EAST CAROLINA UNIVERSITY

Facility Condition Assessment

Umstead Residence Hall (075)
Asset UMST

Inspected May 12, 2021

Revised 10/21/21

ISES CORPORATION

TABLE OF CONTENTS

FACILITY CONDITION ASSESSMENT

SECTION 1

ASSET OVERVIEW

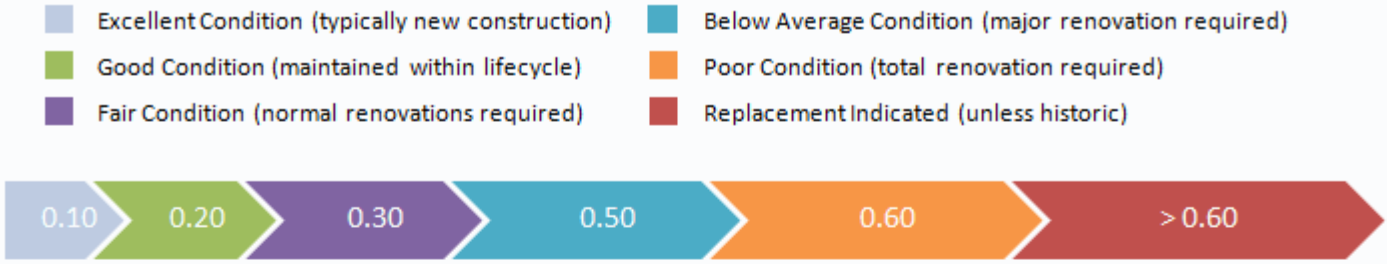
ASSET EXECUTIVE SUMMARY

All costs shown as Present Value

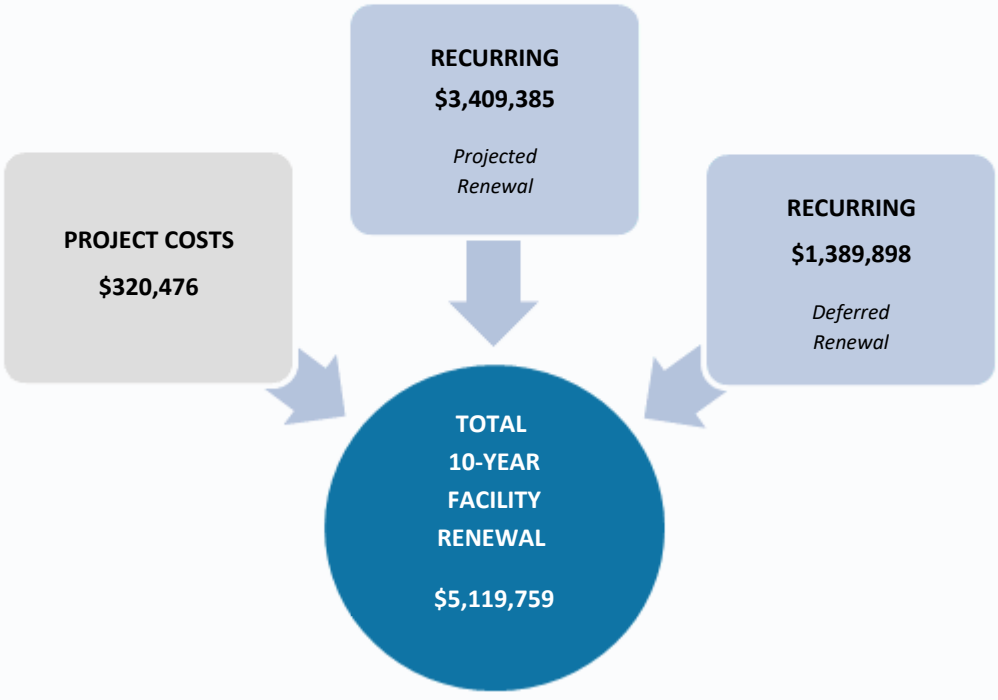
ASSET CODE	UMST	**CURRENT REPLACEMENT VALUE**	$21,921,000
ASSET NAME	UMSTEAD RESIDENCE HALL (075)	**FACILITY CONDITION NEEDS INDEX**	0.23
ASSET USE	Dormitory / Apartments	**FACILITY CONDITION INDEX**	0.06
YEAR BUILT	1955	**10-YEAR $/SF**	105.54
GSF	48,512		
INSPECTION DATE	05/12/2021		

FCNI Scale

The FCNI for this asset is **0.23**



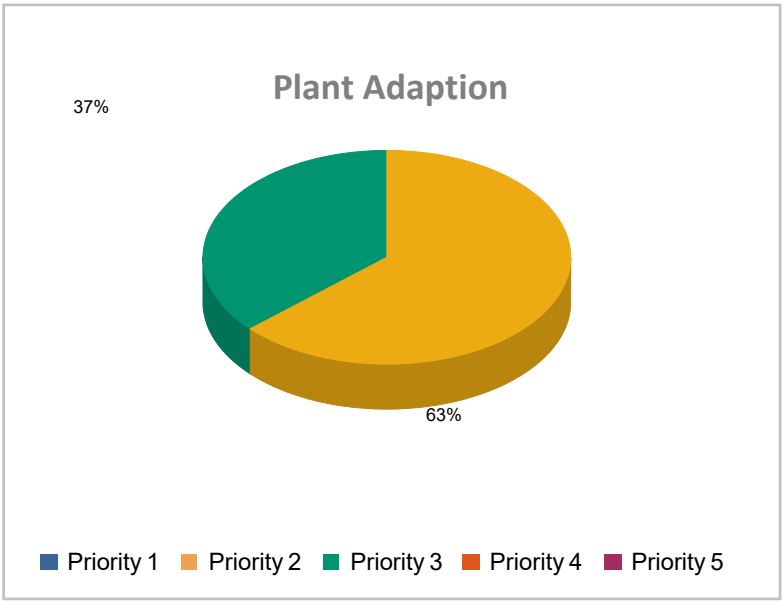
Total Facility Renewal Costs



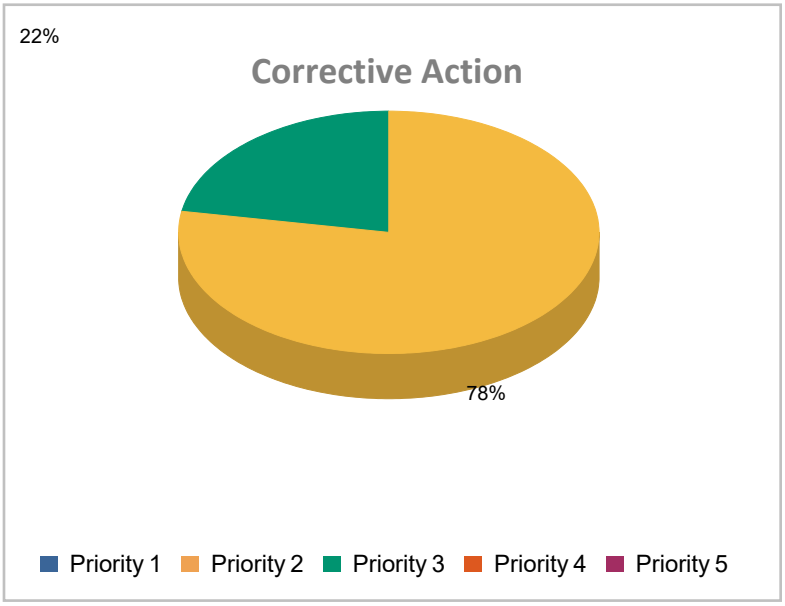
Project Costs

Project Cost by Priority

PLANT ADAPTION	
Priority 1	**$0**
Priority 2	**$170,396**
Priority 3	**$99,127**
Priority 4	**$0**
Priority 5	**$0**

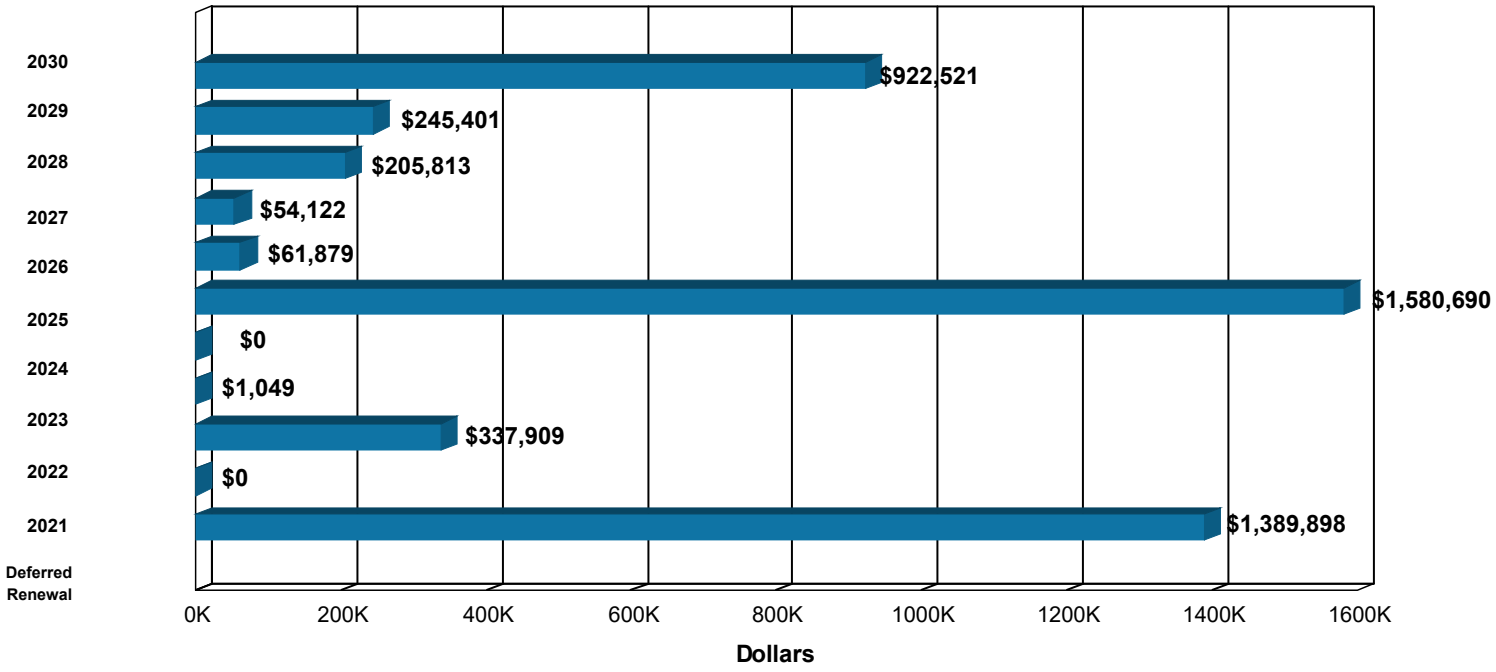


CORRECTIVE ACTION	
Priority 1	**$0**
Priority 2	**$39,576**
Priority 3	**$11,377**
Priority 4	**$0**
Priority 5	**$0**

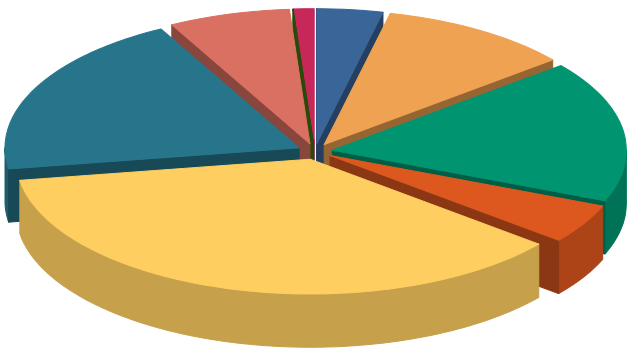


Recurring Costs

Component Replacement Cost by Year



Facilities Renewal Cost by System



Accessibility	$189,523	4%
Electrical	$539,456	11%
Exterior	$858,993	17%
Fire/Life Safety	$243,663	5%
Health	$0	0%
HVAC	$1,884,651	37%
Interiors	$1,006,848	20%
Plumbing	$336,579	7%
Site	$6,781	0.1%
Vert. Trans.	$53,265	1%
Security	$6,781	0.0%
TOTAL	**$5,119,759**	

ASSET SUMMARY

Built in 1955, Umstead Residence Hall is a three-story dormitory on the main campus of East Carolina University. In 1995, the building underwent a major renovation, including roof, windows, exterior doors, elevator, interior finishes, and accessible restroom upgrades. The upper two floors have individual dorm rooms and hall baths organized along central double-loaded corridors. The first floor was converted to office space and the entry lobby was renovated around 2017. The residence hall also has a partial basement mechanical area. The exterior facades are brick with metal-framed, thermal-pane glazing that has some fogging issues. The upper main roof is a built-up application, and the lower lobby roof is an older built-up system. Umstead Residence Hall totals approximately 48,512 gross square feet.

