Replace the lower hatch and install a railing extension unit to the top of the access ladder. Also, relocate the roof transition ladder that is located too close to the edge of the roof to help improve safety for service personnel.

Interior Finishes/Systems

The interior finishes are in fair condition. Painted walls have older finishes and all of the walls should be repainted in the near future. Flooring is a mixture of carpeting and older vinyl that is assumed to contain asbestos. The painted textured ceilings are also believed to contain asbestos. These abatement issues

are addressed in the Health section. The acoustical ceilings vary in age, but overall they are in adequate condition at this time. Carpeting varies in age and is showing normal wear. Due its short lifecycle, all of the existing carpeting should be replaced in the near future. The ceramic floor and wall tile in the restrooms and janitor's closets is aging and should be upgraded when the restrooms are upgraded. The Accessibility section recommends that the stair treads in the four interior stair towers be upgraded with new rubber stair treads with color contrasting nosings.

While some of the interior doors have been upgraded, most corridor doors are older nonrated assemblies and should be replaced. The casework in break areas and work stations is older and should be replaced in the near future. Fixed seating in the lecture room is still adequate and no seating replacement is recommended at this time.

Accessibility

The building has ramped access points at the northwest and southeast entries. The main entry porch on the north elevation lacks adequate handrails and should be upgraded with new railing designs.

The building has an accessible passenger elevator. However, the four stair towers lack accessible railings, and new railings should be installed on each stair run. Also, install new rubber stair treads with contrasting nosing colors for additional user safety.

Restrooms have older fixtures and none of these facilities are accessible despite the accessible restroom signage. It is recommended that both all-gender restrooms, as well as the men's and women's restrooms, be upgraded with new accessible fixtures, accessories, and finishes. All of the restrooms should be fitted with accessible power door assist units to further improve access. Also, upgrade all of the aging single-level water fountains with new fully accessible dual-level fountains set in wheelchair accessible corridor alcoves.

The lecture room has accessible viewing areas but lacks handrails for the two side aisles and does not have assistive listening capability. Install these missing components to help improve assembly room accessibility.

Many of the interior doors still lack lever hardware. These aging doors should be replaced and the new door assemblies should include lever hardware. However, if these doors are not upgraded in the near future then new accessible interior lever hardware sets should be installed on the existing doors on all floors. The room signage has been upgraded to wall-mounted high color contrast signage with Braille.

Health

Most of the vinyl flooring is original nine-inch tile and both the tiles and the mastics are suspected to contain asbestos as are the textured ceilings. Sample and test tiles and mastics for asbestos. It is also believed that there are additional textured ceilings above most of the acoustical tile and VAT under most of the existing carpeting.

Asbestos insulation was observed on mechanical piping during the inspection. Prior to any future renovation efforts, it is recommended that it be properly removed and disposed of according to local, state, and federal regulations.

Fire/Life Safety

While the building appears to have adequate egress pathways, most of the interior doors are not fire rated and a building-wide corridor door upgrade is recommended to provide fire-rated corridor doors with lever hardware sets on all floors.

This facility contains a Notifier point addressable fire alarm and detection system with a main fire alarm panel, manual pull stations, smoke detectors, and horn and strobe alarm systems. The panel and devices were installed within the last ten years and should be evaluated for replacement within the next decade due to technical obsolescence.

This facility is not protected by an automatic fire suppression system. Fire suppression is handled manually via strategically placed dry-type handheld fire extinguishers and standpipes. As a part of future renovation efforts, it is recommended that an automatic wet-pipe fire suppression system be installed.

HVAC

The main HVAC system provides heating and cooling via three constant air volume (CAV) air handling units, each with a zoned deck. The air handling units are visually timeworn as corrosion, air leaks, and insulation spalling were observed during the inspection. Exhaust for the restrooms is handled by two centrifugal exhaust fans, and a propeller exhaust fan serves the main mechanical room. The air handling units and exhaust fans have exceeded their respective statistical service lives and should be considered for removal and replacement with modern systems. Variable air volume (VAV) capable air handling units are recommended. Supplemental cooling for select spaces is handled by two ductless split systems. No issues were observed and they are expected to remain viable for the next ten years.

Chilled water is generated at the nearby by chilled water plant and circulated throughout the building via a 10-hp inline centrifugal pump. Heating hot water is generated through a shell-and-tube heat exchanger utilizing steam generated at the central steam plant and circulated throughout via a base-mounted centrifugal pump. Condensate from the heat exchanger is collected and transferred back to the central plant through a duplex condensate receivers. The heat exchanger, heating hot water pump, and the condensate receiver should be considered for replacement as they have exceeded their respective service lives. The chilled water pump was replaced within the last five years and is expected to remain viable for the next decade.

The HVAC distribution network is a multi-zone CAV design and original to the construction. The distribution network consists of insulated metallic conduit, insulated mechanical piping, valves, diffusers, and similar elements. The HVAC controls are a direct digital (DDC) and pneumatic hybrid with the pneumatic systems original and some recent upgrades to DDC. It is recommended that the HVAC distribution network and controls be removed and replaced with and a modern, energy efficient variable

air volume (VAV) system with full DDC. The controls air compressor was replaced in 2018 and is not due to replacement. However, it may be removed from future budgeting with the DDC upgrade.

Electrical

Main electrical service is fed to this facility from a 500-kVA transformer where power is reduced to 277/480 volts and routed to an 800-amp main switchboard. Power is further reduced to 120/208 volts through various secondary step-down transformers. Power is distributed at 120/208 and 277/480 volts via individual conductors in metallic conduit to secondary panelboards for use in local devices. The distribution system consists of downline electrical system components beyond the main electrical service elements including the distribution feeders, conduits, local panelboards, load centers, safety switches, fused disconnects, receptacles, switches, and similar terminal elements. The switchboards, step-down transformers, and the electrical distribution are original be considered for replacement as they have exceeded their statistical lifecycles and are not up to current standards. The transformer was replaced around 2008 and is expected to remain viable for the next ten years.

The emergency power network consists of a 60-kW diesel-fired generator and two 100-amp automatic transfer switches. The emergency network provides emergency power to life safety devices and the elevator. No issues were observed or reported and they are expected to remain viable for the next ten years.

Variable frequency drives (VFDs) are associated with the air handling units and the heating and cold water pump. The drives are currently used as soft starts for the motors and not able to provide throttling due to the current HVAC controls. It is recommended they be replaced during any future HVAC renovations.

The majority of the interior lighting was replaced in 2016 with some 1980s fixtures retrofitted with LED and newly installed recessed, lay-in LED fixtures. Some 1980s retrofitted T8 fixtures were observed in select spaces and corridors. Although the 1980s fixtures and LED retrofitted lighting system appears to be in usable condition, they will fulfill their financially viable life expectancy within the next ten years. Lighting technology is rapidly advancing and expectations for lamp durability, quality, intensity control, and efficiency are increasing with the advancement of LED lighting options. The 1980s lighting fixtures should be considered for upgrade to LED technology and the retrofitted lighting system should also be upgraded.

Automated on/off timer lighting controls and occupancy sensing on/off lighting controls are recommended to be added throughout to save energy and reduce operational costs through extended lamp life. Timers should be controlled by building automation systems or be otherwise digitally programmable. The occupancy sensors should be preset for preferred inactivity periods for activation. A cost adjustment has been added to the vintage lighting for the installation of lighting controls.

The exterior lighting consists of HID wallpacks, recessed can fixtures, and LED fixtures. While currently functional, the exterior lighting is less efficient and requires more frequent maintenance than modern LED-based outdoor lighting fixtures. It is recommended that the exterior lighting be replaced with LED

fixtures. The LED fixtures were installed within the last three years and are expected to remain viable for the next ten years.

Plumbing

Potable water supply, sanitary sewer, and stormwater handling systems serve this facility. The supply piping is copper with soldered connections. The drain piping is cast-iron with bell-and-spigot connections. The majority of the supply and drain piping is original and recommended for replacement as aged piping can cause costly repairs due to unwanted leaks. Two backflow preventers serve the water main and were installed around 2010. Due to lifecycle depletion, it is recommended that they be evaluated for replacement within the next ten years.

Domestic hot water is generated through a residential-style electric water heater. The water heater was replaced in 2015 and should remain viable for the next ten years.

A small modular sump pump in the basement mechanical room was likely installed within the last ten years. No issues were observed or reported during the inspection.

Wall-hung lavatories, urinals, and tankless water closets are aging and not accessible. All of the restrooms are recommended to receive new accessible fixtures and accessories. The small stainless-steel sink in the office break area is still adequate at this time but the original wall-mounted service sinks in the janitor's closets are aging and due for replacement.

Vertical Transportation

A three-stop hydraulic-controlled passenger elevator with a capacity of 2,100 pounds serves this facility. The elevator was modernized in 2018 and appears to be in good condition. No detailed elevator testing was conducting during this assessment.

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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Project Manager

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Date of Inspection

May 11, 2021

Inspection Team Personnel

NAME	POSITION	SPECIALTY
Andrew Derrick	Project Engineer	Mechanical, Electrical, Plumbing, Energy, Fire/Life Safety, Health
Carl Turner, AIA	Senior 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.

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

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

<i>Example:</i> 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.

<i>Example</i>			
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).

