HARVARD UNIVERSITY

Facility Condition Assessment Program

Taubman Building Report

January 2007

ARAMARK Education
Facility Services

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ARAMARK Education
Facility Services

I. PROGRAM APPROACH AND METHODOLOGY

The Facilities Condition Assessment employed by ARAMARK Education is based upon the successful completion of similar facilities assessments for higher education institutions. While there is a consistent approach to the Assessment, the process is flexible to address the unique requirements of Harvard. Included in the Assessment are the following elements: facilities inspection, observation classification, summary of findings, University participation, reporting, and fire suppression and accessibility details. Final reports both summarizing and detailing findings were delivered to individual Schools and the University along with an electronic version of the data.

1. Facilities Inspection

The buildings identified by the University have been inspected. Teams of Operations professionals have been organized by technical discipline to ensure all buildings, components, and systems have been evaluated. Component evaluation is organized in detail according to a technical classification of system and subsystem as requested. The standard systems and subsystems used in the Assessment are as follows:

- Exterior envelop - roofs, walls, foundation, window systems, and doors
- Interior envelop - walls, doors, flooring, and visible structural components
- Electrical systems – circuitry, distribution, lighting, fire safety
- Mechanical systems – compressors, elevators, pumps
- Heating and Cooling – heating and air conditioning systems
- Ventilation – air handlers, exhaust fans, variable air volume boxes
- Plumbing – domestic hot and cold water, fire protection, sanitary sewer
- Grounds – roads and paths, outdoor furniture, plant materials
- Life Safety and Accessibility – safety and regulatory compliance

2. Development of Observations, Categorization, and Prioritization

A detailed inventory has been developed on the basis of the physical inspection, interviews, and review of pre-existing reports. Each item in the total inventory is characterized with a cost estimate for corrective action or replacement, along with

categorization and priority. Items are classified by institutional mission, budget program, implementation strategy and sustainability categorization.

Items are separated into the following priorities:

- 1a – Currently Critical – correct a cited safety hazard
- 1b – Currently Critical – return a system to operation
- 1c – Currently Critical – stop accelerated deterioration
- 2a – Potentially Critical in a year – life safety exposure
- 2b - Potentially Critical in a year – intermittent operations
- 2c - Potentially Critical in a year – rapid deterioration
- 3a – Necessary but Not Yet Critical – will require attention within the next 3 years
- 3b – Necessary but Not Yet Critical – will require attention within the next 10 years
- 4a – Recommended – Time-sensitive issue
- 4b – Recommended – Non-time-sensitive issue (modernization)
- U – Undefined Timeline

Institutional mission categorization is as follows:

- A - Support University program
- B - Student life quality
- C - Public interface
- D - Asset preservation
- E – Safety, Security and Regulatory
- F - Cost containment
- G – Accessibility
- H - Sustainability

Observation Category classification includes the following:

- 1 - Deferred

- Includes expenditures that were not undertaken to keep the facilities in reliable operating condition for its present use. These expenditures are beyond normal maintenance for items with a life cycle in excess of one year and are not normally contained in an annual facility operating budget. Also includes "deferred maintenance," which exists when a system, component, fixture, or piece of equipment is nonfunctional or operates at less than optimal levels. The equipment may require

minor maintenance, extensive repair or selective replacement of components. Deferred Maintenance consists of maintenance projects that were not included in the operating or plant renewal budgeting processes because of a perceived lower priority status than those funded with available resources. Finally, this category includes any issues related to safety or compliance to municipal, state, and federal codes and regulations

- 2 - Current/Future

- Includes expenditures that should be undertaken within the next 10 years to keep the facilities in reliable operating condition for its present use. Planned life-cycle renewal programs replace or renovate building systems on a schedule based on an assessment of expected remaining useful life. Also includes activities that normally fall within the daily operational activities of the campus. These items are typically funded out of operational maintenance budgets.

- 3 - Modernization

- Used when major building systems and components should be upgraded to like new modern condition, as appropriate to support current educational programs and/or organizational needs. Modernization needs are typically not included in a facility condition assessment but rather would be part of an overall campus modernization program. However, observations on the Harvard campus relating to public interface, marketability of space, and environmental sustainability have also been included in this category.

Implementation Strategy categories follow:

- A - Implement as a stand alone project – operations initiative
- B - Implement as a stand alone project – CAPS project (>$100,000)
- C - Address as part of a larger space renovation – operations initiative
- D - Address as part of a larger space renovation – CAPS project (>$100,000)

Sustainability categories include:

- EA - Protect Energy & Atmosphere
- EQ - Improve Indoor Environmental Quality
- MR - Effective Use of Materials and Resources
- NA - Not Applicable
- SS - Promote a Sustainable Site
- WE - Improve Water Efficiency

All of the above categories exist within the standard menu of the OPTIMA database, and can easily be modified for any additions, deletions, or changes.

Cost estimates for identified projects were developed using latest published cost estimating data from RS Means, collective operations experience, local pricing knowledge from recent University projects and facilities managers, and aggravating/mitigating circumstances accompanying the individual projects.

3. Summary of Findings

An important part of the analysis is a summary of the findings. Individual projects were summarized by system and priority. Senior administration at the Schools and University can use these summaries for long-term planning, prioritization and resource allocation decisions. Additional reporting exists or can be created as needed using the OPTIMA software. As an example, projects can be summarized by budget program or implementation strategy.

Three graphical exhibits summarizing observations according to categories such as implementation strategy and institutional mission are included in the report. The first exhibit includes all observations and the second includes those observations that fall into the Deferred and Current/Future observation categories. The third exhibit only includes observations that are considered to be in the Deferred category.

4. University Participation

University facilities personnel have actively participated in the inspection phase and their perspective has provided substantial value to the overall assessment. Although the ultimate responsibility for inspection remains with ARAMARK, University staff has contributed their valuable institutional knowledge and understands the Facility Condition Assessment inspection methodology. Their enthusiasm has contributed greatly to the process.

5. Fire Suppression and Accessibility

An integral part of the Assessment is the review of building conditions as they relate to fire safety systems, emergency egress, and accessibility.

With life safety systems and accessibility, two factors drive upgrades to aging buildings: building codes and overall investment in a building as it relates to the

building's replacement value. Changes in federal, state, and local ordinances will inevitably affect current structures. As re-investment in building infrastructure occurs, "grandfathered" systems do not need to be addressed until renovation investment reaches 30% of the overall replacement value of the building. This financial threshold is often the lynchpin to a total building renovation of every system as the cost of a complete renovation is comparable to grandfathered system renewal.

As part of the Assessment, grandfathered systems are identified but not given a specific priority for renewal (rated priority U for unidentified timeline). The prioritization will become relevant once building renovation thresholds are reached or legislation changes. Once these projects are identified, the University and individual schools can manage their future prioritization.

As is the case at many institutions, Harvard has its share of old spaces. In particular, dormitories and other living spaces are 50 years old, or older, on average with a few exceptions. Unless the dormitories are new or have had complete renovations done on them in the last 15 years, these spaces are not equipped with fire sprinklers. Buildings in this group are grandfathered under current state regulations. Installation of sprinklers represents significant cost and may be a trigger to larger scope renewal projects. Sprinkler projects will be identified, given cost estimates, and prioritized as "U". The same will hold true for accessibility.

Harvard University

Kennedy School of Government

Taubman Building

Executive Summary

Background

Our inspection of the Taubman Building was started and completed during the week of September 26, 2006. The building is classroom space that consists of 82,580 gross square feet of space. It was constructed in 1990. Priority facility needs for investigation include: installing an anti-spill battery pack pan to protect the batteries and the generator from damage, as well as prevent a hazardous material spill. The Building Manager is Jeffrey Martin.

Overall Condition Assessment Results

The total dollar costs of the issues related to our observations of the conditions at Taubman Building are:

Priority	**Total $K**
Priority 1	$22
Priority 2	$2
Priority 3	$1609
Total	**$1633**
Priority 4	$77
Priority U	$70

Summary of Priority Results

Our inspection identified four (4) Critical Observations estimated at $22,147, two (2) Potentially Critical Observations totaling about $2,427, seven (7) Necessary But Not Yet Critical Observations totaling $1,608,532, two (2) Recommended Observations totaling $76,791 and two (2) observations totaling $70,393 that were identified and labeled Undefined Timeline as not meeting current codes/standards, i.e. grandfathered under older, pre-existing codes or typically being addressed as part of a space / building renovation. All observations identified for this building total $1,780,290.