The information in this report was gathered during a site visit that concluded on May 12, 2021.

Site

The landscaping around the building consists of turf grass, ornamental shrubs, and some mature trees. It is in average condition and should be adequate for the near future. Concrete sidewalks have some differential settlement issues in a few locations and portions of this walkway should be removed and replaced. The adjoining parking lots are considered part of campus infrastructure and not addressed in this report.

Exterior Structure

The brick facades are in average condition and no major repointing work is warranted at this time. However, the low masonry walls at the north central entry/egress ramp have heavy efflorescence and should be cleaned and repointed to help control water infiltration.

The main glass and metal entry doors on the south elevation are showing signs of age and should be replaced. The secondary and service hollow-metal doors were updated during the 1995 renovations and are still adequate. The secondary glass entry door at the north counseling wing is also adequate. Exterior windows were replaced in 1995, with metal-framed, thermal-pane glazing. However, a number of these window units are fogging and new glazing will be needed in the next ten years. The various stair towers have the original metal-framed, single-pane wire glass units that should also be replaced as part of this glazing upgrade.

The main upper built-up roof was installed in 2005 and will reach the end of its normal life span within the next five to six years. Replace this roof in kind when required. The lower south lobby roof is newer and should be considered for replacement at the end of the next ten years. The three upper roof hatches are aging and located at the edge of the roof. Also, the roof hatch ladder access is inadequate and rooftop mechanical equipment is located near the roof perimeter. Upgrade the roof hatches and ladders at each location and install safety guardrails at the roof hatches and rooftop mechanical

equipment. The standing-seam metal canopy roofs at the two south entry doors are still in good condition and no upgrades are warranted.

Interior Finishes/Systems

Interior finishes on the second and third floors (dorms) are in average condition. The interior finishes in the first floor office spaces are typically newer and in better condition. Painted interior walls are painted as needed and vary in age and condition. They should all be repainted within the next five to ten years. Carpeting in the dorm corridors is in average condition and that in the main lobby and various offices is newer and varies in condition. All of the carpeting should be replaced over the next one to ten years. Vinyl tile flooring in the individual dorm rooms is older and due for in-kind replacement. Sheet vinyl flooring in some of the first floor offices is newer and should be adequate for the next ten years. The ceramic floor and wall tile finishes in the various hall baths are in average condition and should be adequate for the near future. The epoxy flooring in the first floor student laundry is newer and should outlast the scope of this report.

Interior ceilings are painted and vary in age and condition. Some unrepaired water damage should be reworked and repainted in the near future and a percentage of the remaining ceilings will also require repainting within the next five years. Interior flush wood, fire-rated corridor doors were updated during the 1995 renovations and are still in good working order. No door upgrades, other than hardware, are anticipated in the near future.

Accessibility

Access to the building is provided by wheelchair ramps on the north and south. However, the five stair towers lack accessible railing designs and both the inner and outer handrails should be replaced with new accessible railings on each stair run. Also, replace the worn rubber stair treads on each stair run.

The interior corridor doors are equipped with lever hardware and Braille signage. The passenger elevator has accessible controls, but the emergency communication unit is installed in a nonaccessible phone box. Remove the phone box access door and shim the communication unit flush with the face of the control panel to make it accessible. This upgrade should be performed as part of routine maintenance.

Restrooms and hall baths were remodeled in 1995 and provide accessible fixtures on each floor level. While the hall bathrooms are accessible, select dorm rooms on each floor should be fitted with accessible features such as high-low door peeps, lower light switches, specialty safety alarms, and call buttons.

Currently only one water fountain is dual level and accessible. Upgrade additional water fountains to provide at least one dual-level water fountain on each floor. Set the larger dual-level fountains in wheelchair accessible corridor alcoves.

Health

No health-related issues were observed or reported at the time of the inspection.

Fire/Life Safety

This facility contains a Simplex point addressable fire alarm and detection system that contains a main fire alarm panel, manual pull stations, smoke detectors, and horn and strobe alarm systems. The panel was installed in the mid-1990s with the devices replaced within the last ten years. It is recommended that the panel and devices be considered for replacement within the next ten years due to technical obsolescence.

This facility is protected via an automatic fire suppression system that was installed within the last ten years. Fire suppression is also handled manually via strategically placed dry-type handheld fire extinguishers and stand pipes. No issues were observed or reported and the fire suppression system should remain viable beyond the scope of this report.

HVAC

Heating and cooling are provided by four-pipe console and conventional style fan coil units using heating hot water and chilled water. Five rooftop makeup air handling units (MAUs) serve the restrooms. Four air handling units serve the main lobby and lobby restrooms. Restroom exhaust is handled by rooftop centrifugal exhaust fans, while exhaust for the mechanical spaces is handled by propeller style exhaust fans. The MAUs, air handling units, and exhaust systems were installed in a mid-1990s renovation and should be considered for replacement due to lifecycle depletion. The FCUs were installed in 2010 and should be replaced within the next five years, as it was reported that many are overheating the rooms and need to be manually shut off due to valve leaks. Many of the conventional fan coil units have visual signs of corrosion and deterioration.

Chilled water is currently generated through an estimated 200-ton air-cooled packaged chiller. Chilled water is circulated throughout the building and through the nearby Slay Hall via three inline chilled water pumps. The chiller and chilled water pumps were replaced around 2013 and are expected to remain viable for the next ten years. Heating hot water is supplied by the equipment in the Slay Hall mechanical room.

The HVAC distribution network is a constant air volume (CAV) design utilizing mainly fan coil units and makeup air handling units. The distribution network consists of insulated metallic conduit, insulated mechanical piping, valves, diffusers, and similar elements. No issues were observed during the inspection and the current system appears to be adequate for this facility. The HVAC controls are direct digital (DDC) and were updated within the last ten years. They should be considered for replacement due to technical obsolescence.

Electrical

Main electrical service is fed to this facility from a circa 1994 750-kVA oil-filled transformer, where power is reduced to 277/480 volts and routed to a 600-amp main switchboard. Power is further reduced to 120/208 volts through 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 downline electrical system components include distribution feeders, conduits, local panelboards, load centers, safety switches, fused disconnects, receptacles, switches, and similar terminal elements. The incoming electrical service and distribution network were replaced during the renovation in 1995 and are expected to remain viable for the next ten years. However, the switchboard should be evaluated for replacement due to lifecycle depletion.

The emergency power network consists of a 150-kW diesel-fired generator and an associated 104-amp automatic transfer switch. The generator and transfer switch were installed in 1995 and should be evaluated for replacement due to lifecycle depletion. The generator also supplies emergency power to Slay Hall.

Variable frequency drives (VFDs) are associated with the chilled water pumps. The VFDs were installed in 2013 and should be evaluated for replacement within the next ten years due to technical obsolescence.

The majority of the interior lighting was replaced in 1995 and consists of T8 troffers and recessed can CFL fixtures. Although the current lighting system appears to be in usable condition, it has fulfilled its financially viable life expectancy. 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 lighting fixtures should be considered for upgrade to LED technology.

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 LED sconce fixtures that were installed within the last three years. No issues were observed or reported and they are expected to remain viable for the next decade.

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 hubless connections. The supply and drain piping systems were replaced during the 1995 renovation and are expected to remain viable for the next ten years. However, domestic water is currently fed to Umstead from Slay Hall. At the request of the client, a project has been created to separate the domestic cold water line from Slay and connect it to a nearby infrastructure water main with an associated water meter.

Two backflow preventers serve the fire suppression system and the makeup water for the chilled water system. It is recommended that they be replaced within the next five years prior to failure.

The majority of the domestic hot water is generated and supplied by the nearby Slay Building. A residential electric water heater serves the lobby restrooms and has an associated circulation pump. The water heater and pump were installed in 2008. While the pump should remain viable for the next ten years, the electric water heater should be evaluated for replacement due to lifecycle depletion.

The plumbing fixtures date to the 1995 renovation and these lavatories, tankless water closets, and chrome shower heads are nearing the end of their normal lifecycle. Fixture upgrades should be considered within the next ten years. The floor-mounted mop sinks are in average condition at this time.

Vertical Transportation

A three-stop hydraulic-controlled passenger elevator with a capacity of 2,500 pounds serves this facility. The elevator was modernized in 2006 and no issues were observed or reported during the inspection. However, the elevator cab should be evaluated for modernization within the next ten years due to lifecycle depletion. 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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Date of Inspection

May 12, 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.