<i>Example:</i>	
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	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
ACCESSIBILITY	0	328,812	114,373	0	0	0	0	0	0	0	0	0	0	0	\$443,186
EXTERIOR	0	6,654	0	1,307,083	199,975	0	0	0	0	0	0	0	0	0	\$1,513,712
INTERIOR	0	0	0	1,271,085	24,366	116,449	0	0	4,314	0	84,734	0	0	10,531	\$1,511,478
PLUMBING	0	0	0	423,748	0	0	0	0	64,728	0	0	0	0	0	\$488,475
HVAC	0	0	0	1,830,857	0	0	0	0	0	0	0	0	0	0	\$1,830,857
FIRE/LIFE SAFETY	388,715	0	594,942	0	0	0	0	0	0	0	231,735	0	0	0	\$1,215,391
ELECTRICAL	0	0	0	1,025,001	7,399	63,575	0	0	10,238	0	0	0	250,041	0	\$1,356,254
SITE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0
VERT. TRANS.	0	0	0	0	0	0	0	0	0	0	0	0	0	53,265	\$53,265
HEALTH/EQUIP.	0	33,834	214,278	0	0	0	0	0	0	0	0	0	0	0	\$248,112
SUBTOTAL	\$388,715	\$369,301	\$923,592	\$5,857,773	\$231,740	\$180,023	\$0	\$0	\$79,280	\$0	\$316,469	\$0	\$250,041	\$63,795	\$8,660,729
TOTAL NONRECURRING PROJECT NEEDS			\$1,681,608	TOTAL RECURRING COMPONENT REPLACEMENT NEEDS										\$6,979,121	

CURRENT REPLACEMENT VALUE	\$23,030,000
FACILITY CONDITION NEEDS INDEX	0.38
FACILITY CONDITION INDEX	0.25

GSF	TOTAL 10-YEAR FACILITY RENEWAL NEEDS	10-YEAR NEEDS/SF
50,562	\$8,660,729	\$171.29

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	\$443,186	\$0	\$443,186
EXTERIOR	\$6,654	\$1,507,058	\$1,513,712
INTERIOR	\$0	\$1,511,478	\$1,511,478
PLUMBING	\$0	\$488,475	\$488,475
HVAC	\$0	\$1,830,857	\$1,830,857
FIRE/LIFE SAFETY	\$983,657	\$231,735	\$1,215,391
ELECTRICAL	\$0	\$1,356,254	\$1,356,254
SITE	\$0	\$0	\$0
VERT. TRANS	\$0	\$53,265	\$53,265
HEALTH	\$248,112	\$0	\$248,112
TOTALS	\$1,681,608	\$6,979,121	\$8,660,729

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
SPEI EW01	WALL, EXTERIOR, MASONRY POINTING	BRICK & CONC PRECAST			B2010	Deferred Renewal	276,742
SPEI WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	METAL FRAME SINGLE PANE			B2010	Deferred Renewal	1,030,341
SPEI DR01	DOOR AND FRAME, INTERIOR, NON-RATED	KNOB HDW			C1020	Deferred Renewal	108,231
SPEI DR01	DOOR AND FRAME, INTERIOR, NON-RATED	KNOB HDW		CORRIDORS	C1020	Deferred Renewal	225,120
SPEI DR24	DOOR LOCK, COMMERCIAL-GRADE	SERVICE		BSMT	C1020	Deferred Renewal	2,979
SPEI IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			C3010	Deferred Renewal	290,866
SPEI IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	WAINSCOT		RRS	C3010	Deferred Renewal	154,268
SPEI IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	12X12 VCT			C3020	Deferred Renewal	26,275
SPEI IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	9X9 VINYL FLR TILE			C3020	Deferred Renewal	236,221
SPEI IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CER FLR TILE			C3020	Deferred Renewal	57,875
SPEI IC05	CEILING FINISH - PAINTED OR STAINED, TEXTURED	TEXTURED PT CLGS			C3030	Deferred Renewal	169,250
SPEI FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	WALL MOUNT		JAN CLOS	D2010	Deferred Renewal	5,378
SPEI PS14	SUPPLY PIPING SYSTEM - OFFICE	COPPER		THROUGHOUT	D2020	Deferred Renewal	167,050
SPEI PD14	DRAIN PIPING SYSTEM - OFFICE	CAST IRON, BELL AND SPIGOT		THROUGHOUT	D2030	Deferred Renewal	251,320
SPEI AH06	AIR HANDLING UNIT - INDOOR (6-9 HP)	AHU-003		252	D3040	Deferred Renewal	55,834
SPEI AH08	AIR HANDLING UNIT - INDOOR (12-17 HP)	AHU-002		160	D3040	Deferred Renewal	103,428

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
SPEI AH11	AIR HANDLING UNIT - INDOOR (27-35 HP)	AHU-001		165	D3040	Deferred Renewal	184,169
SPEI FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-1		ROOF	D3040	Deferred Renewal	7,951
SPEI FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-2		ROOF	D3040	Deferred Renewal	7,951
SPEI FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-3		165A	D3040	Deferred Renewal	2,772
SPEI HV14	HVAC DISTRIBUTION NETWORKS - OFFICE	CAV, ZONED		THROUGHOUT	D3040	Deferred Renewal	1,233,156
SPEI HX05	HEAT EXCHANGER - SHELL & TUBE STEAM TO WATER (>85 GPM)	HX-1		165	D3040	Deferred Renewal	17,645
SPEI PH01	PUMP - ELECTRIC (<=10 HP)	HWP-1		165	D3040	Deferred Renewal	3,290
SPEI PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	CP-1		165	D3040	Deferred Renewal	22,310
SPEI BA114	HVAC CONTROLS SYSTEM - OFFICE	HYBRID-DDC, PNEUM		THROUGHOUT	D3060	Deferred Renewal	192,351
SPEI SE14	ELECTRICAL DISTRIBUTION NETWORK - OFFICE	ORIG, 277/480		THROUGHOUT	D5010	Deferred Renewal	932,986
SPEI LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	REC CAN		EXT	D5020	Deferred Renewal	1,642
SPEI LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	HID WP		EXT	D5020	Deferred Renewal	988
SPEI LE08	LIGHTING - EXTERIOR, WALL LANTERN or FLOOD (INC, CFL, LED)	CFL SCONCE		EXT	D5020	Deferred Renewal	2,490
SPEI LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	RETRO T8, CFL		SELECT SPACES	D5020	Deferred Renewal	86,895
SPEI RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	FLAT ROOF ENTRY CANOPY			B3010	2021	6,974
SPEI RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	MULTI LEVEL FLAT ROOF			B3010	2021	193,001

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
SPEI DR26	DOOR PANIC HARDWARE			INT STAIRS	C1020	2021	24,366
SPEI VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	VFD HWP-1		165	D5010	2021	2,102
SPEI VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD CHWP-1		165	D5010	2021	5,298
SPEI IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			C3020	2022	116,449
SPEI SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	MSB		165	D5010	2022	57,442
SPEI VF04	VARIABLE FREQUENCY DRIVE (10-15 HP)	VFD AHU-002		160	D5010	2022	6,133
SPEI CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	CABINETS		BREAK AREA	C1030	2025	4,314
SPEI FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RRS	D2010	2025	18,623
SPEI FX10	PLUMBING FIXTURE - URINAL	PC		RRS	D2010	2025	6,354
SPEI FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC		RRS	D2010	2025	35,073
SPEI BF02	BACKFLOW PREVENTER (1-2 INCHES)	BFP-WM-1		EXT	D2020	2025	2,339
SPEI BF02	BACKFLOW PREVENTER (1-2 INCHES)	BFP-WM-2		EXT	D2020	2025	2,339
SPEI VF07	VARIABLE FREQUENCY DRIVE (25-30 HP)	VFD AHU-001		165	D5010	2025	10,238
SPEI IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			C3020	2027	84,734
SPEI FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	PA, NOTIFIER		165	D4030	2027	37,851
SPEI FA02	FIRE ALARM SYSTEM - DEVICES	HS, MP, SD		THROUGHOUT	D4030	2027	193,884
SPEI LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	RETRO LED		MAJ OF SPACES	D5020	2029	250,041

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
SPEI	IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			C3020	2030	10,531
SPEI	VT04	ELEVATOR CAB RENOVATION - PASSENGER	ELEV		ELEV	D1010	2030	53,265
TOTAL								\$6,979,121

FACILITIES RENEWAL PLAN

NONRECURRING PROJECT COSTS

All costs shown as Present Value

PROJECT NUMBER	PROJECT TITLE	UNI-FORMAT	PRIORITY CLASS	PROJECT CLASSIFICATION	PROJECT COST
SPEIFS02	RATED CORRIDOR DOOR UPGRADES	C1020	1	Plant Adaption	388,715
SPEIAC04	ACCESSIBLE NORTH ENTRY PORCH RAILING UPGRADE	B2030	2	Plant Adaption	22,661
SPEIES01	ROOF HATCH SAFETY UPGRADES	B3010	2	Corrective Action	6,654
SPEIAC01	LECTURE ROOM 129 ACCESSIBILITY UPGRADES	C1010	2	Plant Adaption	16,252
SPEIAC03	STAIR TOWER RAILING AND TREAD UPGRADES	C2020	2	Plant Adaption	73,723
SPEIAC02	RESTROOM & DRINKING FOUNTAIN ACCESSIBILITY UPGRADES	D2010	2	Plant Adaption	216,177
SPEIHE01	ASBESTOS ABATEMENT - MECHANICAL SYSTEMS	F2020	2	Plant Adaption	33,834
SPEIAC05	INTERIOR DOOR HARDWARE ACCESSIBILITY UPGRADES	C1020	3	Plant Adaption	114,373
SPEIFS01	FIRE SPRINKLER SYSTEM INSTALLATION	D4010	3	Plant Adaption	594,942
SPEIHE02	ASBESTOS ABATEMENT - INTERIOR FINISH SYSTEMS	F2020	3	Plant Adaption	214,278
TOTAL					\$1,681,608