Condition Assessment Results by Priority

Priority 1
Observations, totaling $22,147, include a complete surveying of the building's potable water system to identify all cross-connections, applying protection devices to those locations identified and installing a Reduced Pressure Zone Backflow Preventer on the water main. Other observations for this priority include cleaning and maintenance of the high voltage switch, transformer and low voltage switchgear.

Priority 2
Observations, totaling $2,427, include investigating the electrical closets and installing fire stop material as required. Other observations for this priority include installing illuminated exit signs with battery powered egress heads that will illuminate in case of a failure of the normal electrical system and generator.

Priority 3
Observations, totaling $1,608,532, include replacing the roof membrane with an un-ballasted, fully adhered Sarnafil roof system per Harvard standards and similar to Belfer. Other observations for this priority include upgrading the chiller plant to: 1) use variable speed chillers that become more economical at the lower loads that occur most often; 2) use modern low Ozone Depletion Potential refrigerants; 3) enclose the chillers in a room equipped with emergency exhaust and alarm per Code; 4) incorporate water-side "Economizer" for free cooling; 5) provide multiple chiller plant configuration to allow for equipment outage for failures and maintenance; 6) provide primary/secondary pumping with VFD drives to reduce energy consumption; and 7) provide controls to automate chiller plant optimization.

Priority 4
Observations, totaling $76,791, include a retrofit installation of a Reduced Pressure Zone Backflow Prevention Module (from the same manufacturer) between the two check valves to increase the level of protection from backflow to the best available method to take all possible steps to avoid backflow and contamination of the Public Water Supply. Other observations for this priority include changing the piping, pumps, and controls to provide a primary/secondary chilled water system, saving energy while allowing a better operational environment for the chiller plant.

Priority U
Observations, totaling $70,393, include replacing the nine 2x2 lighting fixtures with double gasket fixtures. Other observations for this priority include installing fire pump feeder circuits in Type MI cable to the switchgear and generator resulting in a two hour rating.

Cooling
Observations, totaling $1,485,311, include upgrading the chiller plant to: 1) use variable speed chillers that become more economical at the lower loads that occur most often; 2) use modern low Ozone Depletion Potential refrigerants; 3) enclose the chillers in a room equipped with emergency exhaust and alarm per Code; 4) incorporate water-side "Economizer" for free cooling; 5) provide multiple chiller plant configuration to allow for equipment outage for failures and maintenance; 6) provide primary/secondary pumping with VFD drives to reduce energy consumption; and 7) provide controls to automate chiller plant optimization. Other observations for this system include replacing the cooling tower with a new high efficiency, low maintenance system of similar capacity.

Electrical
Observations, totaling $79,421, include installing fire pump feeder circuits in Type MI cable to the switchgear and generator resulting in a two hour rating. Other observations for this system include cleaning and maintenance of the high voltage switch, transformer and low voltage switchgear.

Exterior Shell
Observations, totaling $185,650, include replacing the roof membrane with an un-ballasted, fully adhered Sarnafil roof system per Harvard standards and similar to Belfer. Other observations for this system include brick re-pointing and inspections as required.

Life Safety
Observations, totaling $10,558, include a retrofit installation of a Reduced Pressure Zone Backflow Prevention Module (from the same manufacturer) between the two check valves to increase the level of protection from backflow to the best available method to take all possible steps to avoid backflow and contamination of the Public Water Supply. Other observations for this system include installing illuminated exit signs with battery powered egress heads that will illuminate in case of a failure of the normal electrical system and generator.

Mechanical
Observations, totaling $2,318, include providing corrosion protection and new paint for the frame of the existing cooling tower. Other observations for this system include installing an anti-spill battery pack pan to protect the batteries and generator from damage and to prevent a hazardous material spill.

Plumbing
Observations, totaling $10,470, include a complete surveying of the building's potable water system to identify all cross-connections, applying protection devices to those locations identified and installing a Reduced Pressure Zone Backflow Preventer on the water main. Other observations for this system include labeling and color coding all diesel piping in the building.

Ventilation
Observations, totaling $6,563, include providing an emergency refrigerant exhaust system for the chiller plant.

Condition Assessment Results Summary by Category

Institutional Mission
The observation breakdown by Institutional Mission reveals that the majority of the identified capital requirement is designated to "Safety, Security & Regulatory," followed by observations pertaining to "Asset Preservation." The "Cost Containment" category encompasses the remaining observations.

Observation Category
The Observation Category breakdown shows the majority of observations in "Modernization" followed by "Current/Future." The remaining observations are in the "Deferred" category.

Implementation Strategy
A look at the observations by Implementation Strategy shows the majority of observations in "Implement as a stand alone CAPS project (>$100,000)" followed by "Implement as a stand alone project – operations initiative." The remaining observations are shown in "Address as part of a larger space renovation – CAPS (>$100,000)."

ARAMARK Inspection Team
Architectural – Dick Elliott
Electrical – Steve Hadyniak
Mechanical – Jim Lockaby

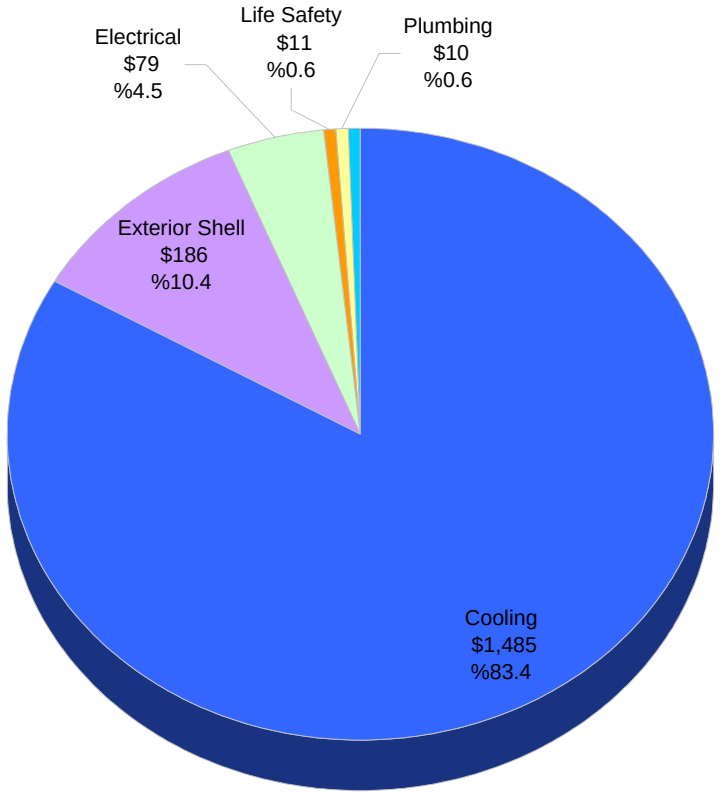
Harvard Representation
Building Manager – Jeffrey Martin