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

Facility Condition Index (FCI)

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

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

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	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
ACCESSIBILITY	0	170,396	19,127	0	0	0	0	0	0	0	0	0	0	0	$189,523
EXTERIOR	0	39,576	4,595	28,999	0	0	0	0	103,435	0	0	0	0	682,387	$858,993
INTERIOR	0	0	0	306,318	0	337,909	0	0	1,218	61,879	54,122	0	245,401	0	$1,006,848
PLUMBING	0	0	80,000	15,396	0	0	1,049	0	0	0	0	0	0	240,134	$336,579
HVAC	0	0	0	425,344	0	0	0	0	1,459,308	0	0	0	0	0	$1,884,651
FIRE/LIFE SAFETY	0	0	0	37,851	0	0	0	0	0	0	0	205,813	0	0	$243,663
ELECTRICAL	0	0	0	522,727	0	0	0	0	16,728	0	0	0	0	0	$539,456
SITE	0	0	6,781	0	0	0	0	0	0	0	0	0	0	0	$6,781
VERT. TRANS.	0	0	0	53,265	0	0	0	0	0	0	0	0	0	0	$53,265
HEALTH/EQUIP.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0
SUBTOTAL	$0	$209,972	$110,504	$1,389,898	$0	$337,909	$1,049	$0	$1,580,690	$61,879	$54,122	$205,813	$245,401	$922,521	$5,119,759
TOTAL NONRECURRING PROJECT NEEDS			$320,476	TOTAL RECURRING COMPONENT REPLACEMENT NEEDS										$4,799,283	

CURRENT REPLACEMENT VALUE	$21,921,000
FACILITY CONDITION NEEDS INDEX	0.23
FACILITY CONDITION INDEX	0.06

GSF	TOTAL 10-YEAR FACILITY RENEWAL NEEDS	10-YEAR NEEDS/SF
48,512	$5,119,759	$105.54

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	$189,523	$0	$189,523
EXTERIOR	$44,171	$814,821	$858,993
INTERIOR	$0	$1,006,848	$1,006,848
PLUMBING	$80,000	$256,579	$336,579
HVAC	$0	$1,884,651	$1,884,651
FIRE/LIFE SAFETY	$0	$243,663	$243,663
ELECTRICAL	$0	$539,456	$539,456
SITE	$6,781	$0	$6,781
VERT. TRANS	$0	$53,265	$53,265
HEALTH	$0	$0	$0
TOTALS	**$320,476**	**$4,799,283**	**$5,119,759**

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
UMST DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ENTRY		SOUTH ELEV	B2030	Deferred Renewal	11,541
UMST DR28	DOOR OPERATOR, POWER-ASSIST			ENTRY DOORS	B2030	Deferred Renewal	17,458
UMST DR24	DOOR LOCK, COMMERCIAL-GRADE	EXTERIOR SECONDARY			C1020	Deferred Renewal	745
UMST DR24	DOOR LOCK, COMMERCIAL-GRADE	EXTERIOR SERVICE			C1020	Deferred Renewal	1,489
UMST DR24	DOOR LOCK, COMMERCIAL-GRADE	INTERIOR LEVERS		CORRIDORS	C1020	Deferred Renewal	141,481
UMST DR26	DOOR PANIC HARDWARE	EXT ENTRY		SOUTH ELEV	C1020	Deferred Renewal	4,873
UMST DR26	DOOR PANIC HARDWARE	EXT SECONDARY		NORTH ELEV	C1020	Deferred Renewal	6,091
UMST DR26	DOOR PANIC HARDWARE	ISOLATION DOORS		STAIRS, CORRIDORS	C1020	Deferred Renewal	23,147
UMST IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	VCT			C3020	Deferred Renewal	118,174
UMST IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT CLGS			C3030	Deferred Renewal	10,317
UMST VT04	ELEVATOR CAB RENOVATION - PASSENGER	ELEV		ELEV	D1010	Deferred Renewal	53,265
UMST BF05	BACKFLOW PREVENTER (4-6 INCHES)	BFP-FIRE		EXT	D2020	Deferred Renewal	12,764
UMST WH24	WATER HEATER - RESIDENTIAL, ELECTRIC (46-100 GAL)	WH-1		164	D2020	Deferred Renewal	2,631
UMST AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-3		164	D3040	Deferred Renewal	11,059
UMST AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-4		164	D3040	Deferred Renewal	11,059
UMST AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-6		167	D3040	Deferred Renewal	11,059

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
UMST AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-5		167	D3040	Deferred Renewal	11,059
UMST AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-5		ROOF	D3040	Deferred Renewal	34,602
UMST AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-6		ROOF	D3040	Deferred Renewal	34,602
UMST AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-7		ROOF	D3040	Deferred Renewal	34,602
UMST AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-4		ROOF	D3040	Deferred Renewal	34,602
UMST AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-3		ROOF	D3040	Deferred Renewal	34,602
UMST FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-7		ROOF	D3040	Deferred Renewal	7,951
UMST FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-5		ROOF	D3040	Deferred Renewal	7,951
UMST FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-6		ROOF	D3040	Deferred Renewal	7,951
UMST FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-4		ROOF	D3040	Deferred Renewal	7,951
UMST FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-3		ROOF	D3040	Deferred Renewal	7,951
UMST FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-2		002	D3040	Deferred Renewal	2,772
UMST FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-1		007	D3040	Deferred Renewal	2,772
UMST BA104	HVAC CONTROLS SYSTEM - DORMITORY	DDC		THROUGHOUT	D3060	Deferred Renewal	162,797
UMST FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	PA, SIMPLEX		108	D4030	Deferred Renewal	37,851
UMST SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	MSB		007	D5010	Deferred Renewal	46,588

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
UMST LI04	LIGHTING SYSTEM, INTERIOR - DORMITORY	T8, CFL		THROUGHOUT	D5020	Deferred Renewal	375,377
UMST GN03	GENERATOR - DIESEL (100-200 KW)	EGEN		EXT	D5090	Deferred Renewal	96,486
UMST GN15	SWITCH - AUTO TRANSFER, 480 V (100-400 AMP)	ATS-2		007	D5090	Deferred Renewal	4,276
UMST IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			C3010	2022	256,603
UMST IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			C3020	2022	81,306
UMST BF01	BACKFLOW PREVENTER (<=1 INCH)	BFP-MU		002	D2020	2023	1,049
UMST RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	UPPER FLAT ROOF			B3010	2025	103,435
UMST DR26	DOOR PANIC HARDWARE	ENTRY DOOR		N COUNSELING WING	C1020	2025	1,218
UMST AH01	AIR HANDLING UNIT - INDOOR (.5-1.25 HP)	FCU, CONSOLE, APPROX 162		THROUGHOUT	D3040	2025	1,459,308
UMST VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD PCHWP-1		002	D5010	2025	5,298
UMST VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD SCHWPU-1		002	D5010	2025	5,298
UMST VF04	VARIABLE FREQUENCY DRIVE (10-15 HP)	VFD SCHWPS-1		002	D5010	2025	6,133
UMST IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT CLGS			C3030	2026	61,879
UMST IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			C3020	2027	54,122
UMST FA02	FIRE ALARM SYSTEM - DEVICES	HS, MP, SD		THROUGHOUT	D4030	2028	205,813
UMST IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			C3010	2029	109,973

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
UMST IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			C3020	2029	135,428
UMST WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	THERMAL PANE MTL FRAME			B2010	2030	661,750
UMST DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	EXTER ENTRY DOOR		N COUNSELING WING	B2030	2030	2,885
UMST RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	LOWER LOBBY ROOF			B3010	2030	17,752
UMST FX01	PLUMBING FIXTURE - LAVATORY, COUNTER	PC		HALL BATHS	D2010	2030	56,673
UMST FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RRS	D2010	2030	1,330
UMST FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	FLR MOUNT		JAN CLOS	D2010	2030	5,378
UMST FX08	PLUMBING FIXTURE - SHOWER VALVE AND HEAD	CHROME		HALL BATHS	D2010	2030	79,329
UMST FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC		HALL BATHS	D2010	2030	97,424
						TOTAL	$4,799,283

FACILITIES RENEWAL PLAN

NONRECURRING PROJECT COSTS

All costs shown as Present Value

PROJECT NUMBER	PROJECT TITLE	UNI-FORMAT	PRIORITY CLASS	PROJECT CLASSIFICATION	PROJECT COST
UMSTES02	ROOF HATCH AND SAFETY RAIL UPGRADES	B3010	2	Corrective Action	39,576
UMSTAC02	DORM ROOM ACCESSIBILITY UPGRADE ALLOWANCE	C1010	2	Plant Adaption	41,381
UMSTAC03	STAIR TOWER RAILING UPGRADES	C2020	2	Plant Adaption	129,015
UMSTES01	NORTH CENTRAL SITE WALL CLEAN AND REPOINTING ALLOWANCE	B2010	3	Corrective Action	4,595
UMSTAC01	ADDITIONAL ACCESSIBLE WATER FOUNTAIN INSTALLATIONS	C1010	3	Plant Adaption	19,127
UMSTPL01	INDEPENDENT DOMESTIC WATER SERVICE	D2020	3	Plant Adaption	80,000
UMSTSI01	CONCRETE SIDEWALK REPAIR ALLOWANCE	G2040	3	Corrective Action	6,781
				TOTAL	**$320,476**

FACILITY CONDITION ASSESSMENT

SECTION 3

NONRECURRING PROJECT DETAILS

All costs shown as Present Value

DORM ROOM ACCESSIBILITY UPGRADE ALLOWANCE

Project Number:	UMSTAC02	**Category Code:** AC4A	
Priority Sequence:	1		
Priority Class:	Critical	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	GENERAL
Date Basis:	6/10/2021	**Element:**	FUNCTIONAL SPACE MOD.

Code Application:		Subclass/Savings:	Project Location:
ADAAG	224, 806.1	DOJ2 - Access to Goods & Services	Undefined: Floor(s) 1,2,3

Description

While the hall bathrooms are accessible, select dorm rooms on each floor should be fitted with accessible features such as high-low door peeps, lower light switches, and specialty safety alarms and call buttons.

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
Sleeping room specialty alarms, etc.	SYS	5	$4,327	$21,636	$2,227	$11,137	$32,773
Base Material/Labor Costs				**$21,636**		**$11,137**	
Indexed Material/Labor Costs				**$21,787**		**$7,941**	**$29,728**
Construction Mark Up at 20.0%							**$5,946**
Original Construction Cost							**$35,674**
Date of Original Estimate: 6/10/2021						**Inflation**	**$0**
Current Year Construction Cost							**$35,674**
Professional Fees at 16.0%							**$5,708**
TOTAL PROJECT COST							**$41,381**

All costs shown as Present Value

STAIR TOWER RAILING UPGRADES

Project Number:	UMSTAC03	**Category Code:** AC3B	
Priority Sequence:	2		
Priority Class:	Critical	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	INTERIOR PATH OF TRAVEL
Date Basis:	6/10/2021	**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 five stair towers lack accessible railing designs and both inner and outer handrails should be replaced with new accessible railings on each stair run. Also, replace the worn rubber stair treads on each stair run.

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	14	$780	$10,924	$709	$9,931	$20,856
Switchback handrail/guardrail system per floor	FLR	14	$1,768	$24,749	$1,135	$15,890	$40,638
Stair tread and landing finish upgrades per floor	FLR	14	$1,975	$27,648	$1,053	$14,738	$42,386
			Base Material/Labor Costs	**$63,321**		**$40,559**	
			Indexed Material/Labor Costs	**$63,764**		**$28,918**	**$92,683**
					Construction Mark Up at 20.0%		**$18,537**
					Original Construction Cost		**$111,219**
Date of Original Estimate: 6/10/2021					**Inflation**		**$0**
					Current Year Construction Cost		**$111,219**
					Professional Fees at 16.0%		**$17,795**
					TOTAL PROJECT COST		**$129,015**

All costs shown as Present Value

ROOF HATCH AND SAFETY RAIL UPGRADES

Project Number:	UMSTES02	**Category Code:** ES4B	
Priority Sequence:	3		
Priority Class:	Critical	**System:**	EXTERIOR
Project Class:	Corrective Action	**Component:**	ROOF
Date Basis:	6/10/2021	**Element:**	REPLACEMENT

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

Description

The three upper roof hatches are aging and located at the edge of the roof. Also, the roof hatch ladder access is inadequate and rooftop mechanical equipment is located near the roof perimeter. Upgrade the roof hatches and ladders at each location and install safety guardrails at the roof hatches and rooftop mechanical 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
Replace roof access hatch, aluminum with curb, flashing, lock, and cover	EA	3	$1,948	$5,844	$2,025	$6,076	$11,919
Vertical safety ladder with cage and handrail extension	LF	42	$55.00	$2,310	$62.00	$2,604	$4,914
Rooftop perimeter safety guardrail installation allowance	LOT	1	$6,500	$6,500	$10.500	$10,500	$17,000
			Base Material/Labor Costs	**$14,654**		**$19,180**	
			Indexed Material/Labor Costs	**$14,756**		**$13,675**	**$28,431**
					Construction Mark Up at 20.0%		**$5,686**
					Original Construction Cost		**$34,117**
Date of Original Estimate: 6/10/2021					**Inflation**		**$0**
					Current Year Construction Cost		**$34,117**
					Professional Fees at 16.0%		**$5,459**
					TOTAL PROJECT COST		**$39,576**

All costs shown as Present Value

ADDITIONAL ACCESSIBLE WATER FOUNTAIN INSTALLATIONS

Project Number:	UMSTAC01	**Category Code:** AC3F	
Priority Sequence:	4		
Priority Class:	Noncritical	**System:**	ACCESSIBILITY
Project Class:	Plant Adaption	**Component:**	INTERIOR PATH OF TRAVEL
Date Basis:	6/10/2021	**Element:**	DRINKING FOUNTAINS

Code Application:		Subclass/Savings:	Project Location:
ADAAG	211, 602	DOJ2 - Access to Goods & Services	Floor-wide: Floor(s) 1,2,3

Description

Currently only one water fountain is dual level and accessible. Upgrade additional water fountains to provide at least one dual-level water fountain on each floor. Set the larger dual-level fountains in wheelchair accessible corridor alcoves.