FACILITY CONDITION ASSESSMENT

SECTION 3

**NONRECURRING
PROJECT DETAILS**

All costs shown as Present Value

RATED CORRIDOR DOOR UPGRADES			
Project Number:	SPEIFS02	Category Code:	
Priority Sequence:	1	FS5F	
Priority Class:	Immediate	System:	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	Component:	EGRESS PATH
Date Basis:	5/11/2021	Element:	FIRE DOORS/HARDWARE

Code Application:		Subclass/Savings:	Project Location:
IBC	713	Not Applicable	Floor-wide: Floor(s) 1,2,3

Description

Only a few interior corridor doors have been upgraded to fire-rated door assemblies. The majority of the corridor doors on all three floors are original nonrated doors that should be replaced with new fire-rated flush wood doors with rated metal frames and lever hardware sets.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Fire rated flush wood door with rated metal frame and lever hardware	LEAF	104	\$2,277	\$236,808	\$550	\$57,200	\$294,008
Base Material/Labor Costs				\$236,808		\$57,200	
Indexed Material/Labor Costs				\$238,466		\$40,784	\$279,249
Construction Mark Up at 20.0%							\$55,850
Original Construction Cost							\$335,099
Date of Original Estimate:	5/11/2021					Inflation	\$0
Current Year Construction Cost							\$335,099
Professional Fees at 16.0%							\$53,616
TOTAL PROJECT COST							\$388,715

All costs shown as Present Value

ASBESTOS ABATEMENT - MECHANICAL SYSTEMS			
Project Number:	SPEIHE01	Category Code:	
Priority Sequence:	2	HE6B	
Priority Class:	Critical	System:	HEALTH
Project Class:	Plant Adaption	Component:	HAZARDOUS MATERIAL
Date Basis:	5/28/2021	Element:	MECHANICAL ASBESTOS

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

Description

There is asbestos existent on utility piping. Prior to future renovation of these systems, this asbestos will have to be properly removed from the utility networks.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
HVAC system - abate asbestos from utility piping	SF	50,562	\$0.09	\$4,551	\$0.21	\$10,618	\$15,169
Plumbing system - abate asbestos from supply piping network	SF	50,562	\$0.09	\$4,551	\$0.21	\$10,618	\$15,169
Base Material/Labor Costs				\$9,101		\$21,236	
Indexed Material/Labor Costs				\$9,165		\$15,141	\$24,306
Construction Mark Up at 20.0%							\$4,861
Original Construction Cost							\$29,167
Date of Original Estimate:	5/28/2021				Inflation		\$0
Current Year Construction Cost							\$29,167
Professional Fees at 16.0%							\$4,667
TOTAL PROJECT COST							\$33,834

All costs shown as Present Value

RESTROOM & DRINKING FOUNTAIN ACCESSIBILITY UPGRADES			
Project Number:	SPEIAC02	Category Code:	
Priority Sequence:	3	AC3E	
Priority Class:	Critical	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	INTERIOR PATH OF TRAVEL
Date Basis:	6/13/2021	Element:	RESTROOMS/BATHROOMS

Code Application:		Subclass/Savings:	Project Location:
ADAAG	211, 602, 309, 604, 605, 606, 607, 608	DOJ3 - Restrooms	Floor-wide: Floor(s) 1,2,3

Description

The restrooms have older fixtures and none of these facilities are accessible despite the accessible restroom signage. It is recommended that both all-gender restrooms, as well as the men's and women's restrooms, be upgraded with new accessible fixtures and accessories and all new finishes. All of the restrooms should be fitted with accessible power door assist units to further improve access. Also, upgrade all of the aging single-level water fountains with new fully accessible dual-level fountains set in wheelchair accessible corridor alcoves.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Door operator, signage, and controls	EA	10	\$5,003	\$50,028	\$1,730	\$17,303	\$67,331
Grab bars (per stall)	SYS	10	\$193	\$1,929	\$454	\$4,540	\$6,469
Mirror	EA	10	\$397	\$3,972	\$305	\$3,050	\$7,023
ADA-compliant signage	EA	10	\$72.36	\$724	\$21.28	\$213	\$936
ADA-compliant lavatory	EA	10	\$838	\$8,375	\$312	\$3,118	\$11,494
ADA-compliant toilet	EA	10	\$1,316	\$13,157	\$348	\$3,477	\$16,633
High density polymer toilet partition modification	EA	4	\$2,199	\$8,796	\$1,362	\$5,448	\$14,244
Dual-level drinking fountain	EA	6	\$1,657	\$9,943	\$509	\$3,056	\$12,999
Alcove construction for drinking fountain	EA	6	\$1,195	\$7,167	\$5,099	\$30,594	\$37,761
Base Material/Labor Costs				\$104,091		\$70,799	
Indexed Material/Labor Costs				\$104,820		\$50,480	\$155,300
Construction Mark Up at 20.0%							\$31,060
Original Construction Cost							\$186,359
Date of Original Estimate:	6/13/2021					Inflation	\$0
Current Year Construction Cost							\$186,360
Professional Fees at 16.0%							\$29,818
TOTAL PROJECT COST							\$216,177

All costs shown as Present Value

ACCESSIBLE NORTH ENTRY PORCH RAILING UPGRADE			
Project Number:	SPEIAC04	Category Code:	
Priority Sequence:	4	AC2A	
Priority Class:	Critical	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	BUILDING ENTRY
Date Basis:	5/11/2021	Element:	GENERAL

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

Description

The linear steps for the north entry porch do not have adequate accessible handrails. New freestanding handrails should be installed at required intervals to help improve safety and accessibility.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Exterior freestanding accessible metal handrail design for entry steps	LF	60	\$125	\$7,500	\$204	\$12,240	\$19,740
Base Material/Labor Costs				\$7,500		\$12,240	
Indexed Material/Labor Costs				\$7,553		\$8,727	\$16,280
Construction Mark Up at 20.0%							\$3,256
Original Construction Cost							\$19,536
Date of Original Estimate:	5/11/2021					Inflation	\$0
Current Year Construction Cost							\$19,536
Professional Fees at 16.0%							\$3,126
TOTAL PROJECT COST							\$22,661

All costs shown as Present Value

LECTURE ROOM 129 ACCESSIBILITY UPGRADES			
Project Number:	SPEIAC01	Category Code:	
Priority Sequence:	5	AC3B	
Priority Class:	Critical	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	INTERIOR PATH OF TRAVEL
Date Basis:	6/13/2021	Element:	STAIRS AND RAILINGS

Code Application:

Subclass/Savings:

Project Location:

ADAAG

219.3, 706.1, 505

DOJ2 - Access to Goods & Services

Room Only: Floor(s) 1

Description

The lecture room has accessible viewing areas but lacks handrails for the two side aisles and also does not have assistive listening capability. Install these missing components to help improve assembly room accessibility.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost	
Infrared transmitter and headphone receiver sets	SYS	1	\$2,071	\$2,071	\$1,816	\$1,816	\$3,887	
Wall-mounted handrail system, painted	LF	80	\$68.81	\$5,505	\$48.23	\$3,858	\$9,363	
Base Material/Labor Costs				\$7,576		\$5,674		
Indexed Material/Labor Costs				\$7,629		\$4,046	\$11,675	
Construction Mark Up at 20.0%								\$2,335
Original Construction Cost								\$14,010
Date of Original Estimate:	6/13/2021				Inflation		\$0	
Current Year Construction Cost								\$14,010
Professional Fees at 16.0%								\$2,242
TOTAL PROJECT COST								\$16,252

All costs shown as Present Value

STAIR TOWER RAILING AND TREAD UPGRADES			
Project Number:	SPEIAC03	Category Code:	
Priority Sequence:	6	AC3B	
Priority Class:	Critical	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	INTERIOR PATH OF TRAVEL
Date Basis:	6/13/2021	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

The four stair towers lack accessible inner and outer handrail designs and new railings should be installed on each stair run in all four stair towers. Also, install new rubber stair treads with contrasting nosing colors for additional user safety.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Wall-mounted handrail system per floor	FLR	8	\$780	\$6,242	\$709	\$5,675	\$11,917
Switchback handrail/guardrail system per floor	FLR	8	\$1,768	\$14,142	\$1,135	\$9,080	\$23,222
Stair tread and landing finish upgrades per floor	FLR	8	\$1,975	\$15,799	\$1,053	\$8,422	\$24,221
Base Material/Labor Costs				\$36,184		\$23,176	
Indexed Material/Labor Costs				\$36,437		\$16,525	\$52,962
Construction Mark Up at 20.0%							\$10,592
Original Construction Cost							\$63,554
Date of Original Estimate:	6/13/2021					Inflation	\$0
Current Year Construction Cost							\$63,554
Professional Fees at 16.0%							\$10,169
TOTAL PROJECT COST							\$73,723

All costs shown as Present Value

ROOF HATCH SAFETY UPGRADES			
Project Number:	SPEIES01	Category Code:	
Priority Sequence:	7	ES4B	
Priority Class:	Critical	System:	EXTERIOR
Project Class:	Corrective Action	Component:	ROOF
Date Basis:	6/13/2021	Element:	REPLACEMENT

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

Description

The roof hatch in the #3 stair tower has a newer top hatch but the lower hatch is poor and the ladder lacks any handrail extension features. Replace the lower hatch and install a railing extension unit to the top of the access ladder. Also, relocate the roof transition ladder that is located too close to the edge of the roof to help improve safety for service personnel.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Inner roof hatch assembly and ladder extension upgrade allowance	EA	1	\$2,400	\$2,400	\$1,800	\$1,800	\$4,200
Roof transition ladder relocation	LOT	1	\$400	\$400	\$950	\$950	\$1,350
Base Material/Labor Costs				\$2,800		\$2,750	
Indexed Material/Labor Costs				\$2,820		\$1,961	\$4,780
Construction Mark Up at 20.0%							\$956
Original Construction Cost							\$5,736
Date of Original Estimate:	6/13/2021		Inflation			\$0	
Current Year Construction Cost							\$5,736
Professional Fees at 16.0%							\$918
TOTAL PROJECT COST							\$6,654