Summary of All Identified Observations

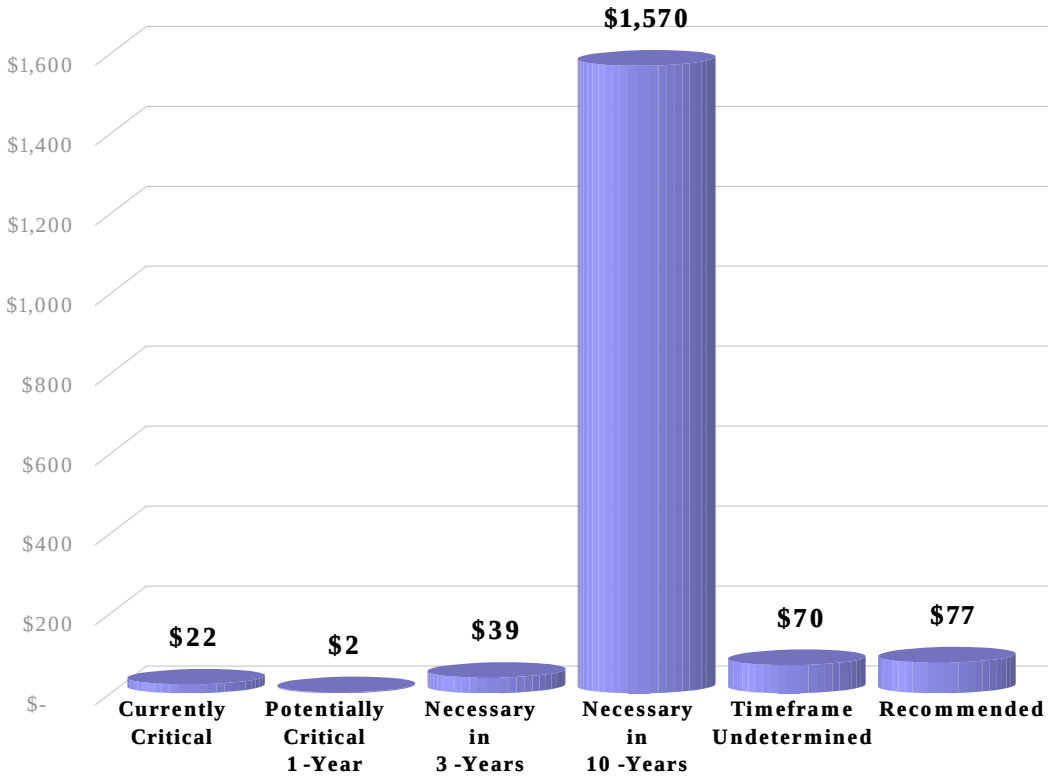
KSG
TAUBMAN BUILDING (inspected in FY 2006/07)

Summary of Identified Observations *
(in thousands of dollars)

Observation Summary by Building System**



Observation Summary by Priority**



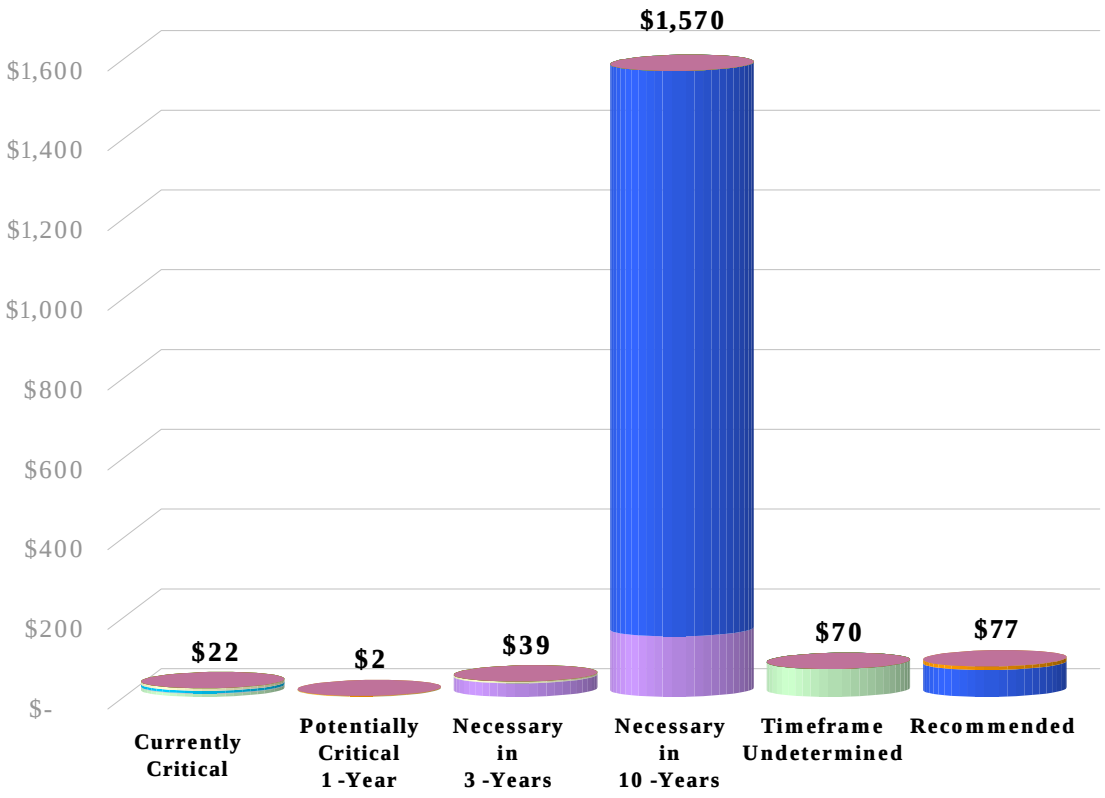
Estimated Total: $1,780.29
$22 per GSF

*All costs represented in constant 2005 dollars
** Includes ***all*** observations

KSG
TAUBMAN BUILDING (inspected in FY 2006/07)

Summary of Identified Observations *
(in thousands of dollars)

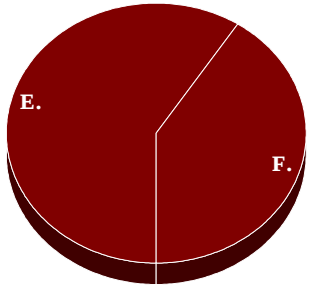
Building System**



Accessibility	$-	Heating	$-
Life Safety	$11	Mechanical	$2
Grounds	$-	Electrical	$79
Plumbing	$10	Interior	$-
Ventilation	$7	Exterior Shell	$186
Cooling	$1,485		
		Total:	**$1,780**

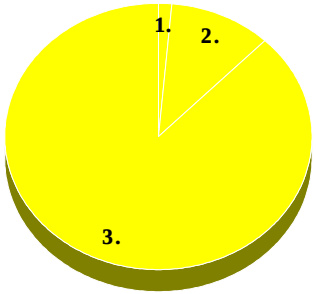
*All costs represented in constant 2005 dollars
** Includes ***all*** observations

Institutional Mission**



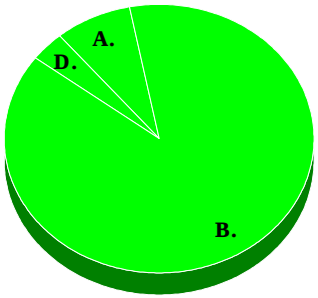
A. Support University Program
B. Student Life Quality
C. Public Interface (Neighbors)
D. Safety or Regulatory
E. Asset Preservation
F. Cost Containment
G. Accessibility
H. Sustainability

Observation Category**



1. Deferred
2. Current/Future
3. Modernization

Implementation Strategy**

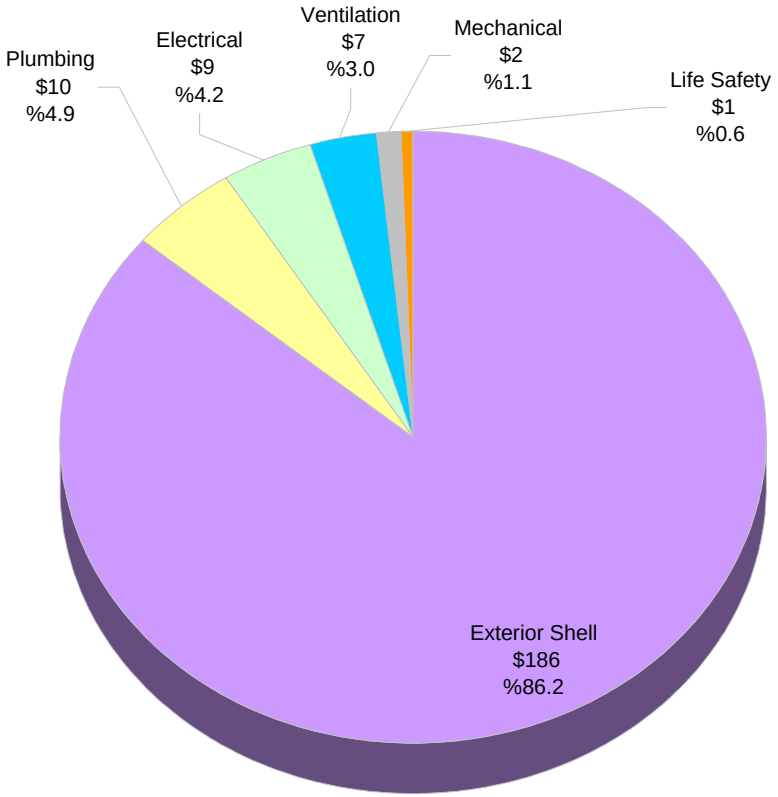


A. Implement as a stand-alone project - operations initiative
B. Implement as a stand-alone CAPS project > $100,000
C. Address as part of a larger space renovation-operations initiative
D. Address as part of a larger space renovation- CAPS > $100,000