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	2	$1,657	$3,314	$509	$1,019	$4,333
Alcove construction for drinking fountain	EA	2	$1,195	$2,389	$5,099	$10,198	$12,587
Base Material/Labor Costs				**$5,703**		**$11,217**	
Indexed Material/Labor Costs				**$5,743**		**$7,997**	**$13,741**
Construction Mark Up at 20.0%							**$2,748**
Original Construction Cost							**$16,489**
Date of Original Estimate: 6/10/2021						**Inflation**	**$0**
Current Year Construction Cost							**$16,489**
Professional Fees at 16.0%							**$2,638**
TOTAL PROJECT COST							**$19,127**

All costs shown as Present Value

NORTH CENTRAL SITE WALL CLEAN AND REPOINTING ALLOWANCE

Project Number:	UMSTES01	**Category Code:** ES2B	
Priority Sequence:	5		
Priority Class:	Noncritical	**System:**	EXTERIOR
Project Class:	Corrective Action	**Component:**	COLUMNS/BEAMS/WALLS
Date Basis:	6/10/2021	**Element:**	FINISH

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

Description

The low masonry walls at the north central entry/egress ramp have heavy efflorescence and should be cleaned and repointed to help control water infiltration.

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
Masonry site wall cleaning and repointing allowance	LOT	1	$800	$800	$3,500	$3,500	$4,300
Base Material/Labor Costs				**$800**		**$3,500**	
Indexed Material/Labor Costs				**$806**		**$2,496**	**$3,301**
Construction Mark Up at 20.0%							**$660**
Original Construction Cost							**$3,961**
Date of Original Estimate: 6/10/2021						**Inflation**	**$0**
Current Year Construction Cost							**$3,961**
Professional Fees at 16.0%							**$634**
TOTAL PROJECT COST							**$4,595**

All costs shown as Present Value

INDEPENDENT DOMESTIC WATER SERVICE

Project Number:	UMSTPL01	**Category Code:** PL1D	
Priority Sequence:	6		
Priority Class:	Noncritical	**System:**	PLUMBING
Project Class:	Plant Adaption	**Component:**	DOMESTIC WATER
Date Basis:	5/12/2021	**Element:**	METERING

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

Description

The domestic water is currently fed to Umstead from Slay Hall. At the request of the client, a project has been created to separate the domestic cold water line from Slay and connect it to a nearby infrastructure water main with an associated water meter. The client provided a project cost of $80,000.

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
Connect domestic cold water to nearby water main	EA	1	$15,000	$15,000	$65,000	$65,000	$80,000
Base Material/Labor Costs				**$15,000**		**$65,000**	
Indexed Material/Labor Costs				**$15,000**		**$65,000**	**$80,000**
No GCM Required							**$0**
Original Construction Cost							**$80,000**
Date of Original Estimate: 5/12/2021 **Inflation**							**$0**
Current Year Construction Cost							**$80,000**
No Professional Fees Required							**$0**
TOTAL PROJECT COST							**$80,000**

All costs shown as Present Value

CONCRETE SIDEWALK REPAIR ALLOWANCE

Project Number:	UMSTSI01	**Category Code:** SI1A	
Priority Sequence:	7		
Priority Class:	Noncritical	**System:**	SITE
Project Class:	Corrective Action	**Component:**	ACCESS
Date Basis:	6/10/2021	**Element:**	PEDESTRIAN

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

Description

Some sections of the concrete walkway system have differential settlement damage that should be removed and replaced with a new concrete sidewalk to help maintain a good even walking 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
Replace pedestrian concrete walkways	SF	600	$4.53	$2,718	$4.99	$2,994	$5,712
Base Material/Labor Costs				**$2,718**		**$2,994**	
Indexed Material/Labor Costs				**$2,737**		**$2,135**	**$4,872**
Construction Mark Up at 20.0%							**$974**
Original Construction Cost							**$5,846**
Date of Original Estimate: 6/10/2021						**Inflation**	**$0**
Current Year Construction Cost							**$5,846**
Professional Fees at 16.0%							**$935**
TOTAL PROJECT COST							**$6,781**

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
EW01	WALL, EXTERIOR, MASONRY POINTING	BRICK FACADES		ALL ELEVS	17,560	SF	1.12	$151,061	1995	30	6	2031
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	THERMAL PANE MTL FRAME			3,860	SF	1.12	$661,750	1995	40	-5	2030
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ENTRY		SOUTH ELEV	4	LEAF	1.00	$11,541	1995	25		DR
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	EXTER ENTRY DOOR		N COUNSELING WING	1	LEAF	1.00	$2,885	2005	25		2030
DR08	DOOR AND FRAME, EXTERIOR, SWINGING, HOLLOW METAL	SECONDARY		ALL STAIR WINGS	5	LEAF	1.00	$10,154	1995	40		2035
DR08	DOOR AND FRAME, EXTERIOR, SWINGING, HOLLOW METAL	SECONDARY			1	LEAF	1.00	$2,031	1995	40		2035
DR08	DOOR AND FRAME, EXTERIOR, SWINGING, HOLLOW METAL	SERVICE			2	LEAF	1.00	$4,062	1995	40		2035
DR28	DOOR OPERATOR, POWER-ASSIST			ENTRY DOORS	2	EA	1.00	$17,458	1995	20	5	DR
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	UPPER FLAT ROOF			15,295	SF	1.00	$103,435	2005	20		2025
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	LOWER LOBBY ROOF			2,625	SF	1.00	$17,752	2010	20		2030
RR10	ROOF - PANEL, ALUMINUM OR GALVANIZED, STANDING SEAM	METAL ENTRY CANPOIES			400	SF	1.00	$7,901	2017	40		2057
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED			CORRIDORS	190	LEAF	1.00	$710,342	1995	40		2035
DR02	DOOR AND FRAME, INTERIOR, FIRE-RATED	ISOLATION DRS		STAIRS, CORRIDORS	19	LEAF	1.00	$71,034	1995	40		2035
DR24	DOOR LOCK, COMMERCIAL-GRADE	INTERIOR LEVERS		CORRIDORS	190	EA	1.00	$141,481	1995	20	5	DR
DR24	DOOR LOCK, COMMERCIAL-GRADE	EXTERIOR SECONDARY			1	EA	1.00	$745	1995	20	5	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
DR24	DOOR LOCK, COMMERCIAL-GRADE	EXTERIOR SERVICE			2	EA	1.00	$1,489	1995	20	5	DR
DR26	DOOR PANIC HARDWARE	EXT ENTRY		SOUTH ELEV	4	EA	1.00	$4,873	1995	20	5	DR
DR26	DOOR PANIC HARDWARE	EXT SECONDARY		NORTH ELEV	5	EA	1.00	$6,091	1995	20	5	DR
DR26	DOOR PANIC HARDWARE	ISOLATION DOORS		STAIRS, CORRIDORS	19	EA	1.00	$23,147	1995	20	5	DR
DR26	DOOR PANIC HARDWARE	ENTRY DOOR		N COUNSELING WING	1	EA	1.00	$1,218	2005	20		2025
IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			114,660	SF	1.00	$256,603	2010	12		2022
IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			49,140	SF	1.00	$109,973	2017	12		2029
IW03	WALL FINISH - TILE, CERAMIC / STONE, STANDARD	CER WALL TILE			6,830	SF	1.00	$262,102	1995	30	8	2033
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			11,060	SF	1.00	$135,428	2017	12		2029
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			6,640	SF	1.00	$81,306	2010	12		2022
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			4,420	SF	1.00	$54,122	2015	12		2027
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	VCT			18,440	SF	1.00	$118,174	1995	20	5	DR
IF04	FLOORING - VINYL SHEET, STANDARD	SHEET VINYL			2,300	SF	1.00	$24,563	2017	15		2032
IF06	FLOORING - TILE, CERAMIC / STONE / QUARRY STANDARD	CER FLOOR TILE			2,770	SF	1.00	$88,084	1995	30	6	2031
IF14	FLOORING - FLUID APPLIED, EPOXY / ACRYLIC / POLYURETHANE	EPOXY FLR			550	SF	1.00	$10,813	2017	15		2032

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	PT CLGS			27,650	SF	1.00	$61,879	2010	24	-8	2026
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT CLGS			13,830	SF	1.00	$30,951	2017	24	-8	2033
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT CLGS			4,610	SF	1.00	$10,317	2010	24	-14	DR
VT03	ELEVATOR MODERNIZATION - HYDRAULIC	ELEV		169	1	EA	1.00	$302,064	2006	25	1	2032
VT04	ELEVATOR CAB RENOVATION - PASSENGER	ELEV		ELEV	1	EA	1.00	$53,265	2006	12	2	DR
FX01	PLUMBING FIXTURE - LAVATORY, COUNTER	PC		HALL BATHS	43	EA	1.00	$56,673	1995	35		2030
FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RRS	1	EA	1.00	$1,330	1995	35		2030
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	FLR MOUNT		JAN CLOS	3	EA	1.00	$5,378	1995	35		2030
FX08	PLUMBING FIXTURE - SHOWER VALVE AND HEAD	CHROME		HALL BATHS	46	EA	1.00	$79,329	1995	35		2030
FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC		HALL BATHS	50	EA	1.00	$97,424	1995	35		2030
BF01	BACKFLOW PREVENTER (<=1 INCH)	BFP-MU		002	1	EA	1.00	$1,049	2013	10		2023
BF05	BACKFLOW PREVENTER (4-6 INCHES)	BFP-FIRE		EXT	1	EA	1.00	$12,764	2010	10		DR
PS04	SUPPLY PIPING SYSTEM - DORMITORY	COPPER		THROUGHOUT	48,512	SF	1.04	$319,586	1995	35	2	2032
WH24	WATER HEATER - RESIDENTIAL, ELECTRIC (46-100 GAL)	WH-1		164	80	GAL	1.00	$2,631	2008	10	2	DR
PD04	DRAIN PIPING SYSTEM - DORMITORY	CAST IRON, PVC		THROUGHOUT	48,512	SF	1.04	$481,715	1995	40		2035