All costs shown as Present Value

FIRE SPRINKLER SYSTEM INSTALLATION			
Project Number:	SPEIFS01	Category Code:	
Priority Sequence:	8	FS3A	
Priority Class:	Noncritical	System:	FIRE/LIFE SAFETY
Project Class:	Plant Adaption	Component:	SUPPRESSION
Date Basis:	5/28/2021	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	Qty	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	50,562	\$4.50	\$227,529	\$5.50	\$278,091	\$505,620
Base Material/Labor Costs				\$227,529		\$278,091	
Indexed Material/Labor Costs				\$229,122		\$198,279	\$427,401
Construction Mark Up at 20.0%							\$85,480
Original Construction Cost							\$512,881
Date of Original Estimate:	5/28/2021		Inflation			\$0	
Current Year Construction Cost							\$512,881
Professional Fees at 16.0%							\$82,061
TOTAL PROJECT COST							\$594,942

All costs shown as Present Value

ASBESTOS ABATEMENT - INTERIOR FINISH SYSTEMS			
Project Number:	SPEIHE02	Category Code:	
Priority Sequence:	9	HE6F	
Priority Class:	Noncritical	System:	HEALTH
Project Class:	Plant Adaption	Component:	HAZARDOUS MATERIAL
Date Basis:	6/13/2021	Element:	OTHER

Code Application:

Subclass/Savings:

Project Location:

EPA 40 CFR 61.M, 763
OSHA 29 CFR 1910.1001,
1926.1101

Not Applicable

Floor-wide: Floor(s) 1,2,3

Description

Most of the vinyl flooring in this building is original nine-inch vinyl floor tile and both the tiles and the mastics are suspected to contain asbestos. Sample and test the tiles and mastics for asbestos. The textured ceilings are also suspected to contain asbestos and should be sampled and tested. It is also assumed that there are additional textured ceilings above most of the acoustical ceilings and VAT under most of the exiting carpeting. Assuming positive test results, this project provides abatement allowances for the flooring and for the textured ceilings.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Typical asbestos abatement of floor tile and mastic	SF	36,860	\$0.31	\$11,427	\$2.18	\$80,355	\$91,781
Typical asbestos abatement of attached ceiling finishes	SF	45,510	\$0.30	\$13,653	\$2.20	\$100,122	\$113,775
Base Material/Labor Costs				\$25,080		\$180,477	
Indexed Material/Labor Costs				\$25,255		\$128,680	\$153,935
Construction Mark Up at 20.0%							\$30,787
Original Construction Cost							\$184,722
Date of Original Estimate:	6/13/2021				Inflation		\$0
Current Year Construction Cost							\$184,722
Professional Fees at 16.0%							\$29,556
TOTAL PROJECT COST							\$214,278

All costs shown as Present Value

INTERIOR DOOR HARDWARE ACCESSIBILITY UPGRADES			
Project Number:	SPEIAC05	Category Code:	
Priority Sequence:	10	AC3C	
Priority Class:	Noncritical	System:	ACCESSIBILITY
Project Class:	Plant Adaption	Component:	INTERIOR PATH OF TRAVEL
Date Basis:	5/11/2021	Element:	DOORS AND HARDWARE

Code Application:		Subclass/Savings:	Project Location:
ADAAG	309.4	Not Applicable	Floor-wide: Floor(s) 1,2,3

Description

Although the interior doors are recommended for replacement, if these doors are not replaced in the near future then both the existing knob hardware and few older sets of lever hardware should be replaced with new accessible lever hardware on all three floors.

All costs shown as Present Value

Project Cost Estimate

Task Description	Unit	Qty	Material Unit Cost	Total Material Cost	Labor Unit Cost	Total Labor Cost	Total Cost
Accessible lever hardware set upgrades	EA	154	\$413	\$63,602	\$165	\$25,410	\$89,012
Base Material/Labor Costs				\$63,602		\$25,410	
Indexed Material/Labor Costs				\$64,047		\$18,117	\$82,165
Construction Mark Up at 20.0%							\$16,433
Original Construction Cost							\$98,597
Date of Original Estimate:	5/11/2021					Inflation	\$0
Current Year Construction Cost							\$98,597
Professional Fees at 16.0%							\$15,776
TOTAL PROJECT COST							\$114,373

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	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
EW01	WALL, EXTERIOR, MASONRY POINTING	BRICK & CONC PRECAST			24,020	SF	1.50	\$276,742	1965	30	25	DR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	METAL FRAME SINGLE PANE			6,010	SF	1.12	\$1,030,341	1965	40	15	DR
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS			N ENTRY	4	LEAF	1.00	\$11,541	2015	25		2040
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	SECONDARY		STAIRS	4	LEAF	1.00	\$11,541	2015	25		2040
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS			S ENTRY	4	LEAF	1.00	\$11,541	2015	25		2040
DR08	DOOR AND FRAME, EXTERIOR, SWINGING, HOLLOW METAL	SERVICE		BSMT	4	LEAF	1.00	\$8,123	1990	40	1	2031
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	MULTI LEVEL FLAT ROOF			21,140	SF	1.35	\$193,001	2001	20		2021
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	FLAT ROOF ENTRY CANOPY			825	SF	1.25	\$6,974	2001	20		2021
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	KNOB HDW			50	LEAF	1.00	\$108,231	1965	40	15	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	KNOB HDW		CORRIDORS	104	LEAF	1.00	\$225,120	1965	40	15	DR
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED			STAIRS	20	LEAF	1.00	\$74,773	2001	40		2041
DR24	DOOR LOCK, COMMERCIAL-GRADE	SERVICE		BSMT	4	EA	1.00	\$2,979	1990	20	10	DR
DR26	DOOR PANIC HARDWARE			INT STAIRS	20	EA	1.00	\$24,366	2001	20		2021
DR26	DOOR PANIC HARDWARE	EXT DRS		N ENTRY	4	EA	1.00	\$4,873	2015	20		2035
DR26	DOOR PANIC HARDWARE	SECONDARY DRS		STAIRS	4	EA	1.00	\$4,873	2015	20		2035

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
DR26	DOOR PANIC HARDWARE	EXT DRS		S ENTRY	4	EA	1.00	\$4,873	2015	20		2035
CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	CABINETS		BREAK AREA	8	LF	1.00	\$4,314	2005	20		2025
IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			129,970	SF	1.00	\$290,866	2005	12	3	DR
IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	WAINSCOT		RRS	4,020	SF	1.00	\$154,268	1990	30		DR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			9,510	SF	1.00	\$116,449	2010	12		2022
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			6,920	SF	1.00	\$84,734	2015	12		2027
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			860	SF	1.00	\$10,531	2018	12		2030
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	9X9 VINYL FLR TILE			36,860	SF	1.00	\$236,221	1965	20	35	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	12X12 VCT			4,100	SF	1.00	\$26,275	1965	20	35	DR
IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CER FLR TILE			1,820	SF	1.00	\$57,875	1990	30		DR
IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	ACOUS CLG			10,920	SF	1.00	\$110,200	2010	30		2040
IC01	CEILING FINISH - SUSPENDED ACOUSTICAL TILE, STANDARD	ACOUS CLG			25,480	SF	1.00	\$257,133	2015	30		2045
IC05	CEILING FINISH - PAINTED OR STAINED, TEXTURED	TEXTURED PT CLGS			45,510	SF	1.00	\$169,250	1965	24	31	DR
VT03	ELEVATOR MODERNIZATION - HYDRAULIC	ELEV		165A	1	EA	1.00	\$302,064	2018	25		2043
VT04	ELEVATOR CAB RENOVATION - PASSENGER	ELEV		ELEV	1	EA	1.00	\$53,265	2018	12		2030

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RRS	14	EA	1.00	\$18,623	1990	35		2025
FX04	PLUMBING FIXTURE - SINK, KITCHEN	SST		FLR 1 BREAK AREA	1	EA	1.00	\$2,160	2005	35		2040
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	WALL MOUNT		JAN CLOS	3	EA	1.00	\$5,378	1965	35		DR
FX10	PLUMBING FIXTURE - URINAL	PC		RRS	3	EA	1.00	\$6,354	1990	35		2025
FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC		RRS	18	EA	1.00	\$35,073	1990	35		2025
BF02	BACKFLOW PREVENTER (1-2 INCHES)	BFP-WM-1		EXT	1	EA	1.00	\$2,339	2015	10		2025
BF02	BACKFLOW PREVENTER (1-2 INCHES)	BFP-WM-2		EXT	1	EA	1.00	\$2,339	2015	10		2025
PS14	SUPPLY PIPING SYSTEM - OFFICE	COPPER		THROUGHOUT	50,562	SF	0.94	\$167,050	1965	35	20	DR
WH25	WATER HEATER - RESIDENTIAL, ELECTRIC (>100 GAL)	WH-1		165	119	GAL	1.00	\$3,349	2015	10	6	2031
PD14	DRAIN PIPING SYSTEM - OFFICE	CAST IRON, BELL AND SPIGOT		THROUGHOUT	50,562	SF	0.94	\$251,320	1965	40	15	DR
PP02	GREYWATER LIFT STATION	SUMP PUMPS (<0.5 HP)		165	1	HP	1.00	\$2,538	2015	20		2035
HU17	DUCTLESS DX SPLIT SYSTEM (<=1 TON)	CU-2		ROOF	1	TON	1.00	\$2,769	2018	23		2041
HU18	DUCTLESS DX SPLIT SYSTEM (1-2 TON)	CU-1		EXT	2	TON	1.00	\$4,692	2005	23	4	2032
AH06	AIR HANDLING UNIT - INDOOR (6-9 HP)	AHU-003		252	7.50	HP	1.00	\$55,834	1965	25	30	DR
AH08	AIR HANDLING UNIT - INDOOR (12-17 HP)	AHU-002		160	15	HP	1.00	\$103,428	1965	25	30	DR