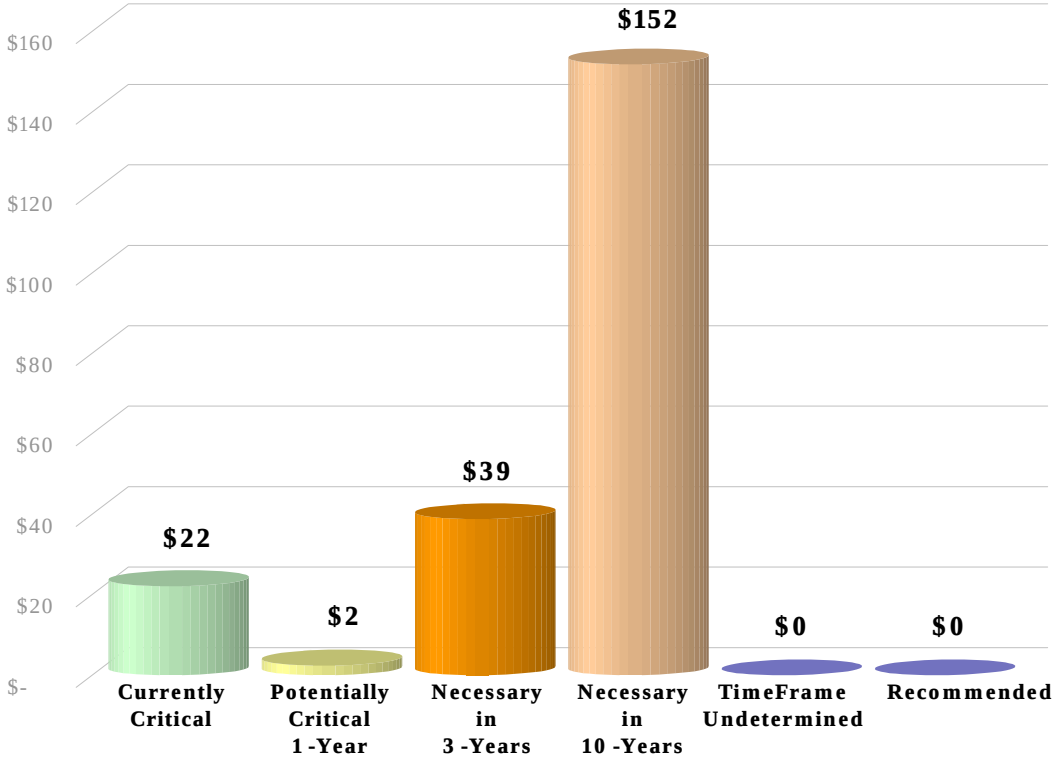
Summary of Deferred Maintenance and Current/Future Observations

KSG
TAUBMAN BUILDING (inspected in FY 2006/07)
Summary of Deferred & Current/Future Observations *
(in thousands of dollars)

Summary of Need by Building System**



Summary of Need by Priority**



Estimated Total: $215.30
$3 per GSF

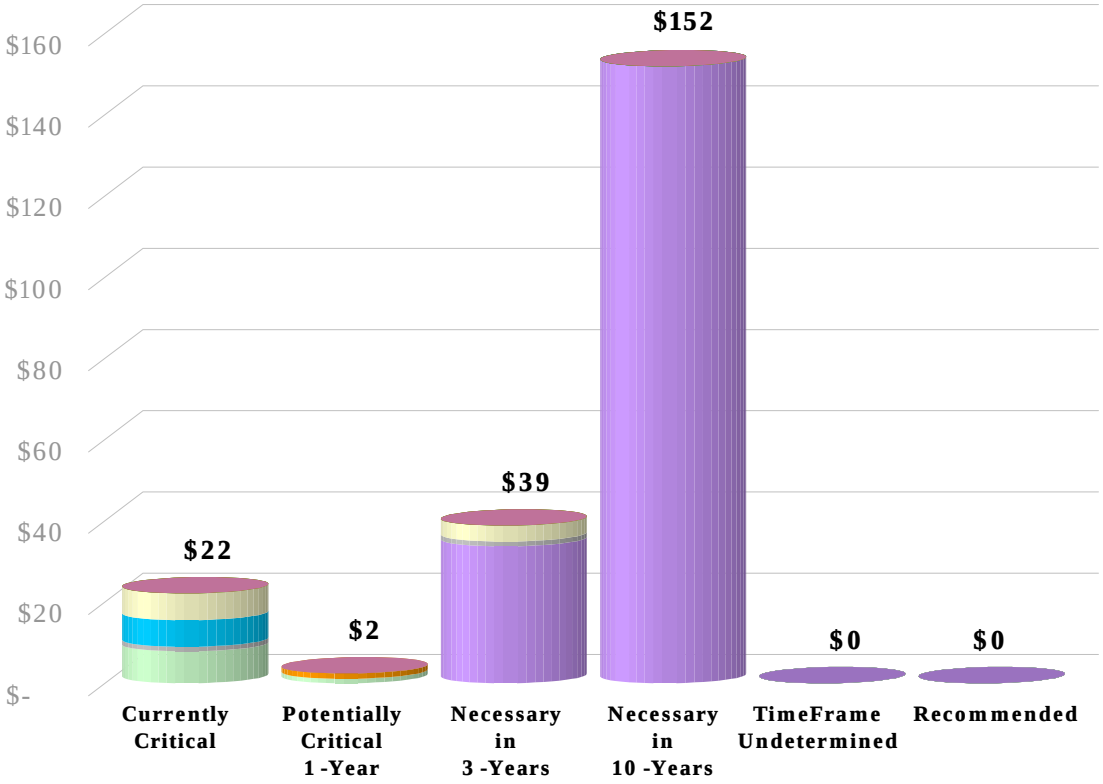
*All costs represented in constant 2005 dollars
** Includes Deferred and Current/Future observations only.

KSG

TAUBMAN BUILDING (inspected in FY 2006/07)

Summary of Deferred & Current/Future Observations * (in thousands of dollars)

*Building System***

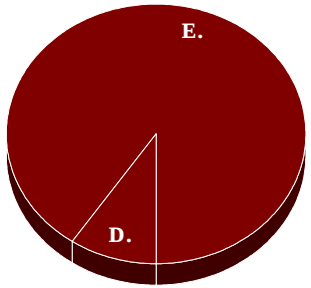


Accessibility	$-	Heating	$-
Life Safety	$1	Mechanical	$2
Grounds	$-	Electrical	$9
Plumbing	$10	Interior	$-
Ventilation	$7	Exterior Shell	$186
Cooling	$-		
		Total:	**$215**

All costs represented in constant 2005 dollars

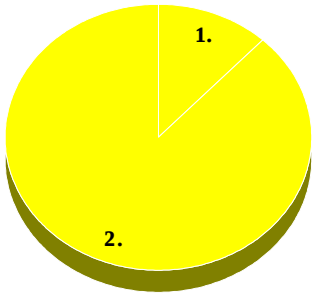
** Includes Deferred and Current/Future observations only.*

*Institutional Mission***



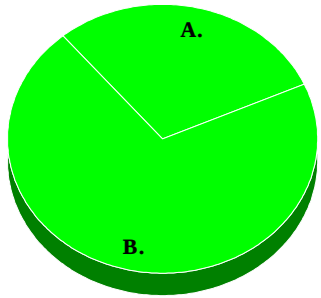
A. Support University Program
B. Student Life Quality
C. Public Interface (Neighbors)
D. Safety or Regulatory
E. Asset Preservation
F. Cost Containment
G. Accessibility
H. Sustainability