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
CH10	CHILLER - AIR COOLED PACKAGE (>150 TONS)	CH-1		EXT	200	TON	1.00	$221,780	2013	30		2043
AH01	AIR HANDLING UNIT - INDOOR (.5-1.25 HP)	FCU, CONSOLE, APPROX 162		THROUGHOUT	162	HP	1.00	$1,459,308	2010	25	-10	2025
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-3		164	1.50	HP	1.00	$11,059	1995	25		DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-4		164	1.50	HP	1.00	$11,059	1995	25		DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-6		167	1.50	HP	1.00	$11,059	1995	25		DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-5		167	1.50	HP	1.00	$11,059	1995	25		DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-5		ROOF	1.50	HP	1.00	$34,602	1995	23	2	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-6		ROOF	1.50	HP	1.00	$34,602	1995	23	2	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-7		ROOF	1.50	HP	1.00	$34,602	1995	23	2	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-4		ROOF	1.50	HP	1.00	$34,602	1995	23	2	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-3		ROOF	1.50	HP	1.00	$34,602	1995	23	2	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-7		ROOF	1	EA	1.00	$7,951	1995	20	5	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-5		ROOF	1	EA	1.00	$7,951	1995	20	5	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-6		ROOF	1	EA	1.00	$7,951	1995	20	5	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-4		ROOF	1	EA	1.00	$7,951	1995	20	5	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
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-3		ROOF	1	EA	1.00	$7,951	1995	20	5	DR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-2		002	1	HP	1.00	$2,772	1995	20	5	DR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-1		007	1	HP	1.00	$2,772	1995	20	5	DR
HV04	HVAC DISTRIBUTION NETWORKS - DORMITORY	FA, FCU		THROUGHOUT	48,512	SF	0.80	$780,413	1995	40		2035
PH01	PUMP - ELECTRIC (<=10 HP)	PCHWP-1		002	10	HP	1.00	$16,452	2013	25		2038
PH01	PUMP - ELECTRIC (<=10 HP)	SCHWP-1U		002	10	HP	1.00	$16,452	2013	25		2038
PH01	PUMP - ELECTRIC (<=10 HP)	DHWP-1		164	1	HP	1.00	$1,645	2008	25		2033
PH02	PUMP - ELECTRIC (10 - 15 HP)	SCHWP-1S		002	15	HP	1.00	$21,487	2013	25		2038
BA104	HVAC CONTROLS SYSTEM - DORMITORY	DDC		THROUGHOUT	48,512	SF	1.04	$162,797	1995	18	7	DR
FS01	FIRE SPRINKLER SYSTEM	WET PIPE		THROUGHOUT	48,512	SF	1.04	$633,379	2015	80		2095
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	PA, SIMPLEX		108	1	EA	1.00	$37,851	1995	15	10	DR
FA02	FIRE ALARM SYSTEM - DEVICES	HS, MP, SD		THROUGHOUT	48,512	SF	1.04	$205,813	2010	18		2028
SE04	ELECTRICAL DISTRIBUTION NETWORK - DORMITORY	277/480		THROUGHOUT	48,512	SF	1.04	$620,182	1995	40		2035
SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	MSB		007	600	AMP	1.00	$46,588	1995	20	5	DR
TX18	TRANSFORMER - OIL-FILLED, 3PH, 5-15KV PRIMARY (500-750 KVA)	TX-43		EXT	750	KVA	1.00	$74,645	1995	35	2	2032

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
VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD PCHWP-1		002	10	HP	1.00	$5,298	2013	12		2025
VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD SCHWPU-1		002	10	HP	1.00	$5,298	2013	12		2025
VF04	VARIABLE FREQUENCY DRIVE (10-15 HP)	VFD SCHWPS-1		002	15	HP	1.00	$6,133	2013	12		2025
LE07	LIGHTING - EXTERIOR, WALL FLOOD (SV, MH, ID, LED)	LED SCONCE		EXT	13	EA	1.00	$12,849	2018	15		2033
LI04	LIGHTING SYSTEM, INTERIOR - DORMITORY	T8, CFL		THROUGHOUT	48,512	SF	1.07	$375,377	1995	20	5	DR
GN03	GENERATOR - DIESEL (100-200 KW)	EGEN		EXT	150	KW	1.00	$96,486	1995	25		DR
GN15	SWITCH - AUTO TRANSFER, 480 V (100-400 AMP)	ATS-2		007	104	AMP	1.00	$4,276	1995	25		DR
								Grand Total:	**$9,675,030**			

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
DR28	DOOR OPERATOR, POWER-ASSIST			ENTRY DOORS	B2030	2	EA	$17,458	DR
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	ENTRY		SOUTH ELEV	B2030	4	LEAF	$11,541	DR
DR24	DOOR LOCK, COMMERCIAL-GRADE	INTERIOR LEVERS		CORRIDORS	C1020	190	EA	$141,481	DR
DR26	DOOR PANIC HARDWARE	ISOLATION DOORS		STAIRS, CORRIDORS	C1020	19	EA	$23,147	DR
DR24	DOOR LOCK, COMMERCIAL-GRADE	EXTERIOR SECONDARY			C1020	1	EA	$745	DR
DR24	DOOR LOCK, COMMERCIAL-GRADE	EXTERIOR SERVICE			C1020	2	EA	$1,489	DR
DR26	DOOR PANIC HARDWARE	EXT ENTRY		SOUTH ELEV	C1020	4	EA	$4,873	DR
DR26	DOOR PANIC HARDWARE	EXT SECONDARY		NORTH ELEV	C1020	5	EA	$6,091	DR
IF03	FLOORING - VINYL COMPOSITION TILE, STANDARD	VCT			C3020	18,440	SF	$118,174	DR
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT CLGS			C3030	4,610	SF	$10,317	DR
VT04	ELEVATOR CAB RENOVATION - PASSENGER	ELEV		ELEV	D1010	1	EA	$53,265	DR
BF05	BACKFLOW PREVENTER (4-6 INCHES)	BFP-FIRE		EXT	D2020	1	EA	$12,764	DR

RECURRING NEEDS BY YEAR

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

WH24	WATER HEATER - RESIDENTIAL, ELECTRIC (46-100 GAL)	WH-1		164	D2020	80	GAL	$2,631	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-7		ROOF	D3040	1	EA	$7,951	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-5		ROOF	D3040	1	EA	$7,951	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-6		ROOF	D3040	1	EA	$7,951	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-4		ROOF	D3040	1	EA	$7,951	DR
FN20	FAN - CENTRIFUGAL ROOF EXHAUST, 1/4" SP (25"-30" DIAMETER)	EF-3		ROOF	D3040	1	EA	$7,951	DR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-2		002	D3040	1	HP	$2,772	DR
FN26	FAN - PROPELLER WITH LOUVER, 1/4" SP (.5-1 HP)	EF-1		007	D3040	1	HP	$2,772	DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-3		164	D3040	1.50	HP	$11,059	DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-4		164	D3040	1.50	HP	$11,059	DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-6		167	D3040	1.50	HP	$11,059	DR
AH02	AIR HANDLING UNIT - INDOOR (1.25-1.75 HP)	AHU-5		167	D3040	1.50	HP	$11,059	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-5		ROOF	D3040	1.50	HP	$34,602	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-6		ROOF	D3040	1.50	HP	$34,602	DR

RECURRING NEEDS BY YEAR

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

AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-7		ROOF	D3040	1.50	HP	$34,602	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-4		ROOF	D3040	1.50	HP	$34,602	DR
AH16	AIR HANDLING UNIT - OUTDOOR PACKAGE (.75-1.5 HP)	MAU-3		ROOF	D3040	1.50	HP	$34,602	DR
BA104	HVAC CONTROLS SYSTEM - DORMITORY	DDC		THROUGHOUT	D3060	48,512	SF	$162,797	DR
FA01	FIRE ALARM PANEL, DIALER, BATTERY, & CHARGER	PA, SIMPLEX		108	D4030	1	EA	$37,851	DR
SG02	MAIN SWITCHBOARD W/BREAKERS (400-600 AMP)	MSB		007	D5010	600	AMP	$46,588	DR
LI04	LIGHTING SYSTEM, INTERIOR - DORMITORY	T8, CFL		THROUGHOUT	D5020	48,512	SF	$375,377	DR
GN03	GENERATOR - DIESEL (100-200 KW)	EGEN		EXT	D5090	150	KW	$96,486	DR
GN15	SWITCH - AUTO TRANSFER, 480 V (100-400 AMP)	ATS-2		007	D5090	104	AMP	$4,276	DR
						TOTAL DEFERRED RENEWAL COST		**$1,389,898.47**	

No Projected Component Replacement Cost for Asset No. UMST for 2021

RECURRING NEEDS BY YEAR

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

2022									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			C3010	114,660	SF	$264,302	2022
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	BROADLOOM CARPET			C3020	6,640	SF	$83,745	2022
						2022 PROJECTED COMPONENT REPLACEMENT COST		$348,046.52	

2023									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
BF01	BACKFLOW PREVENTER (<=1 INCH)	BFP-MU		002	D2020	1	EA	$1,113	2023
						2023 PROJECTED COMPONENT REPLACEMENT COST		$1,112.91	

RECURRING NEEDS BY YEAR

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

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

2025									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	UPPER FLAT ROOF			B3010	15,295	SF	$116,417	2025
DR26	DOOR PANIC HARDWARE	ENTRY DOOR		N COUNSELING WING	C1020	1	EA	$1,371	2025
AH01	AIR HANDLING UNIT - INDOOR (.5-1.25 HP)	FCU, CONSOLE, APPROX 162		THROUGHOUT	D3040	162	HP	$1,642,463	2025
VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD PCHWP-1		002	D5010	10	HP	$5,963	2025
VF03	VARIABLE FREQUENCY DRIVE (7.5-10 HP)	VFD SCHWPU-1		002	D5010	10	HP	$5,963	2025
VF04	VARIABLE FREQUENCY DRIVE (10-15 HP)	VFD SCHWPS-1		002	D5010	15	HP	$6,902	2025
					2025 PROJECTED COMPONENT REPLACEMENT COST			**$1,779,080.20**	

RECURRING NEEDS BY YEAR

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

2026									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IC04	CEILING FINISH - PAINTED OR STAINED, STANDARD	PT CLGS			C3030	27,650	SF	$71,735	2026
					2026 PROJECTED COMPONENT REPLACEMENT COST			$71,735.11	

2027									
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	4,420	SF	$64,625	2027
					2027 PROJECTED COMPONENT REPLACEMENT COST			$64,624.78	

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
FA02	FIRE ALARM SYSTEM - DEVICES	HS, MP, SD		THROUGHOUT	D4030	48,512	SF	$253,124	2028
					2028 PROJECTED COMPONENT REPLACEMENT COST			$253,123.68	