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
AH11	AIR HANDLING UNIT - INDOOR (27-35 HP)	AHU-001		165	30	HP	1.00	\$184,169	1965	25	30	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-1		ROOF	1	EA	1.00	\$7,951	1995	20	5	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-2		ROOF	1	EA	1.00	\$7,951	1995	20	5	DR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-3		165A	1	HP	1.00	\$2,772	1965	20	35	DR
HV14	HVAC DISTRIBUTION NETWORKS - OFFICE	CAV, ZONED		THROUGHOUT	50,562	SF	0.94	\$1,233,156	1965	40	15	DR
HX05	HEAT EXCHANGER - SHELL & TUBE STEAM TO WATER (>85 GPM)	HX-1		165	120	GPM	1.00	\$17,645	1965	35	20	DR
PH01	PUMP - ELECTRIC (<=10 HP)	CHWP-1		165	10	HP	1.00	\$16,452	2015	25		2040
PH01	PUMP - ELECTRIC (<=10 HP)	HWP-1		165	2	HP	1.00	\$3,290	1995	25		DR
PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	CP-1		165	3	HP	1.00	\$22,310	1965	20	35	DR
AC01	AIR COMPRESSOR SYSTEM - HVAC CONTROLS (<=6 TOTAL HP)	CAC-1		165	2	HP	1.00	\$3,588	2018	20		2038
BA114	HVAC CONTROLS SYSTEM - OFFICE	HYBRID-DDC, PNEUM		THROUGHOUT	50,562	SF	0.94	\$192,351	2000	18	2	DR
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	PA, NOTIFIER		165	1	EA	1.00	\$37,851	2012	15		2027
FA02	FIRE ALARM SYSTEM - DEVICES	HS, MP, SD		THROUGHOUT	50,562	SF	0.94	\$193,884	2012	18	-3	2027
SE14	ELECTRICAL DISTRIBUTION NETWORK - OFFICE	ORIG, 277/480		THROUGHOUT	50,562	SF	0.94	\$932,986	1965	40	15	DR
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	MSB		165	800	AMP	1.00	\$57,442	2002	20		2022

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	IN STL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
TX17	TRANSFORMER - OIL-FILLED, 3PH, 5-15KV PRIMARY (300-500 KVA)	TX-SPEI		165	500	KVA	1.00	\$71,140	2008	35		2043
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	VFD HWP-1		165	3	HP	1.00	\$2,102	2009	12		2021
VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD CHWP-1		165	10	HP	1.00	\$5,298	2009	12		2021
VF04	VARIABLE FREQUENCY DRIVE (10-15 HP)	VFD AHU-002		160	15	HP	1.00	\$6,133	2010	12		2022
VF07	VARIABLE FREQUENCY DRIVE (25-30 HP)	VFD AHU-001		165	30	HP	1.00	\$10,238	2009	16		2025
LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	REC CAN		EXT	7	EA	1.00	\$1,642	2002	15	3	DR
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	HID WP		EXT	1	EA	1.00	\$988	2002	15	3	DR
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	LED		EXT	1	EA	1.00	\$988	2017	15		2032
LE08	LIGHTING - EXTERIOR, WALL LANTERN or FLOOD (INC, CFL, LED)	CFL SCONCE		EXT	6	EA	1.00	\$2,490	2002	15	3	DR
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	RETRO T8, CFL		SELECT SPACES	6,504	SF	1.13	\$86,895	1985	20	15	DR
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	RETRO LED		MAJ OF SPACES	21,362	SF	0.99	\$250,041	2016	20	-7	2029
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	LED, 2017 FIX		2016 RENO SPACES	17,696	SF	1.00	\$209,223	2016	20		2036
GN02	GENERATOR - DIESEL (<30-100KW)	EGEN		EXT	60	KW	1.00	\$61,025	2007	25		2032
GN14	SWITCH - AUTO TRANSFER, 480 V (60-100 AMP)	ATS-LS		165	100	AMP	1.00	\$5,671	2007	25		2032
GN14	SWITCH - AUTO TRANSFER, 480 V (60-100 AMP)	ATS-SB		165	100	AMP	1.00	\$5,671	2007	25		2032

RENEWABLE COMPONENT INVENTORY

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	QTY	UNITS	CPLX FACTR	TOTAL COST	INSL DATE	USEFUL LIFE	USEFUL LIFE ADJ	REPL YEAR
SF02	SEATING, FIXED, FOLDING, PREMIUM			FLR 1 LECTURE	132	EA	1.00	\$111,443	1990	60		2050
Grand Total:								\$8,281,365				

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
EW01	WALL, EXTERIOR, MASONRY POINTING	BRICK & CONC PRECAST			B2010	24,020	SF	\$276,742	DR
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	METAL FRAME SINGLE PANE			B2010	6,010	SF	\$1,030,341	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	KNOB HDW			C1020	50	LEAF	\$108,231	DR
DR01	DOOR AND FRAME, INTERIOR, NON-RATED	KNOB HDW		CORRIDORS	C1020	104	LEAF	\$225,120	DR
DR24	DOOR LOCK, COMMERCIAL-GRADE	SERVICE		BSMT	C1020	4	EA	\$2,979	DR
IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			C3010	129,970	SF	\$290,866	DR
IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	WAINSCOT		RRS	C3010	4,020	SF	\$154,268	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	9X9 VINYL FLR TILE			C3020	36,860	SF	\$236,221	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	12X12 VCT			C3020	4,100	SF	\$26,275	DR
IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CER FLR TILE			C3020	1,820	SF	\$57,875	DR
IC05	CEILING FINISH - PAINTED OR STAINED, TEXTURED	TEXTURED PT CLGS			C3030	45,510	SF	\$169,250	DR
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	WALL MOUNT		JAN CLOS	D2010	3	EA	\$5,378	DR

RECURRING NEEDS BY YEAR

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

PS14	SUPPLY PIPING SYSTEM - OFFICE	COPPER		THROUGHOUT	D2020	50,562	SF	\$167,050	DR
PD14	DRAIN PIPING SYSTEM - OFFICE	CAST IRON, BELL AND SPIGOT		THROUGHOUT	D2030	50,562	SF	\$251,320	DR
HV14	HVAC DISTRIBUTION NETWORKS - OFFICE	CAV, ZONED		THROUGHOUT	D3040	50,562	SF	\$1,233,156	DR
HX05	HEAT EXCHANGER - SHELL & TUBE STEAM TO WATER (>85 GPM)	HX-1		165	D3040	120	GPM	\$17,645	DR
PH01	PUMP - ELECTRIC (<=10 HP)	HWP-1		165	D3040	2	HP	\$3,290	DR
PH14	CONDENSATE RECEIVER, ELECTRIC, 2 PUMPS	CP-1		165	D3040	3	HP	\$22,310	DR
AH06	AIR HANDLING UNIT - INDOOR (6-9 HP)	AHU-003		252	D3040	7.50	HP	\$55,834	DR
AH08	AIR HANDLING UNIT - INDOOR (12-17 HP)	AHU-002		160	D3040	15	HP	\$103,428	DR
AH11	AIR HANDLING UNIT - INDOOR (27-35 HP)	AHU-001		165	D3040	30	HP	\$184,169	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-1		ROOF	D3040	1	EA	\$7,951	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-2		ROOF	D3040	1	EA	\$7,951	DR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-3		165A	D3040	1	HP	\$2,772	DR
BA114	HVAC CONTROLS SYSTEM - OFFICE	HYBRID-DDC, PNEUM		THROUGHOUT	D3060	50,562	SF	\$192,351	DR
SE14	ELECTRICAL DISTRIBUTION NETWORK - OFFICE	ORIG, 277/480		THROUGHOUT	D5010	50,562	SF	\$932,986	DR

RECURRING NEEDS BY YEAR

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

LE03	LIGHTING - EXTERIOR, RECESSED (INC, CFL, LED)	REC CAN		EXT	D5020	7	EA	\$1,642	DR
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	HID WP		EXT	D5020	1	EA	\$988	DR
LE08	LIGHTING - EXTERIOR, WALL LANTERN or FLOOD (INC, CFL, LED)	CFL SCONCE		EXT	D5020	6	EA	\$2,490	DR
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	RETRO T8, CFL		SELECT SPACES	D5020	6,504	SF	\$86,895	DR
TOTAL DEFERRED RENEWAL COST								\$5,857,773.17	

2021

COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	MULTI LEVEL FLAT ROOF			B3010	21,140	SF	\$193,001	2021
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	FLAT ROOF ENTRY CANOPY			B3010	825	SF	\$6,974	2021
DR26	DOOR PANIC HARDWARE			INT STAIRS	C1020	20	EA	\$24,366	2021
VF01	VARIABLE FREQUENCY DRIVE (<=5 HP)	VFD HWP-1		165	D5010	3	HP	\$2,102	2021

RECURRING NEEDS BY YEAR

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

VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD CHWP-1		165	D5010	10	HP	\$5,298	2021
2021 PROJECTED COMPONENT REPLACEMENT COST								\$231,739.62	