*Observation Category***



1. Deferred
2. Current/Future
3. Modernization

*Implementation Strategy***

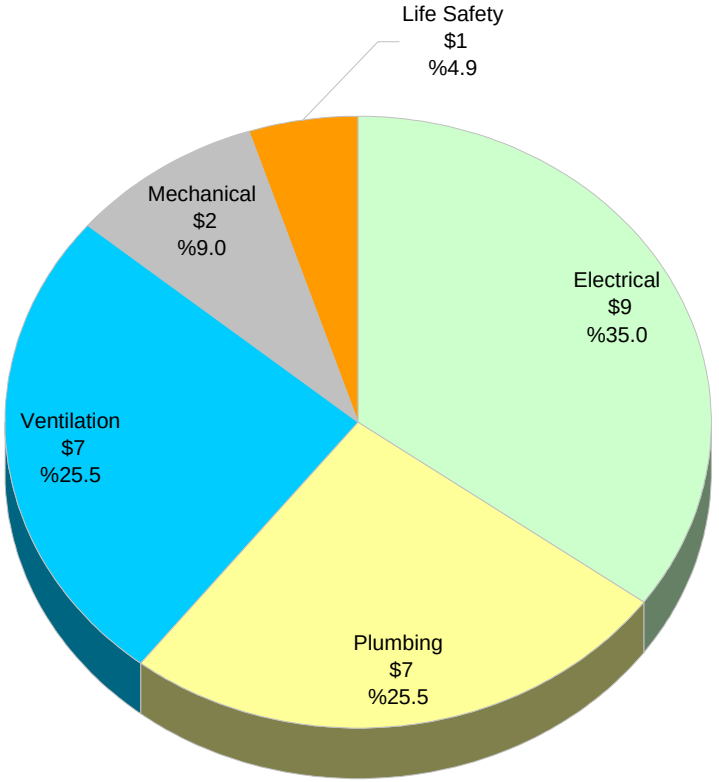


A. Implement as a stand-alone project - operations initiative
B. Implement as a stand-alone CAPS project > $100,000
C. Address as part of a larger space renovation-operations initiative
D. Address as part of a larger space renovation- CAPS > $100,000

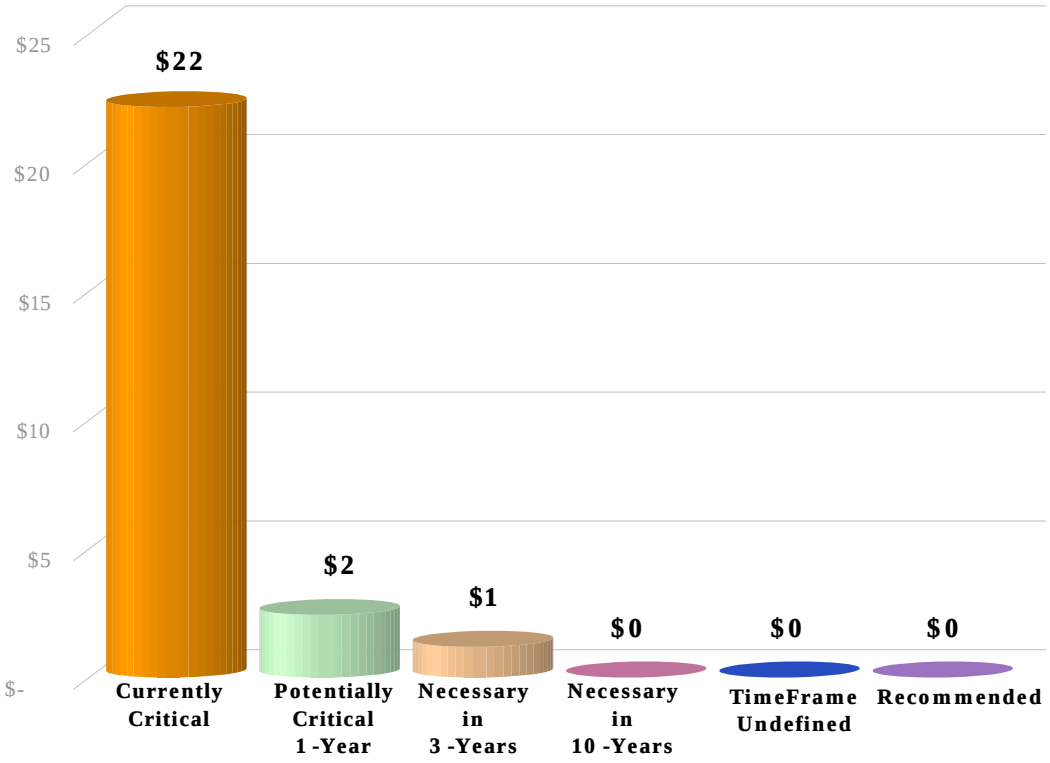
Summary of Deferred Maintenance

KSG
TAUBMAN BUILDING (inspected in FY 2006/07)
Summary of Deferred Observations *
(in thousands of dollars)

Summary of Need by Building System**



Summary of Need by Priority**

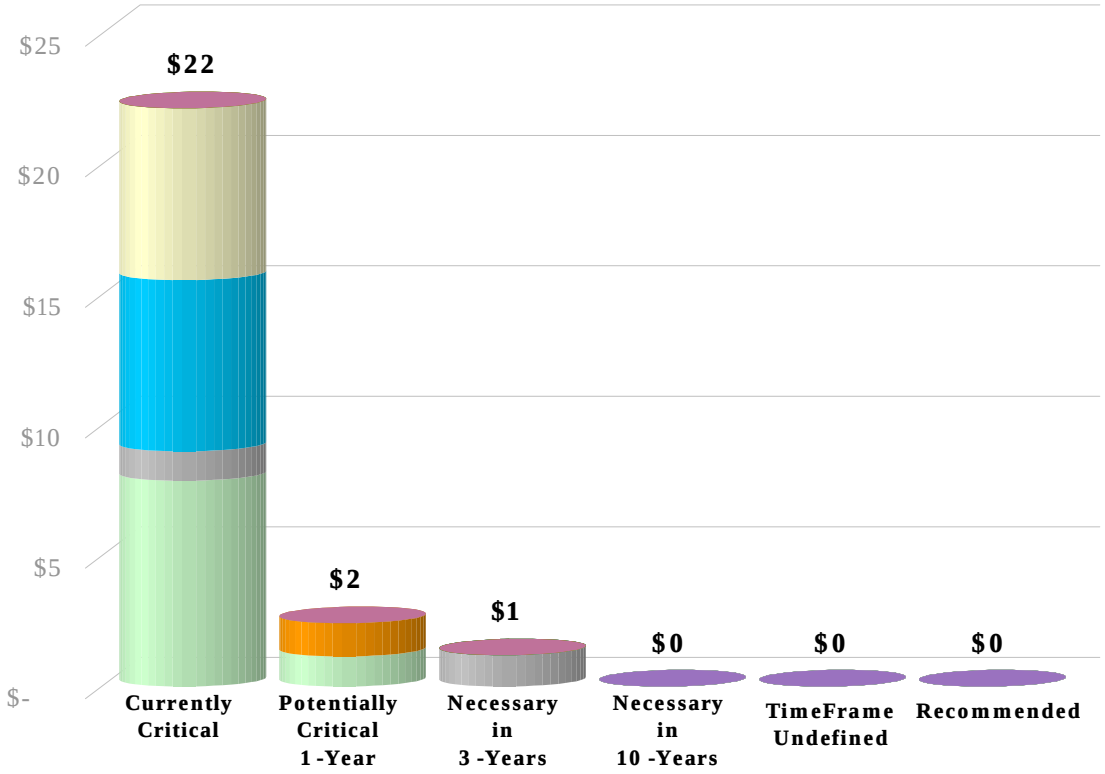


Estimated Total: $25.77
$0 per GSF

All costs represented in constant 2005 dollars
** Includes Deferred observations only.*

KSG
TAUBMAN BUILDING (inspected in FY 2006/07)
Summary of Deferred Observations *
(in thousands of dollars)

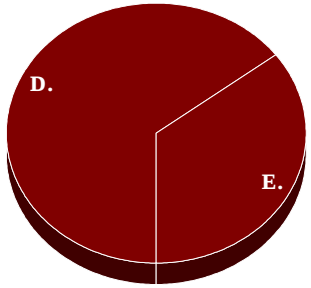
*Building System***



Accessibility	$-	Heating	$-
Life Safety	$1	Mechanical	$2
Grounds	$-	Electrical	$9
Plumbing	$7	Interior	$-
Ventilation	$7	Exterior Shell	$-
Cooling	$-		
		Total:	**$26**