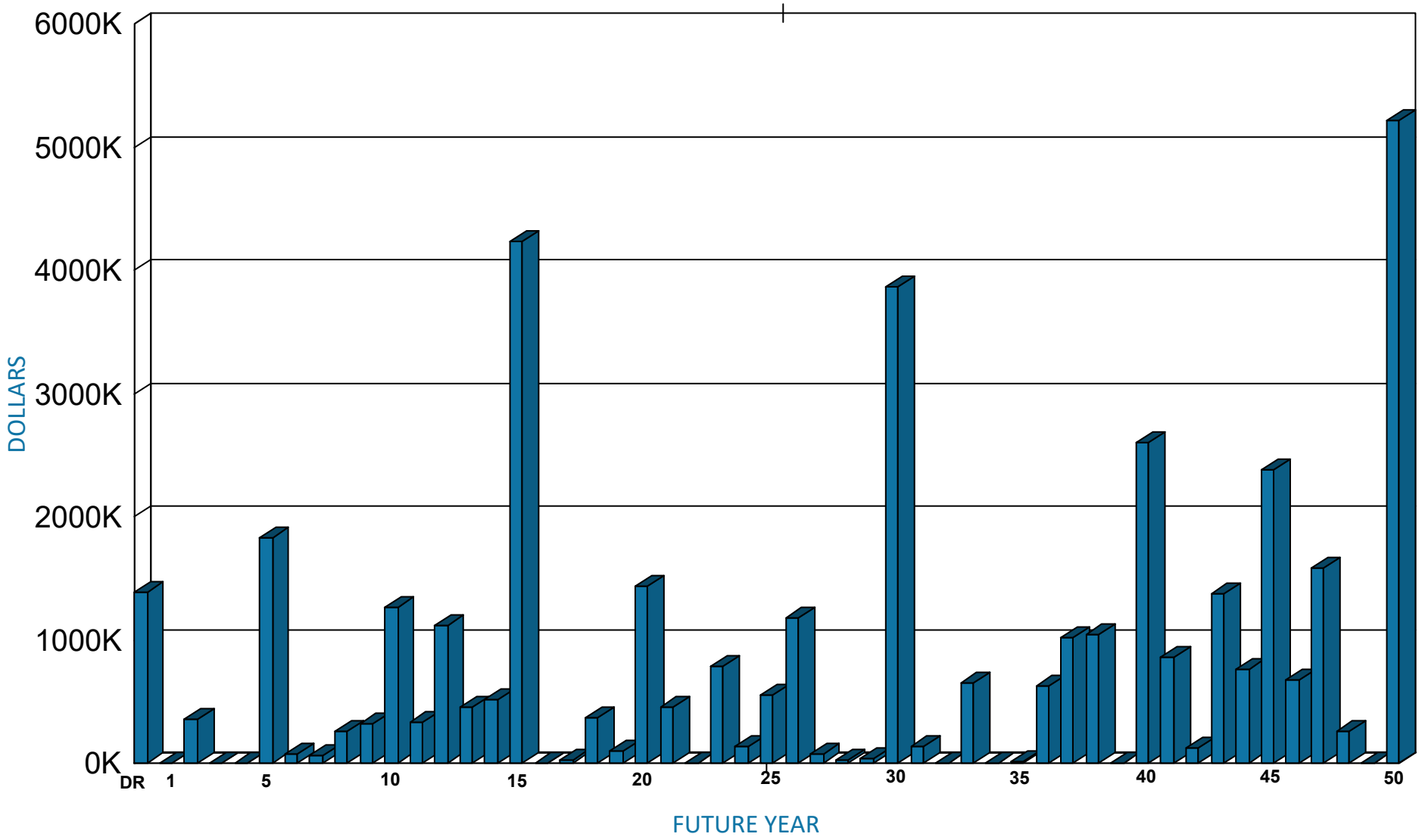
2029									
COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNI-FORMAT	QTY	UNITS	REPLACEMENT COST	YEAR
IW01	WALL FINISH - PAINT, STANDARD	PT WALLS			C3010	49,140	SF	$139,310	2029
IF01	FLOORING - CARPET, TILE OR ROLL, STANDARD	CARPET TILE			C3020	11,060	SF	$171,556	2029
					2029 PROJECTED COMPONENT REPLACEMENT COST			$310,866.57	

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
WN01	GLASS, WINDOW, ALUMINUM OR WOOD, STANDARD	THERMAL PANE MTL FRAME			B2010	3,860	SF	$863,434	2030
DR05	DOOR AND FRAME, EXTERIOR, SWINGING, ALUMINUM AND GLASS	EXTER ENTRY DOOR		N COUNSELING WING	B2030	1	LEAF	$3,765	2030
RR06	ROOF - BITUMINOUS, 2-PLY, SBS MODIFIED BITUMEN, MOP	LOWER LOBBY ROOF			B3010	2,625	SF	$23,162	2030
FX08	PLUMBING FIXTURE - SHOWER VALVE AND HEAD	CHROME		HALL BATHS	D2010	46	EA	$103,506	2030
FX01	PLUMBING FIXTURE - LAVATORY, COUNTER	PC		HALL BATHS	D2010	43	EA	$73,945	2030
FX12	PLUMBING FIXTURE - WATER CLOSET, TANKLESS	PC		HALL BATHS	D2010	50	EA	$127,117	2030
FX02	PLUMBING FIXTURE - LAVATORY, WALL HUNG	PC		RRS	D2010	1	EA	$1,736	2030
FX06	PLUMBING FIXTURE - SINK, SERVICE/LAUNDRY/UTILITY	FLR MOUNT		JAN CLOS	D2010	3	EA	$7,017	2030
						2030 PROJECTED COMPONENT REPLACEMENT COST		$1,203,681.19	

RECURRING COMPONENT EXPENDITURE PROJECTIONS

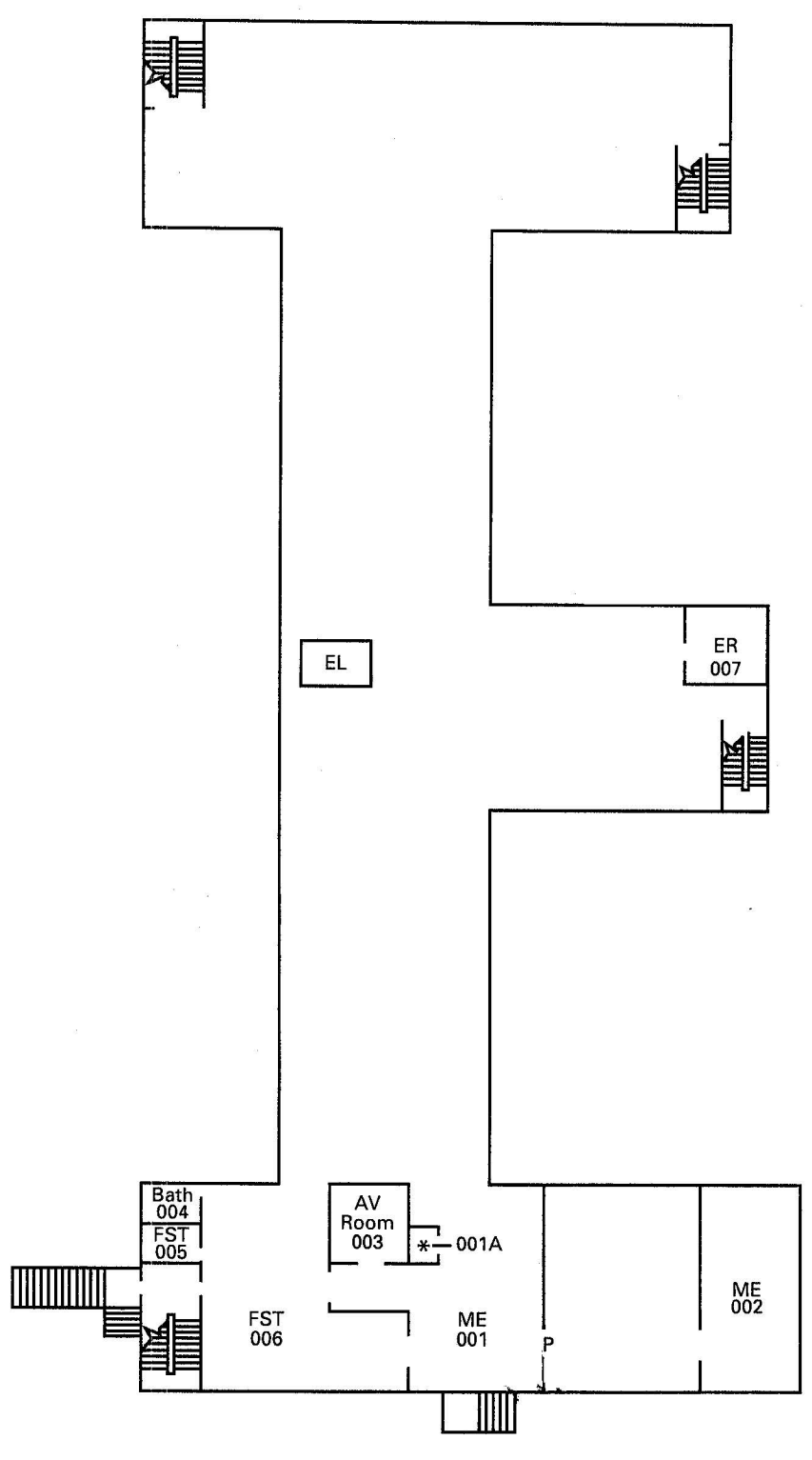


Average Annual Renewal Cost per SF $7.59

FACILITY CONDITION ASSESSMENT

SECTION 5

DRAWINGS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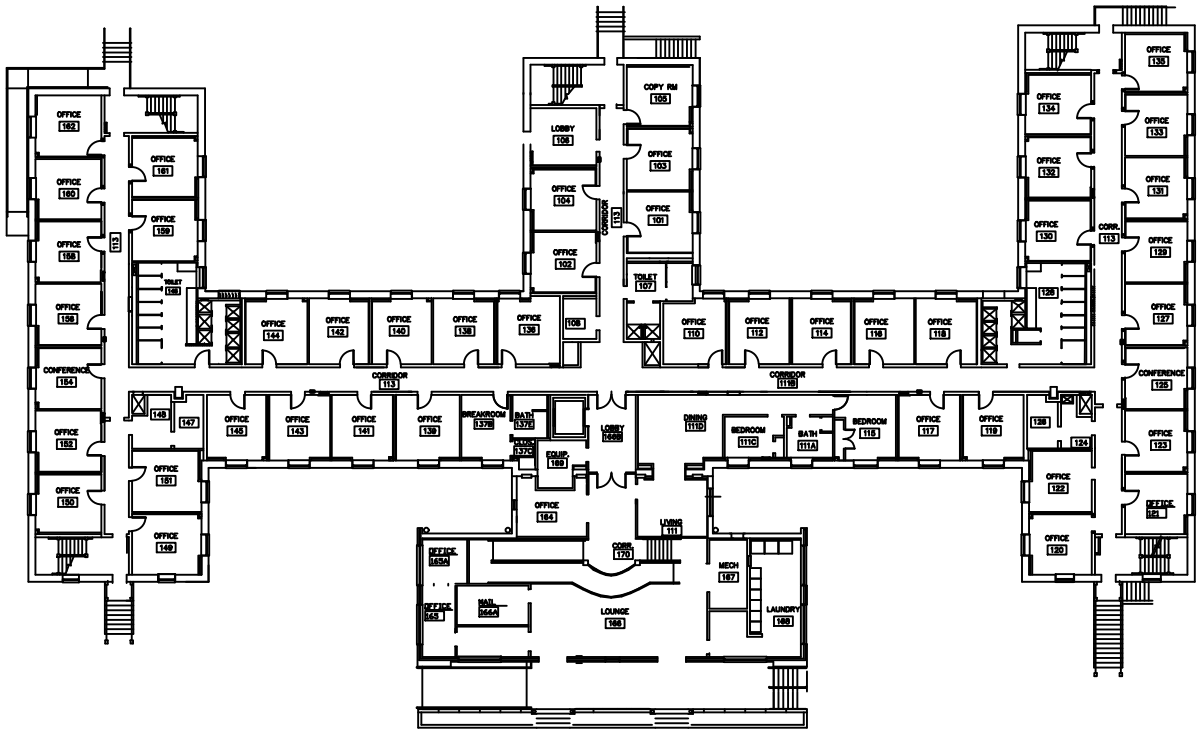


FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

1/8" = 1'-0"

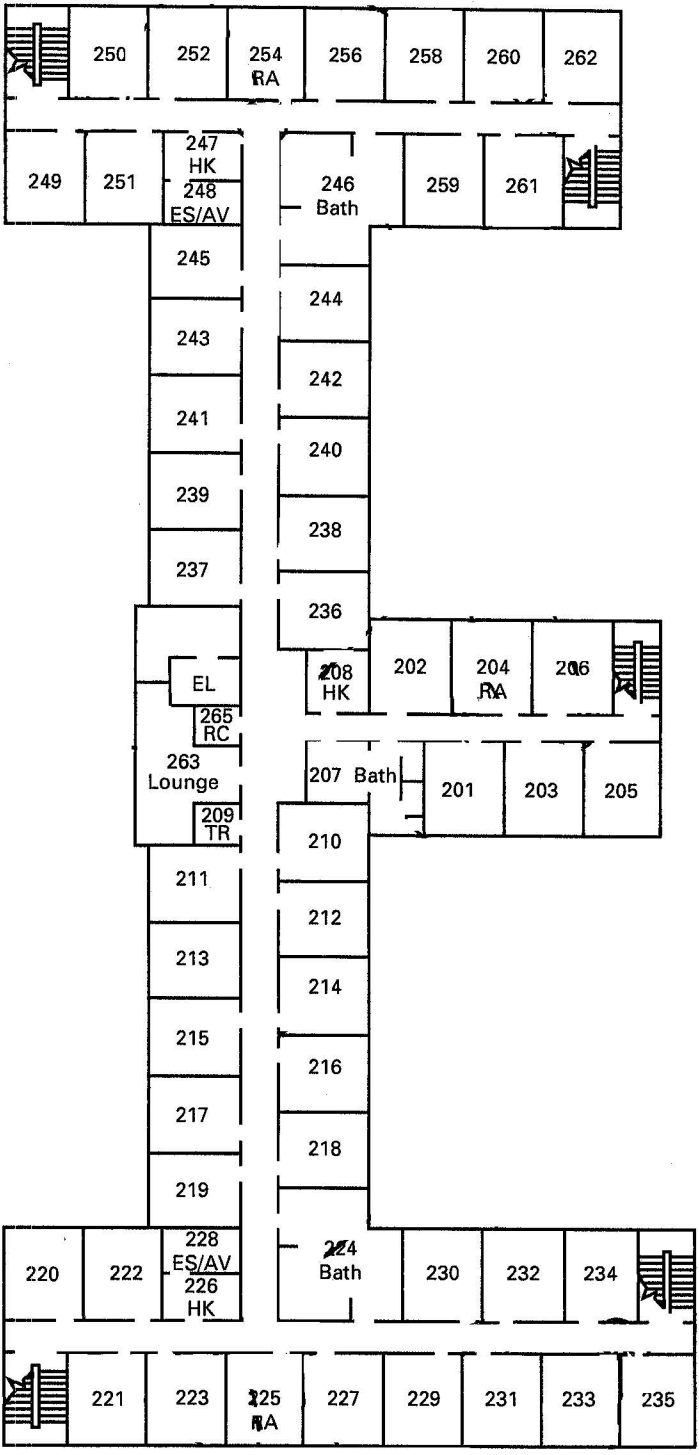
EAST CAROLINA UNIVERSITY
FACILITIES PLANNING, DESIGN
AND CONSTRUCTION
GREENVILLE, N.C.

BUILDING 38
UMSTEAD HALL
FIRST FLOOR PLAN

EAST CAROLINA UNIVERSITY
GREENVILLE, NORTH CAROLINA

93001

1/8"=1'-0"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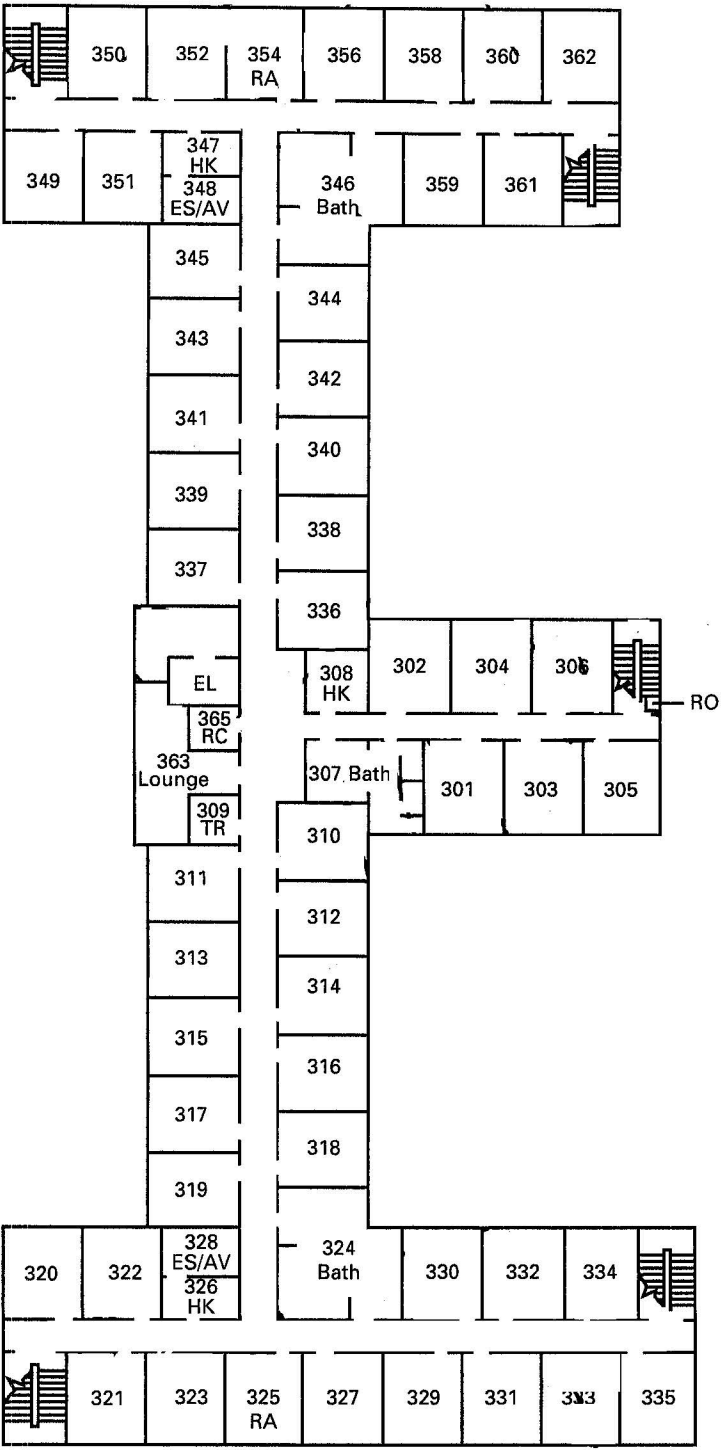
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SECTION 6

PHOTOGRAPHS

UMST001a 5/12/2021

Building site signage

South site

UMST001e 5/12/2021

Cab interior

Elevator

UMST002a 5/12/2021

Accessible two-way communication in non-ADA phone box

Passenger elevator cab

UMST002e 5/12/2021

Rooftop makeup air handling unit

Roof

UMST003a 5/12/2021

One of three roof hatches located at edge of roof

Roof

UMST003e 5/12/2021

Rooftop makeup air handling unit

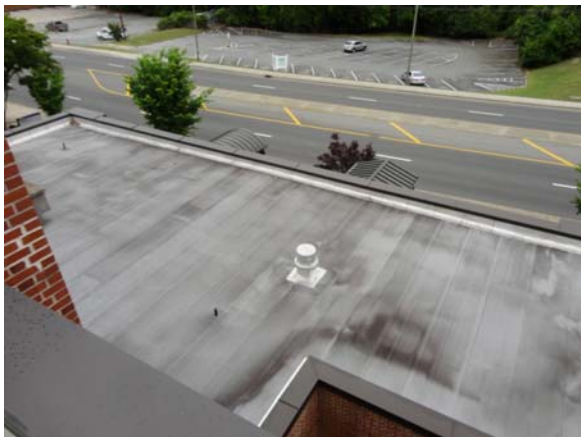
Roof

UMST004a 5/12/2021
Built-up roof with cap sheet and low parapet cap flashing
Main flat roof

UMST004e 5/12/2021
Centrifugal rooftop exhaust fan
Roof

UMST005a 5/12/2021
Raised parapet cap at front elevation
Upper center of south elevation

UMST005e 5/12/2021
Rooftop makeup air handling unit
Roof



UMST006a 5/12/2021
Lower built-up roof with cap sheet
Lobby roof

UMST006e 5/12/2021
Rooftop makeup air handling unit
Roof

UMST007a 5/12/2021
One of two standing-seam barrel arch entry canopies
South main entry

UMST007e 5/12/2021
T8 troffer lighting fixture
Room 302

UMST008a 5/12/2021
Tree overhang over portion of main roof
Main roof

UMST008e 5/12/2021
Covered fire suppression sprinkling device
Room 302

UMST009a 5/12/2021
Wide picket spacing on inner switchback railing
Third floor, stair tower

UMST009e 5/12/2021
Horn with strobe fire alarm device
Third floor corridor

UMST010a 5/12/2021
Accessible inner handrails
Third floor, stair tower

UMST010e 5/12/2021
Manual pull fire alarm device
Third floor corridor

UMST011a 5/12/2021
Accessible wall-mounted room signage with Braille
Third floor corridor

UMST011e 5/12/2021
Console fan coil unit
Room 305

UMST012a 5/12/2021
Older VCT and painted walls and ceiling
Third floor, dorm room

UMST012e 5/12/2021
Local panelboard
Second floor corridor

UMST013a 5/12/2021
Newer fire-rated corridor door with lever hardware
Third floor corridor

UMST013e 5/12/2021
Cast-iron drain piping with hubless connections
Trash room

UMST014a 5/12/2021
Older thermal-pane, metal-framed glazing
Third floor

UMST014e 5/12/2021
Main fire alarm panel
Room 108

UMST015a 5/12/2021
Updated counter lavatories
Third floor, men's central hall bath

UMST015e 5/12/2021
Fire suppression sprinkling device
Room 006

UMST016a 5/12/2021

Accessible toilet stall

Third floor, men's central hall bath

UMST016e 5/12/2021

Chilled water pump

Room 002

UMST017a 5/12/2021

Standard tiled shower

Third floor, men's central hall bath

UMST017e 5/12/2021

Fire suppression riser piping

Room 002

UMST018a 5/12/2021

Accessible roll-in shower

Third floor, men's central hall bath

UMST018e 5/12/2021

Propeller exhaust fan

Room 002

UMST019a 5/12/2021
Newer floor-mounted mop sink
Third floor, janitor's closet

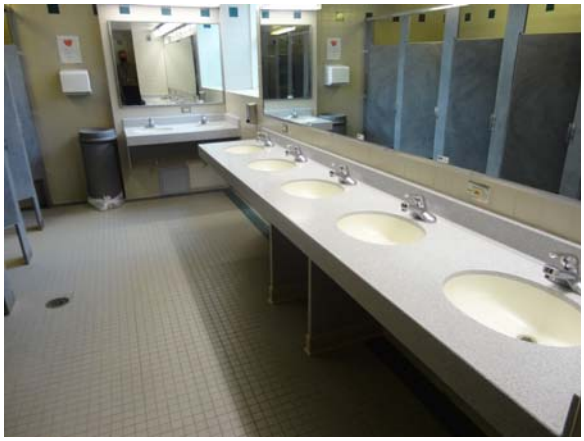
UMST019e 5/12/2021
Chilled water pump
Room 002