2022									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			C3020	9,510	SF	\$119,942	2022
SG03	MAIN SWITCHBOARD W/BREAKERS (600-800 AMP)	MSB		165	D5010	800	AMP	\$59,165	2022
VF04	VARIABLE FREQUENCY DRIVE (10-15 HP)	VFD AHU-002		160	D5010	15	HP	\$6,317	2022
2022 PROJECTED COMPONENT REPLACEMENT COST								\$185,424.06	

No Projected Component Replacement Cost for Asset No. SPEI for 2023

RECURRING NEEDS BY YEAR

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

No Projected Component Replacement Cost for Asset No. SPEI for 2024

2025									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
CW01	CASEWORK - WOOD BASE AND WALL, TOP, STANDARD	CABINETS		BREAK AREA	C1030	8	LF	\$4,856	2025
FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RRS	D2010	14	EA	\$20,960	2025
FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC		RRS	D2010	18	EA	\$39,475	2025
FX10	PLUMBING FIXTURE - URINAL	PC		RRS	D2010	3	EA	\$7,151	2025
BF02	BACKFLOW PREVENTER (1-2 INCHES)	BFP-WM-1		EXT	D2020	1	EA	\$2,633	2025
BF02	BACKFLOW PREVENTER (1-2 INCHES)	BFP-WM-2		EXT	D2020	1	EA	\$2,633	2025
VF07	VARIABLE FREQUENCY DRIVE (25-30 HP)	VFD AHU-001		165	D5010	30	HP	\$11,523	2025
2025 PROJECTED COMPONENT REPLACEMENT COST								\$89,230.36	

RECURRING NEEDS BY YEAR

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

No Projected Component Replacement Cost for Asset No. SPEI for 2026

2027									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			C3020	6,920	SF	\$101,177	2027
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	PA, NOTIFIER		165	D4030	1	EA	\$45,196	2027
FA02	FIRE ALARM SYSTEM - DEVICES	HS, MP, SD		THROUGHOUT	D4030	50,562	SF	\$231,508	2027
2027 PROJECTED COMPONENT REPLACEMENT COST								\$377,880.45	

RECURRING NEEDS BY YEAR

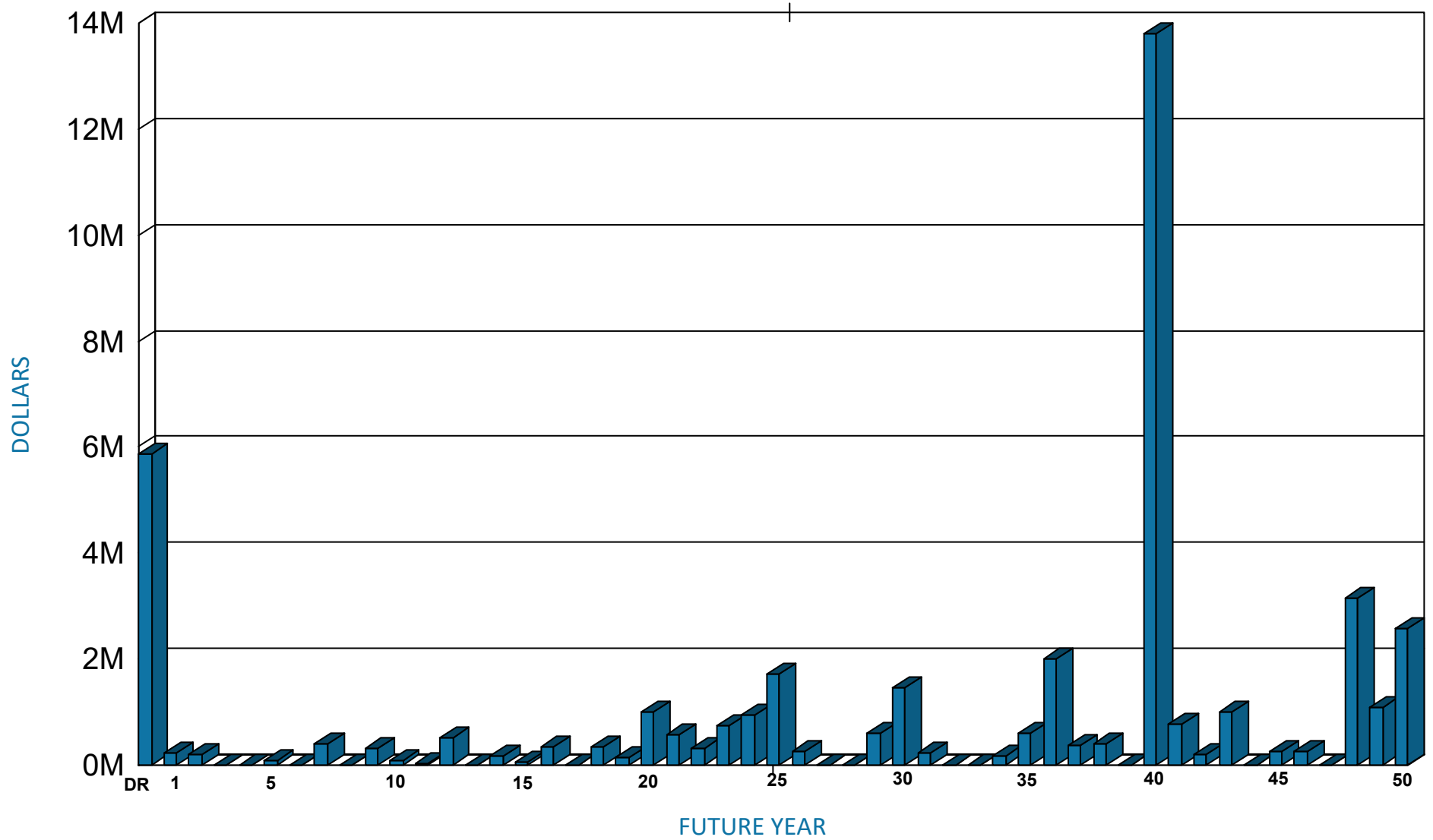
All costs shown as Future Value using a 3% average inflation rate

No Projected Component Replacement Cost for Asset No. SPEI for 2028

2029									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
LI14	LIGHTING SYSTEM, INTERIOR - OFFICE	RETRO LED		MAJ OF SPACES	D5020	21,362	SF	\$316,744	2029
2029 PROJECTED COMPONENT REPLACEMENT COST								\$316,744.11	

2030									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			C3020	860	SF	\$13,740	2030
VT04	ELEVATOR CAB RENOVATION - PASSENGER	ELEV		ELEV	D1010	1	EA	\$69,499	2030
2030 PROJECTED COMPONENT REPLACEMENT COST								\$83,238.61	

RECURRING COMPONENT EXPENDITURE PROJECTIONS



Average Annual Renewal Cost per SF \$7.57

FACILITY CONDITION ASSESSMENT

SECTION 5

DRAWINGS

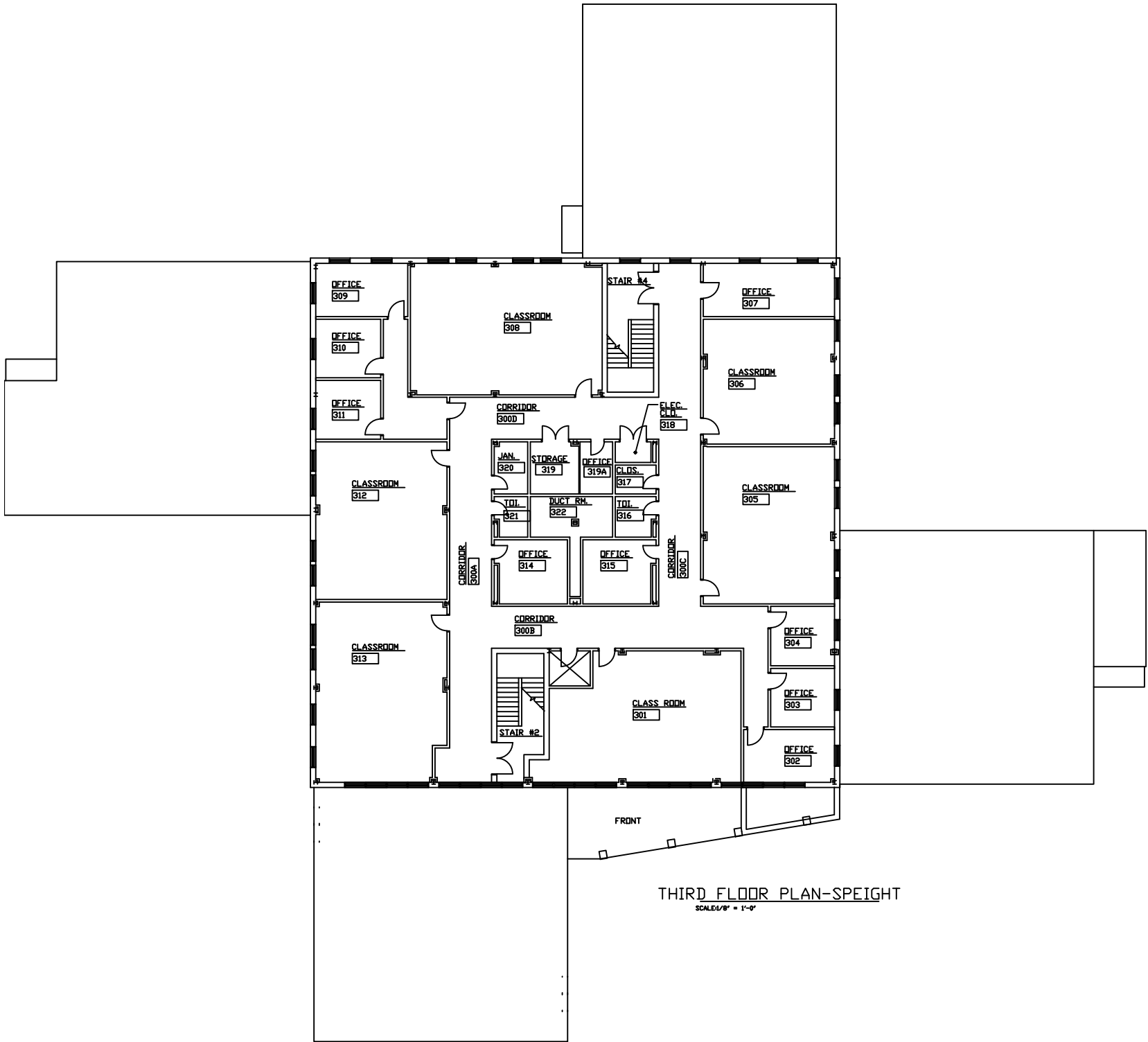


FIRST FLOOR PLA-SPEIGHT

SCALE: 1/8" = 1'-0"