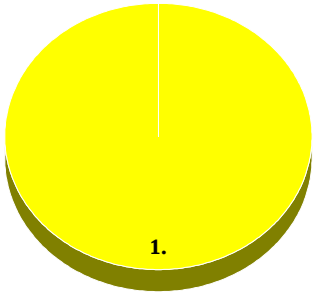
All costs represented in constant 2005 dollars
** Includes Deferred observations only.*

*Institutional Mission***



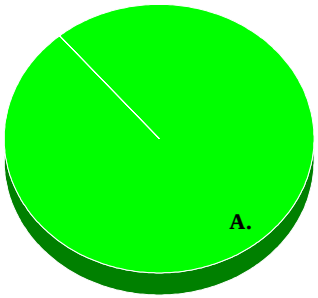
A. Support University Program
B. Student Life Quality
C. Public Interface (Neighbors)
D. Safety or Regulatory
E. Asset Preservation
F. Cost Containment
G. Accessibility
H. Sustainability

*Observation Category***



1. Deferred
2. Current/Future
3. Modernization

*Implementation Strategy***



A. Implement as a stand-alone project - operations initiative
B. Implement as a stand-alone CAPS project > $100,000
C. Address as part of a larger space renovation-operations initiative
D. Address as part of a larger space renovation- CAPS > $100,000

Kennedy School of Government

Taubman - Facility Profile
Building Manager: **Jeffrey Martin**

Address: **15 Elliot St., Cambridge, MA**
GSF: **82,580**
Construction Date: **1990**
Building Additions:
Major Renovations:

Contact Person
Name: **Jeffrey Martin**
Phone: **(617) 495-1120**
Email: **Jeffrey_Martin@harvard.edu**

Age of Electrical Systems: **1990**
Age of Exterior: **1990**
Age of Mechanical Systems: **1990**
Age of Heating Systems: **1990**
Age of Cooling Systems: **1990**
Age of Ventilation Systems: **1990**
Age of Plumbing Systems: **1990**
Age of Ground Systems: **1990**
Age of Life Safety Systems: **2006**

Programs Supported
Classroom

Building Documentation Available

	Yes	*No*	*Location/Contact/Content*
General Floor Plans with Room #'s		X	
Equipment Inventory		X	
ADA Survey		X	
Energy Data Reports		X	
Life Safety Survey		X	
Hazardous Material Survey		X	
Other Relevant and Recent Studies :			

Facility Strengths: *This property is very well maintained.*

Recent Facility Improvements: *The life safety system was modernized in 2006.*

Planned Facility Projects or Modernization:

Priority Facility Needs for Investigation: *Install an anti-spill battery pack pan to protect the batteries and the generator from damage , as well as prevent a hazardous material spill.*

Observations by Priority

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and Priority

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

- 1a Currently Critical - correct a cited safety hazard
- 1b Currently Critical - return a system to operation
- 1c Currently Critical - stop accelerated deterioration
- 2a Potentially Critical in a year - life safety exposure
- 2b Potentially Critical in a year - intermittent operations
- 2c Potentially Critical in a year - rapid deterioration
- 3a Necessary but Not Yet Critical - will require attention within the next 3 years
- 3b Necessary but Not Yet Critical - will require attention within the next 10 years
- 4a Recommended - Time-sensitive issue
- 4b Recommended - Non-time-sensitive issue (modernization)

Institutional Mission

- A Support University Program
- B Student Life Quality
- C Public Interface (Neighbors)
- D Safety,Security & Regulatory
- E Asset Preservation
- F Cost Containment
- G Accessibility
- H Sustainability

Observation Category

- 1 Deferred
- 2 Current/Future
- 3 Modernization

Implementation Strategy

- A Implement as a stand alone project - operations initiative
- B Implement as a stand alone CAPS project (>$100,000)
- C Address as part of a larger space renovation - operations initiative
- D Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

- EA Protect Energy & Atmosphere
- EQ Improve Indoor Environmental Quality
- MR Effective Use of Materials and Resources
- NA Not Applicable
- SS Promote a Sustainable Site
- WE Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
jl-02114	Bsmt	Emergency Generator	MECHANICAL	Equipment (Major)	Emerg. Generator	The emergency generator's starter battery pack is sitting directly on the concrete floor, with no anti-spill pan. This risks damage to the battery, which could impair the reliability of the emergency generator. This could also risk a spill of corrosive, hazardous materials in the generator room, which could damage the generator gear.	Install anti-spill battery pack pan to protect the batteries and generator from damage, and prevent a hazardous material spill.	1	Lump Sum	1.13	1a	FY 2006/07	D	1	A	EQ
bm-00289		Mechanical RM	PLUMBING	Dom. Cold Water	B.F. Preventer	There are cross-connections in the building's potable water system, and the building lacks a Reduced Pressure Zone Backflow Preventer on the water main. The unprotected cross-connects pose a risk of contamination of the water supply both inside the building and of the public water supply.	Recommend a complete survey of the water system of the building to identify all cross-connections. These identified locations need to have protection devices applied to them as prescribed by the Plumbing Code, to meet the minimum level of protection. In light of the severe penalties and other liabilities of any survey discrepancy or future unprotected cross connects occurring, it is further recommended that a Reduced Pressure Zone Backflow Preventer be considered for installation on the water main. This device will minimize risk to the public water supply. Estimate is meant to provide for the survey, design, permitting, installation of approved devices at all cross connects, a Reduced Pressure Zone Backflow Preventer at the water main, repair of finishes, testing, commissioning, etc. as required for a complete job.	1	Ea.	6.58	1a	FY 2006/07	D	1	A	NA
jl-02121	Roof	Roof Mechanical Room	VENTILATION	Ex. Fan (End Use)	Other	The room has no emergency refrigerant exhaust system for the chiller plant. This violates both the Building Code and OSHA. However, the room does have an exhaust system and a refrigerant leak detector.	Recommend providing an emergency refrigerant exhaust system for the chiller plant. This can apparently be done by connecting the alarm signal from the existing detector to a realy to start the exhaust fan, and equipping the fan with inlet duct to draw from the bottom of the room. This estimate is meant to include design, permitting, installation, testing and balancing, commissioning, etc. as needed for a complete job.	1	Lump Sum	6.56	1a	FY 2006/07	D	1	A	EQ
sh-02796	B	Swgr room	ELECTRICAL	Secondary Service	Switch Gear	Switchgear and transformer appear dirty and is need of cleaning and maintenance. Most recent testing label indicated service performed in 1997. Room is dirty contributing infiltration of dirt into high voltage equipment.	Plan for cleaning and maintenance of high voltage switch, transformer, and low voltage switchgear. A planned outage is necessary for this work because it does appear to have been performed for nine years.	1	Lump Sum	7.88	1c	FY 2006/07	E	1	A	EA
			Priority 1 SUBTOTAL $(000):							22.15						

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and Priority

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

- 1a Currently Critical - correct a cited safety hazard
- 1b Currently Critical - return a system to operation
- 1c Currently Critical - stop accelerated deterioration
- 2a Potentially Critical in a year - life safety exposure
- 2b Potentially Critical in a year - intermittent operations
- 2c Potentially Critical in a year - rapid deterioration
- 3a Necessary but Not Yet Critical - will require attention within the next 3 years
- 3b Necessary but Not Yet Critical - will require attention within the next 10 years
- 4a Recommended - Time-sensitive issue
- 4b Recommended - Non-time-sensitive issue (modernization)

Institutional Mission

- A Support University Program
- B Student Life Quality
- C Public Interface (Neighbors)
- D Safety,Security & Regulatory
- E Asset Preservation
- F Cost Containment
- G Accessibility
- H Sustainability

Observation Category

- 1 Deferred
- 2 Current/Future
- 3 Modernization

Implementation Strategy

- A Implement as a stand alone project - operations initiative
- B Implement as a stand alone CAPS project (>$100,000)
- C Address as part of a larger space renovation - operations initiative
- D Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