UMST020a 5/12/2021
Carpet tile and painted walls and ceiling
Third floor, student lounge

UMST020e 5/12/2021
Chilled water pump
Room 002

UMST021a 5/12/2021
Older VCT flooring
Third floor, trash room

UMST021e 5/12/2021
VFDs for chilled water pumps
Room 002



UMST022a 5/12/2021

Updated counter lavatories

Third floor, women's west hall bath

UMST022e 5/12/2021

Backflow preventer for makeup water

Room 002

UMST023a 5/12/2021

Accessible toilet stall

Third floor, women's west hall bath

UMST023e 5/12/2021

LED sconce lighting fixture

Southast corner

UMST024a 5/12/2021

Standard chrome shower head

Third floor, women's west hall bath

UMST024e 5/12/2021

Main distribution panelboard

Room 007

UMST025a 5/12/2021
Accessible roll-in shower
Third floor, women's west hall bath

UMST025e 5/12/2021
Automatic transfer switch
Room 007

UMST026a 5/12/2021
Some localized painted ceiling damage
Third floor, women's west hall bath

UMST026e 5/12/2021
Secondary step-down transformer
Room 007

UMST027a 5/12/2021
New, partially accessible, single-level water fountain and bottle filler
Third floor corridor

UMST027e 5/12/2021
Distribution panelboard
Room 007

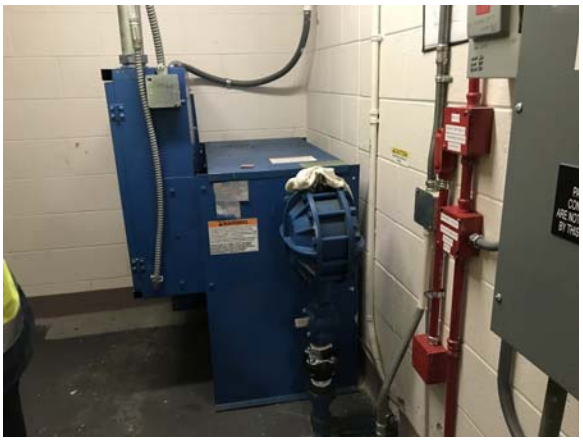
UMST028a 5/12/2021
Unrepaired ceiling water damage at roof hatch
Third floor, central stair tower

UMST028e 5/12/2021
Air-cooled packaged chiller
Room 007

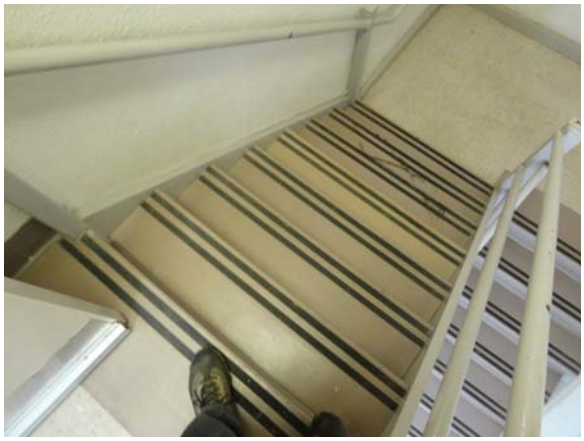
UMST029a 5/12/2021
Carpet tile and painted walls and ceiling
Third floor corridor

UMST029e 5/12/2021
Oil-filled transformer
Room 007

UMST030a 5/12/2021
Older single-level water fountain
Third floor corridor



UMST030e 5/12/2021
Hydraulic elevator controls
Room 007



UMST031a 5/12/2021
Wear on the rubber stair treads
Third floor, stair tower

UMST031e 5/12/2021
Residential electric water heater
Room 007

UMST032a 5/12/2021
Original single-pane wire glass
Third floor, stair tower

UMST032e 5/12/2021
Fan coil unit
Room 164

UMST033a 5/12/2021
Accessible toilet stall
Second floor, women's hall bath

UMST033e 5/12/2021
Corrosion on fan coil unit
Room 164

UMST034a 5/12/2021
Updated counter lavatories
Second floor, women's hall bath

UMST034e 5/12/2021
Fire alarm annunciator panel
Main lobby

UMST035a 5/12/2021
Updated counter lavatory
Second floor, men's hall bath

UMST035e 5/12/2021
Fan coil unit
Room 167

UMST036a 5/12/2021
Accessible toilet stall
Second floor, men's hall bath

UMST036e 5/12/2021
Backflow preventer for fire suppression
Exterior

UMST037a 5/12/2021
Chrome shower head
Second floor, men's hall bath

UMST038a 5/12/2021
Carpet and painted walls and ceiling
First floor, counseling office

UMST039a 5/12/2021
Carpet tile and painted walls and ceiling
First floor, counseling corridor

UMST040a 5/12/2021
Newer, partially accessible, single-level water fountain
First floor corridor

UMST041a 5/12/2021
Newer dual-level water fountain
First floor corridor

UMST042a 5/12/2021
Newer floor-mounted mop sink
First floor, janitor's closet

UMST043a 5/12/2021
Newer carpeting and painted walls and ceiling
First floor, Dean of Student Affairs office

UMST044a 5/12/2021
Worn carpeting and painted walls and ceiling
First floor, northeast corridor

UMST045a 5/12/2021
Sheet vinyl flooring in some offices
First floor, northeast offices

UMST046a 5/12/2021
Exterior brick facade
Southeast corner elevation

UMST047a 5/12/2021
Hollow-metal entry door
Southeast corner basement entry

UMST048a 5/12/2021
Some differential settlement on concrete sidewalks
Southeast corner of site

UMST049a 5/12/2021
Some differential settlement on concrete sidewalks
Southeast corner of site

UMST050a 5/12/2021
Flanking handrails on egress stair
Southeast wing

UMST051a 5/12/2021
Exterior brick facade
East end of south main elevation

UMST052a 5/12/2021
Sign of blocked drain scupper
Lower south roof

UMST053a 5/12/2021
Glass entry doors at main lobby
South elevation

UMST054a 5/12/2021
Ramped access to main entry
South elevation

UMST055a 5/12/2021
Flanking handrails on egress stair
Southwest wing

UMST056a 5/12/2021
Brick exterior and glazing
West elevation

UMST057a 5/12/2021
Ramped access to secondary entry/egress point
Northwest wing

UMST058a 5/12/2021
Brick exterior and glazing
Northwest corner elevation

UMST059a 5/12/2021
Efflorescence on masonry site walls
Central north wing

UMST060a 5/12/2021
Detail of heavy efflorescence
Central north wing

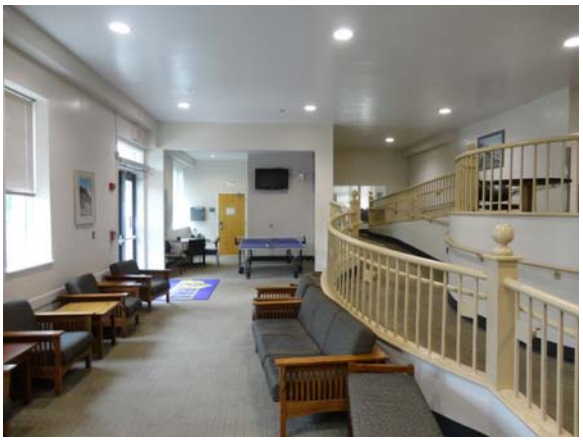
UMST061a 5/12/2021
Hollow-metal areaway door
East basement service entry

UMST062a 5/12/2021
Only one handrail on service stair
East basement service entry

UMST063a 5/12/2021
Secondary egress stair
Northeast wing

UMST064a 5/12/2021
Epoxy floor
First floor, south laundry

UMST065a 5/12/2021
Unrepaired water damage to painted ceiling
First floor, south laundry



UMST066a 5/12/2021
Updated finishes noting interior wheelchair ramp
First floor, south lobby

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	UMST
Asset Name	Umstead Residence Hall (075)
Year Built or Last Energy Renovation	1995

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)

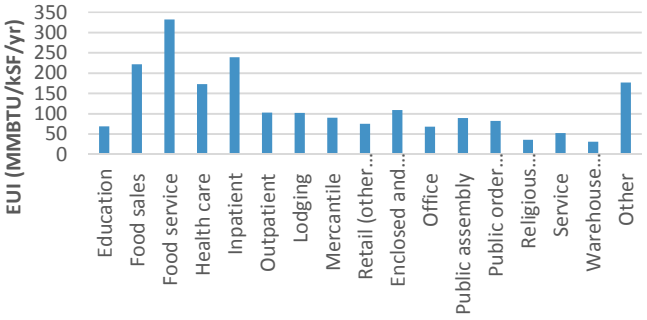
EUI is a measure of energy consumption per square foot of building space per year. The units of measurement are million British thermal units per thousand square foot per year (MMBTU/kSF/yr). The US-DOE EUI can be compared to the actual EUI of the client building to determine how efficient the building 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	Dormitory/Apartments
Range of Years Constructed/Last Major Energy Renovation	1990 to present
Benchmark EUI (MMBTU/kSF/yr) =	**102**
Building EUI to be Calculated by Client (MMBTU/kSF/yr) =	

TABLE 3. EUI COMPARISON	
Very Energy Efficient (consumes more than 30% less energy)	EUI < 71.4
Energy Efficient (consumes 10% to 30% less energy)	71.4 <= EUI <= 91.8
Similar (consumes within 10% less or 10% more energy)	91.8 < EUI < 112.2
Energy Inefficient (consumes 10% to 30% more energy)	112.2 <= EUI <= 132.6
Very Energy Inefficient (consumes more than 30% more energy)	EUI > 132.6

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

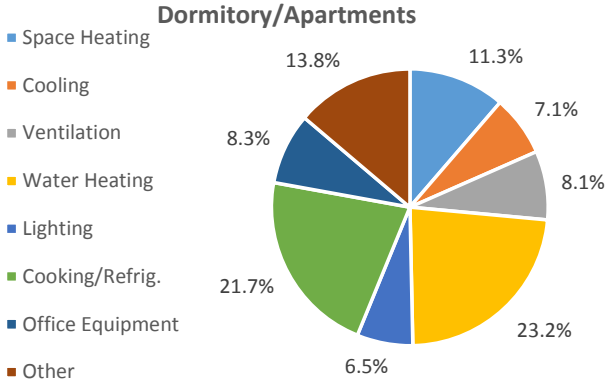


Metric #2: Energy End Use

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: DORMITORY/APARTMENTS	
Space Heating	11.3%
Cooling	7.1%
Ventilation	8.1%
Water Heating	23.2%
Lighting	6.5%
Cooking/Refrig.	21.7%
Office Equipment	8.3%
Other	13.8%
Total	100.0%

Figure 2. Energy End Use Profile: Dormitory/Apartments



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 - 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 by monitored and controlled at a central location.	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 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