SECOND FLOOR PLAN- SPEIGHT
 SCALE: 1/8" = 1'-0"



THIRD FLOOR PLAN-SPEIGHT
 SCALE: 1/8" = 1'-0"

FACILITY CONDITION ASSESSMENT

SECTION 6

PHOTOGRAPHS



SPEI001a 5/11/2021
Accessible elevation control panel
Passenger elevator cab



SPEI001e 5/11/2021
Centrifugal rooftop exhaust fan
Roof



SPEI002a 5/11/2021
Poor lower hatch and no stair rail extension
Roof hatch



SPEI002e 5/11/2021
Centrifugal rooftop exhaust fan
Roof



SPEI003a 5/11/2021
Upper built-up roof with cap sheet
Upper main roof



SPEI003e 5/11/2021
Ductless split condensing unit
Roof



SPEI004a 5/11/2021
Blistered cap sheet
Upper main roof



SPEI004e 5/11/2021
Retrofitted LED lighting fixtures
Third floor corridor



SPEI005a 5/11/2021
One of four lower built up roofs
Lower roof



SPEI005e 5/11/2021
Horn with strobe fire alarm device
Third floor corridor



SPEI006a 5/11/2021
Another of the four lower roofs
Lower roof



SPEI006e 5/11/2021
Manual pull fire alarm device
Third floor corridor



SPEI007a 5/11/2021
Aging original lower roof hatch
Third floor, stair tower



SPEI007e 5/11/2021
Recessed LED lighting fixtures
Room 306



SPEI008a 5/11/2021
Nonaccessible inner and outer stair rails
Third floor, stair tower



SPEI008e 5/11/2021
Local panelboard
Room 318



SPEI009a 5/11/2021
Worn stair treads
Third floor, stair tower



SPEI009e 5/11/2021
Insulated copper supply piping
Room 319



SPEI010a 5/11/2021
Windows with added outer storm window
Third floor



SPEI010e 5/11/2021
Elevator interior
Elevator



SPEI011a 5/11/2021
Nonrated corridor door with knob hardware
Third floor corridor



SPEI011e 5/11/2021
Elevator interior
Elevator



SPEI012a 5/11/2021
Accessible wall-mounted room signage
Third floor corridor



SPEI012e 5/11/2021
Retrofitted T8 lighting fixtures
Third floor, office space



SPEI013a 5/11/2021
Original 9x9 vinyl flooring and newer acoustical ceiling
Third floor, classroom



SPEI013e 5/11/2021
Air handling unit AHU-003
Room 252



SPEI014a 5/11/2021
Older standard wall-hung lavatory
Third floor, all-gender restroom



SPEI014e 5/11/2021
Suspect asbestos insulation
Room 252



SPEI015a 5/11/2021
Older standard tankless water closet
Third floor, all-gender restroom



SPEI015e 5/11/2021
Suspect asbestos insulation
Room 252



SPEI016a 5/11/2021
Newer, partially accessible, single-level water fountain
Third floor corridor



SPEI016e 5/11/2021
Retrofitted LED lighting fixtures
Room 228



SPEI017a 5/11/2021
Original 9x9 vinyl flooring and original textured ceiling
Third floor corridor



SPEI017e 5/11/2021
Fire extinguisher and suppression stand pipe
Second floor corridor



SPEI018a 5/11/2021
Newer door with lever hardware
Third floor corridor



SPEI018e 5/11/2021
Recessed LED lighting fixtures
Room 129



SPEI019a 5/11/2021
Older nonaccessible single-level water fountain
Third floor corridor



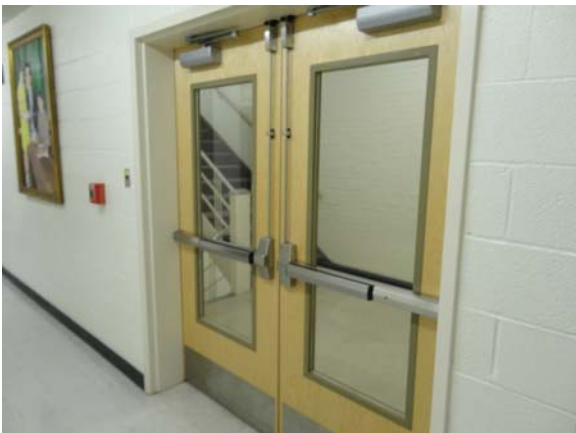
SPEI019e 5/11/2021
Air handling unit AHU-002
Room 160



SPEI020a 5/11/2021
Aging original nonrated door
Third floor corridor



SPEI020e 5/11/2021
VFD for AHU-002
Room 160



SPEI021a 5/11/2021
Upgraded fire-rated stair access doors
Second floor, stair tower



SPEI021e 5/11/2021
Insulation spalling inside AHU-002
Room 160



SPEI022a 5/11/2021
Aging original doors with knob hardware
Second floor corridor



SPEI022e 5/11/2021
Recessed can exterior lighting fixture
Exterior



SPEI023a 5/11/2021
Nonaccessible restroom with ADA signage
Second floor, men's restroom



SPEI023e 5/11/2021
Oil-filled transformer
Exterior



SPEI024a 5/11/2021
Narrow access at restroom entry
Second floor, men's restroom



SPEI024e 5/11/2021
HID wallpack
Exterior



SPEI025a 5/11/2021
Partially accessible lavatories
Second floor, men's restroom



SPEI025e 5/11/2021
Main fire alarm panel
Room 165



SPEI026a 5/11/2021
Partially accessible urinals
Second floor, men's restroom



SPEI026e 5/11/2021
Automatic transfer switch
Room 165



SPEI027a 5/11/2021
Standard narrow toilet stall
Second floor, men's restroom



SPEI027e 5/11/2021
Automatic transfer switch
Room 165



SPEI028a 5/11/2021
Partially accessible lavatories
Second floor, women's restroom



SPEI028e 5/11/2021
Main switchboard
Room 165



SPEI029a 5/11/2021
Standard narrow toilet stall
Second floor, women's restroom



SPEI029e 5/11/2021
Chilled water pump
Room 165



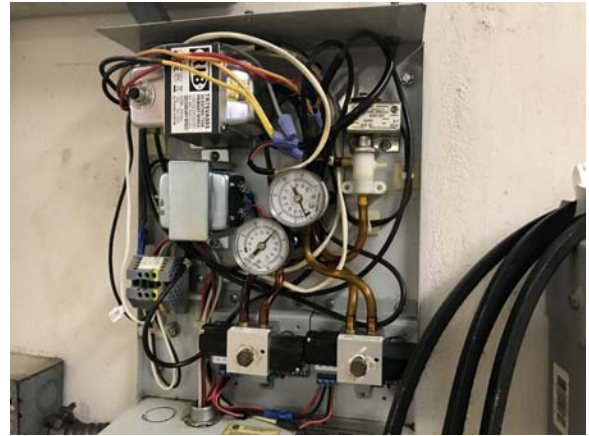
SPEI030a 5/11/2021
Ceramic floor tile and wainscot
Second floor, women's restroom



SPEI030e 5/11/2021
Controls air compressor
Room 165



SPEI031a 5/11/2021
Painted ceiling
Second floor, women's restroom



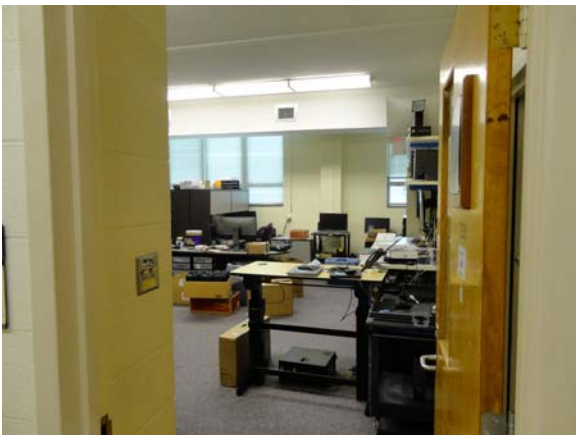
SPEI031e 5/11/2021
Pneumatic HVAC field panel
Room 165



SPEI032a 5/11/2021
Original wall-mounted service sink
Second floor, janitor's closet



SPEI032e 5/11/2021
Zoned deck on AHU-001
Room 165



SPEI033a 5/11/2021
Older broadloom carpeting and original textured ceiling
Second floor, office



SPEI033e 5/11/2021
Air handling unit AHU-001
Room 165



SPEI034a 5/11/2021
Older broadloom carpeting and newer acoustical ceiling
Second floor, smart classroom