- EA Protect Energy & Atmosphere
- EQ Improve Indoor Environmental Quality
- MR Effective Use of Materials and Resources
- NA Not Applicable
- SS Promote a Sustainable Site
- WE Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
sh-02793	All	480 volt riser closet	ELECTRICAL	Fire & Life Safety	Other	Sample electric closet observed on the 4th floor revealed a need for fire stop material around the conduits.	Recommend investigating closets and installing fire stop material as required..	1	Lump Sum	1.15	2a	FY 2007/08	D	1	A	NA
sh-02797	B	Swgr room	LIFE SAFETY	ELECTRICAL	Emer. Lights	The switchgear room has two painted metal exit signs.	Recommend installing illuminated exit signs with battery powered egress heads that will illuminate in case of a failure of the normal electrical system and the generator.	2	Ea.	1.28	2a	FY 2007/08	D	1	A	NA
			Priority 2 SUBTOTAL $(000):							2.43						
re-00808		All Facades	EXTERIOR SHELL	Walls	Masonry	This is a masonry building that is in good condition on the exterior, no signs of brick problems were noticed by our visual inspection from the ground. But within the next three years some maintenance will need and should be performed on the brick. This is a budget line item to do re-pointing work or a least inspections of the brick on a regular basis.	Brick re-pointing and inspections as required.	1	Lump Sum	33.75	3a	FY 2008/09	E	2	A	NA
bm-00288	RF	Cooling Tower Frame	MECHANICAL	Equipment(End Use)	Other	The paint on the frame of the existing cooling tower is peeling.	Provide corrosion protection / paint the frame for the existing cooling tower.	1	Lump Sum	1.19	3a	FY 2008/09	E	1	A	NA
bm-00290	All	All	PLUMBING	Gas System	Piping	The diesel piping system which services the emergency generator is not labeled or color coded..	Label and color code all diesel piping in the building.	1	Lump Sum	2.09	3a	FY 2007/08	D	2	A	EQ
bm-00291	All	All	PLUMBING	Gas System	Piping	The gas piping system is not labeled or color code.	Label and color code gas piping in the building.	1	Lump Sum	1.80	3a	FY 2007/08	D	2	A	NA

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and Priority

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

1a	Currently Critical - correct a cited safety hazard
1b	Currently Critical - return a system to operation
1c	Currently Critical - stop accelerated deterioration
2a	Potentially Critical in a year - life safety exposure
2b	Potentially Critical in a year - intermittent operations
2c	Potentially Critical in a year - rapid deterioration
3a	Necessary but Not Yet Critical - will require attention within the next 3 years
3b	Necessary but Not Yet Critical - will require attention within the next 10 years
4a	Recommended - Time-sensitive issue
4b	Recommended - Non-time-sensitive issue (modernization)

Institutional Mission

A	Support University Program
B	Student Life Quality
C	Public Interface (Neighbors)
D	Safety,Security & Regulatory
E	Asset Preservation
F	Cost Containment
G	Accessibility
H	Sustainability

Observation Category

1	Deferred
2	Current/Future
3	Modernization

Implementation Strategy

A	Implement as a stand alone project - operations initiative
B	Implement as a stand alone CAPS project (>$100,000)
C	Address as part of a larger space renovation - operations initiative
D	Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

EA	Protect Energy & Atmosphere
EQ	Improve Indoor Environmental Quality
MR	Effective Use of Materials and Resources
NA	Not Applicable
SS	Promote a Sustainable Site
WE	Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
jl-02111	Roof	Roof level mechanical room	COOLING	Chillers	Centrifugal	The building is cooled with a single, water-cooled, constant speed, R-11 refrigerant centrifugal chiller. The chiller is aged, circa 1989, will be near the end of its expected life within the next 10 years. The R-11 refrigerant was banned many years ago from production in the USA because of its high Ozone Depletion Potential (ODP). This results in high cost and increasing difficulties of obtaining refrigerant, since only imported or recycled material exists in the USA. The single chiller results in no backup redundancy to avoid impact of equipment failure or to allow for scheduled maintenance outages. The single speed nature and large size of the single chiller results in it running most of the time only partially loaded, at a very inefficient KW/ton rating that gets worse as the load goes down. The chiller plant has no water-side "Economizer" for free cooling, resulting in running at even lower loads, and even worse KW/ton. The chiller is not in a separate room equipped with emergency exhaust and alarm in case of refrigerant leak as required by Code and OSHA. The chilled water piping has a primary loop only.	Upgrade the chiller plant to: 1) use variable speed chillers that become more economical at the lower loads that occur most often; 2) use modern low Ozone Depletion Potential refrigerants (e.g., R-134a); 3) enclose the chillers in a room equipped with emergency exhaust and alarm per Code; 4) incorporate water-side "Economizer" for "free" cooling; 5) provide multiple chiller plant configuration to allow for equipment outage for failures and maintenance; 6) provide primary/secondary pumping with VFD drives to reduce energy consumption; 7) provide controls to automate chiller plant optimization. This estimate is meant to include design, permitting, installation, testing, commissioning, etc., as needed for a complete job. The estimate is meant to be for the entire project, but the work can be done incrementally to reduce energy consumption and improve reliability as much as possible as soon as possible.	300	Ton	1,350.18	3b	FY 2009/10	D	3	B	EA
jl-02113	Roof	Roof	COOLING	Condenser Water	Cooling Tower	The existing tower is aged, is past its expected life, has corrosion, and has a damaged basin.	Replace the cooling tower with new high efficiency, low maintenance system of similar capacity. This will reduce maintenance costs and reduce energy consumption. The estimate is meant to include design, permitting, installation, testing, commissioning, etc., as needed for a complete job.	1	Lump Sum	67.62	3b	FY 2009/10	F	3	B	EA
re-00807		Roof	EXTERIOR SHELL	Roof	Membrane	The existing ballusted EDPM roof membrane will need replacement within the next ten years. It is experiencing some leaks especially in in the cooling tower area. An inspection needs to take place in that some of the roof drain covers are out of place and may allow debris to get into the system.	Remove and replace membrane roof with an un-ballasted fully adhered Sarnafil roof system per Harvard standards and similar to Belfer.	13,500	Lump Sum	151.90	3b	FY 2009/10	E	2	B	EQ
			Priority 3 SUBTOTAL $(000):							1,608.53						

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and Priority

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

1a	Currently Critical - correct a cited safety hazard
1b	Currently Critical - return a system to operation
1c	Currently Critical - stop accelerated deterioration
2a	Potentially Critical in a year - life safety exposure
2b	Potentially Critical in a year - intermittent operations
2c	Potentially Critical in a year - rapid deterioration
3a	Necessary but Not Yet Critical - will require attention within the next 3 years
3b	Necessary but Not Yet Critical - will require attention within the next 10 years
4a	Recommended - Time-sensitive issue
4b	Recommended - Non-time-sensitive issue (modernization)

Institutional Mission

A	Support University Program
B	Student Life Quality
C	Public Interface (Neighbors)
D	Safety,Security & Regulatory
E	Asset Preservation
F	Cost Containment
G	Accessibility
H	Sustainability

Observation Category

1	Deferred
2	Current/Future
3	Modernization

Implementation Strategy

A	Implement as a stand alone project - operations initiative
B	Implement as a stand alone CAPS project (>$100,000)
C	Address as part of a larger space renovation - operations initiative
D	Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