SPEI034e 5/11/2021
Insulation spalling inside AHU-001
Room 165



SPEI035a 5/11/2021
Signs of repaired stress cracks in corner of stair tower
Second floor, stair tower



SPEI035e 5/11/2021
Residential electric water heater
Room 165



SPEI036a 5/11/2021
No side aisle rails and no indication of assistive listening
First floor, lecture room 129



SPEI036e 5/11/2021
Expansion tank
Room 165



SPEI037a 5/11/2021
Upgraded stair access doors with power door assist
First floor, stair tower



SPEI037e 5/11/2021
Sump pump
Room 165



SPEI038a 5/11/2021
Original 9x9 vinyl flooring and original textured ceiling
First floor corridor



SPEI038e 5/11/2021
Heating hot water pump
Room 165



SPEI039a 5/11/2021
Original textured ceiling
First floor corridor



SPEI039e 5/11/2021
Heating hot water shell-and-tube heat exchanger
Room 165



SPEI040a 5/11/2021
Partially accessible toilet stall
First floor, all-gender restroom



SPEI040e 5/11/2021
Condensate receiver
Room 165



SPEI041a 5/11/2021
Partially accessible wall-hung lavatory and power door assist
First floor, all-gender restroom



SPEI041e 5/11/2021
VFDs for AHU-001 and heating hot water pump
Room 165



SPEI042a 5/11/2021
Two older wall-hung lavatories
First floor, restroom



SPEI042e 5/11/2021
VFD for chilled water pump
Room 165



SPEI043a 5/11/2021
Partially accessible toilet stall
First floor, restroom



SPEI043e 5/11/2021
Hydraulic elevator controls
Room 165



SPEI044a 5/11/2021
Newer carpet tile and acoustical ceiling
First floor, lounge



SPEI044e 5/11/2021
Propeller-style exhaust fan with louvers
Room 165



SPEI045a 5/11/2021
Ramped access and newer egress doors
First floor, northwest stair tower



SPEI045e 5/11/2021
Ductless split condensing unit
Site



SPEI046a 5/11/2021
Upper masonry step cracking
Northwest upper corner of third floor



SPEI046e 5/11/2021
Backflow preventers for water main
Exterior



SPEI047a 5/11/2021
Stained exterior masonry and precast concrete panels
Northwest elevation



SPEI048a 5/11/2021
Lack of handrails at front entry steps
Northwest elevation



SPEI049a 5/11/2021
Vertical stress cracks on north elevation
Northwest upper corner of third floor



SPEI050a 5/11/2021
Step cracking on north elevation
Northwest upper corner of third floor



SPEI051a 5/11/2021
Brick facades and glazing
Northeast corner elevation



SPEI052a 5/11/2021
No safe guards on upper roof transition ladder
Northeast corner



SPEI053a 5/11/2021
Brick facades and glazing
Southeast corner elevation



SPEI054a 5/11/2021
Upper corner masonry step cracking
Southeast upper corner of third floor



SPEI055a 5/11/2021
Updated ramped entry
Southeast elevation



SPEI056a 5/11/2021
Updated ramp with flanking handrails
Southeast elevation



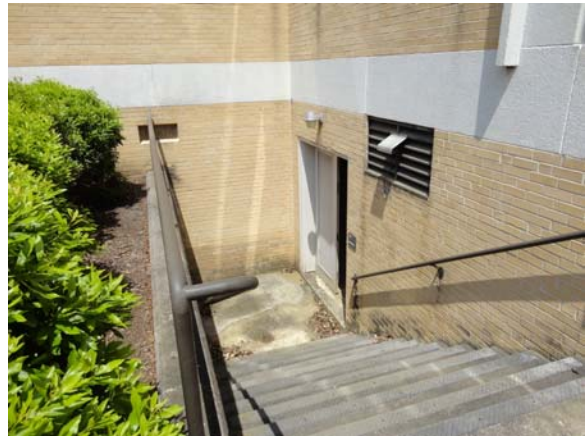
SPEI057a 5/11/2021
Newer hollow-metal service doors
Southeast elevation



SPEI058a 5/11/2021
Brick facades and glazing
Southwest corner elevation



SPEI059a 5/11/2021
Upper masonry step cracking
Southwest upper corner of third floor



SPEI060a 5/11/2021
Hollow-metal service doors
Southwest areaway



SPEI061a 5/11/2021
Heavy spalling on textured ceiling
Basement, mechanical area

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	SPEI
Asset Name	Speight Building (012)
Year Built or Last Energy Renovation	1965

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.

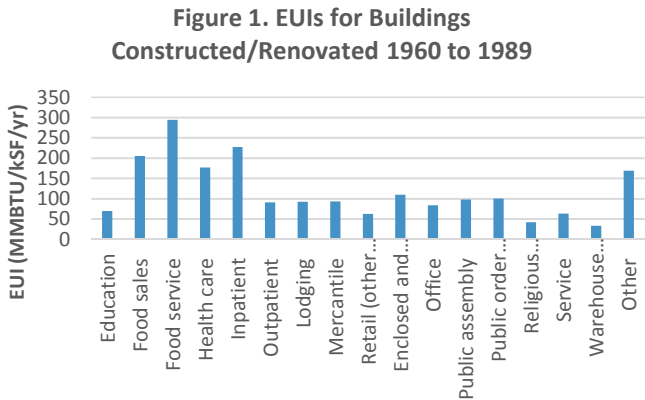
Metric #1: Energy Use Intensity (EUI)

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	Office
Range of Years Constructed/Last Major Energy Renovation	1960 to 1989
Benchmark EUI (MMBTU/kSF/yr) =	84
Building EUI to be Calculated by Client (MMBTU/kSF/yr) =	

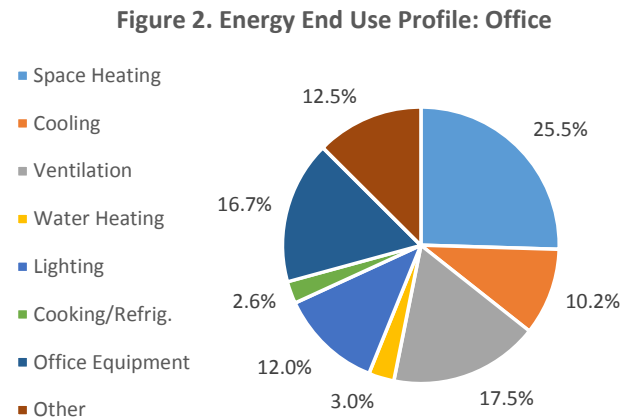
TABLE 3. EUI COMPARISON	
Very Energy Efficient (consumes more than 30% less energy)	EUI < 58.8
Energy Efficient (consumes 10% to 30% less energy)	58.8 <= EUI <= 75.6
Similar (consumes within 10% less or 10% more energy)	75.6 < EUI < 92.4
Energy Inefficient (consumes 10% to 30% more energy)	92.4 <= EUI <= 109.2
Very Energy Inefficient (consumes more than 30% more energy)	EUI > 109.2



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: OFFICE	
Space Heating	25.5%
Cooling	10.2%
Ventilation	17.5%
Water Heating	3.0%
Lighting	12.0%
Cooking/Refrig.	2.6%
Office Equipment	16.7%
Other	12.5%
Total	100.0%



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, 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
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 - Central Heating	INSTALL AN ENERGY-EFFICIENT BOILER. Energy-efficient boilers and condensing boilers achieve higher efficiencies than conventional boilers. Research FEMP designated commercial boilers to find the most energy-efficient options.	CAP

ECM CATEGORY	ECM RECOMMENDED FOR FURTHER CONSIDERATION	COST CATEGORY
HVAC - Hydronic Dist. Network Insulation	INSULATE THE HVAC PIPING. Insulating HVAC piping reduces heat loss and decreases energy consumption.	CAP
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 - BAS	INSTALL A BAS. Consider installing a BAS so that there is autonomous control of the building HVAC systems.	CAP
HVAC - EMCS	CONNECT BAS TO EMCS. Consider connecting the BAS to a central EMCS so that the system can be monitored and controlled at a central location.	CAP
HVAC - Exhaust Ventilation	INSTALL ENERGY RECOVERY SYSTEM. Energy Recovery Ventilation (ERV) systems exchange heat between outgoing exhaust air and the incoming outdoor air. Investigate the feasibility of installing an ERV system to pre-heat/cool ventilation air.	LC/NC; CAP
HVAC - Unitary Equipment	INSTALL EFFICIENT UNITARY EQUIPMENT. Consider replacing the existing equipment with FEMP recommended/ENERGY STAR qualified unitary equipment.	LC/NC; CAP
HVAC - Unitary Equipment Controls	UPGRADE CONTROLS. Install controls that allow the unitary equipment to be programmed for on/off and/or thermostat setpoints so that the systems operate at appropriate temperatures and do not run when the building/space is unoccupied.	LC/NC; CAP
HVAC - Building Comfort/Tuning	CONDUCT RETROCOMMISSIONING (RCX). RCx the building to identify and address operating deficiencies, optimize HVAC operations, reduce energy bills, and improve occupant comfort.	CAP
Electrical - VFDs	INSTALL VARIABLE FREQUENCY DRIVES. Install VFDs on motors greater than 5 hp to reduce energy consumption by varying motor speed based on system demand.	O&M; LC/NC; CAP
Plumbing - DHW Piping Insulation	INSULATE THE DOMESTIC HOT WATER PIPES. Insulating piping reduces heat loss, thereby reducing the amount of energy consumption.	LC/NC; CAP
Plumbing - Water Closets	INSTALL LOW-FLOW FLUSH VALVES/NEW WATER CLOSETS. WaterSense labeled water closets save water and reduce the energy required to pump water.	LC/NC; CAP