EA	Protect Energy & Atmosphere
EQ	Improve Indoor Environmental Quality
MR	Effective Use of Materials and Resources
NA	Not Applicable
SS	Promote a Sustainable Site
WE	Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
bm-00292	Bsmt	Basement Mechanical Room	LIFE SAFETY	PLUMBING	Sprinklr Wet	The 6" sprinkler fire protection system is equipped with double check valves with a flanged interconnection arrangement. This meets the minimum requirements of the Plumbing Code.	Recommend a retrofit installation of a Reduced Pressure Zone Backflow Prevention Module (from the same manufacturer) between the two check valves to increase the level protection from backflow to the best available method to take all possible steps to avoid backflow and contamination of the Public Water Supply, in light of the severe penalties and liabilities that such a backflow would incur. Estimate is for design, permitting, installation to include repiping to allow for space and access to the device per Code, and initial State approved testing.	1	Ea.	9.28	4a	Undefined	D	3	A	NA
jl-02122	Roof	Roof Mechanical Room	COOLING	Chilled Water Loop	Piping	The chilled water loop is a primary loop only, preventing the savings of energy in a variable speed pumping system that a primary/secondary arrangement would allow.	Change piping, pumps, and controls to provide a primary/secondary chilled water system, saving energy while allowing better operational environment for the chiller plant. The estimate is meant to include design, permitting, installation, testing and balancing, commissioning, as needed for a complete job.	1	Lump Sum	67.51	4b	Undefined	F	3	A	EA
			Priority 4 SUBTOTAL $(000):							76.79						
sh-02795	B	Generator feed	ELECTRICAL	Fire & Life Safety	Other	Fire pump wiring leaving the pump room was observed in conduit with fire wrap tape. Conduit above the ceiling was not visible to verify if tape is installed the entire length. The tape would not provide the 2 hour rating as Type MI cable would in this installation.	Remove fire pump feeder to the generator and the main switchgear room. Install fire pump feeder circuits in Type MI cable to the switchgear and generator resulting in a two hour rating. Include generator start circuit in Type MI. Budget cost.	1	Lump Sum	65.63	U	Undefined	D	3	D	NA
sh-02794	5	kitchen	ELECTRICAL	Lighting Service	Interior Fixtures	2x2 lighting fixtures do not appear to be vapor tight, a requirement for lighting in this type of environment.	Recommend replacing nine fixtures with double gasketed fixtures.	9	Ea.	4.76	U	Undefined	D	3	A	NA
			Priority U SUBTOTAL $(000):							70.39						
TAUBMAN BUILDING Total $(000):										**1,780.29**						

Observations by System

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and System

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

- 1a Currently Critical - correct a cited safety hazard
- 1b Currently Critical - return a system to operation
- 1c Currently Critical - stop accelerated deterioration
- 2a Potentially Critical in a year - life safety exposure
- 2b Potentially Critical in a year - intermittent operations
- 2c Potentially Critical in a year - rapid deterioration
- 3a Necessary but Not Yet Critical - will require attention within the next 3 years
- 3b Necessary but Not Yet Critical - will require attention within the next 10 years
- 4a Recommended - Time-sensitive issue
- 4b Recommended - Non-time-sensitive issue (modernization)
- U Undefined Timeframe - does not meet current codes/standards - grandfathered or would typically addressed as part of a space/building renovation

Institutional Mission

- A Support University Program
- B Student Life Quality
- C Public Interface (Neighbors)
- D Safety,Security & Regulatory
- E Asset Preservation
- F Cost Containment
- G Accessibility
- H Sustainability

Observation Category

- 1 Deferred
- 2 Current/Future
- 3 Modernization

Implementation Strategy

- A Implement as a stand alone project - operations initiative
- B Implement as a stand alone CAPS project (>$100,000)
- C Address as part of a larger space renovation - operations initiative
- D Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

- EA Protect Energy & Atmosphere
- EQ Improve Indoor Environmental Quality
- MR Effective Use of Materials and Resources
- NA Not Applicable
- SS Promote a Sustainable Site
- WE Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
jl-02113	Roof	Roof	COOLING	Condenser Water	Cooling Tower	The existing tower is aged, is past its expected life, has corrosion, and has a damaged basin.	Replace the cooling tower with new high efficiency, low maintenance system of similar capacity. This will reduce maintenance costs and reduce energy consumption. The estimate is meant to include design, permitting, installation, testing, commissioning, etc., as needed for a complete job.	1	Lump Sum	67.62	3b	FY 2009/10	F	3	B	EA
jl-02111	Roof	Roof level mechanical room	COOLING	Chillers	Centrifugal	The building is cooled with a single, water-cooled, constant speed, R-11 refrigerant centrifugal chiller. The chiller is aged, circa 1989, will be near the end of its expected life within the next 10 years. The R-11 refrigerant was banned many years ago from production in the USA because of its high Ozone Depletion Potential (ODP). This results in high cost and increasing difficulties of obtaining refrigerant, since only imported or recycled material exists in the USA. The single chiller results in no backup redundancy to avoid impact of equipment failure or to allow for scheduled maintenance outages. The single speed nature and large size of the single chiller results in it running most of the time only partially loaded, at a very inefficient KW/ton rating that gets worse as the load goes down. The chiller plant has no water-side "Economizer" for free cooling, resulting in running at even lower loads, and even worse KW/ton. The chiller is not in a separate room equipped with emergency exhaust and alarm in case of refrigerant leak as required by Code and OSHA. The chilled water piping has a primary loop only.	Upgrade the chiller plant to: 1) use variable speed chillers that become more economical at the lower loads that occur most often; 2) use modern low Ozone Depletion Potential refrigerants (e.g., R-134a); 3) enclose the chillers in a room equipped with emergency exhaust and alarm per Code; 4) incorporate water-side "Economizer" for "free" cooling; 5) provide multiple chiller plant configuration to allow for equipment outage for failures and maintenance; 6) provide primary/secondary pumping with VFD drives to reduce energy consumption; 7) provide controls to automate chiller plant optimization. This estimate is meant to include design, permitting, installation, testing, commissioning, etc., as needed for a complete job. The estimate is meant to be for the entire project, but the work can be done incrementally to reduce energy consumption and improve reliability as much as possible as soon as possible.	300	Ton	1,350.18	3b	FY 2009/10	D	3	B	EA
jl-02122	Roof	Roof Mechanical Room	COOLING	Chilled Water Loop	Piping	The chilled water loop is a primary loop only, preventing the savings of energy in a variable speed pumping system that a primary/secondary arrangement would allow.	Change piping, pumps, and controls to provide a primary/secondary chilled water system, saving energy while allowing better operational environment for the chiller plant. The estimate is meant to include design, permitting, installation, testing and balancing, commissioning, as needed for a complete job.	1	Lump Sum	67.51	4b	Undefined	F	3	A	EA

COOLING Subtotal $(000): 1,485.31

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and System

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

- 1a Currently Critical - correct a cited safety hazard
- 1b Currently Critical - return a system to operation
- 1c Currently Critical - stop accelerated deterioration
- 2a Potentially Critical in a year - life safety exposure
- 2b Potentially Critical in a year - intermittent operations
- 2c Potentially Critical in a year - rapid deterioration
- 3a Necessary but Not Yet Critical - will require attention within the next 3 years
- 3b Necessary but Not Yet Critical - will require attention within the next 10 years
- 4a Recommended - Time-sensitive issue
- 4b Recommended - Non-time-sensitive issue (modernization)
- U Undefined Timeframe - does not meet current codes/standards - grandfathered or would typically addressed as part of a space/building renovation

Institutional Mission

- A Support University Program
- B Student Life Quality
- C Public Interface (Neighbors)
- D Safety,Security & Regulatory
- E Asset Preservation
- F Cost Containment
- G Accessibility
- H Sustainability

Observation Category

- 1 Deferred
- 2 Current/Future
- 3 Modernization

Implementation Strategy

- A Implement as a stand alone project - operations initiative
- B Implement as a stand alone CAPS project (>$100,000)
- C Address as part of a larger space renovation - operations initiative
- D Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

- EA Protect Energy & Atmosphere
- EQ Improve Indoor Environmental Quality
- MR Effective Use of Materials and Resources
- NA Not Applicable
- SS Promote a Sustainable Site
- WE Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
sh-02796	B	Swgr room	ELECTRICAL	Secondary Service	Switch Gear	Switchgear and transformer appear dirty and is need of cleaning and maintenance. Most recent testing label indicated service performed in 1997. Room is dirty contributing infiltration of dirt into high voltage equipment.	Plan for cleaning and maintenance of high voltage switch, transformer, and low voltage switchgear. A planned outage is necessary for this work because it does appear to have been performed for nine years.	1	Lump Sum	7.88	1c	FY 2006/07	E	1	A	EA
sh-02793	All	480 volt riser closet	ELECTRICAL	Fire & Life Safety	Other	Sample electric closet observed on the 4th floor revealed a need for fire stop material around the conduits.	Recommend investigating closets and installing fire stop material as required..	1	Lump Sum	1.15	2a	FY 2007/08	D	1	A	NA
sh-02795	B	Generator feed	ELECTRICAL	Fire & Life Safety	Other	Fire pump wiring leaving the pump room was observed in conduit with fire wrap tape. Conduit above the ceiling was not visible to verify if tape is installed the entire length. The tape would not provide the 2 hour rating as Type MI cable would in this installation.	Remove fire pump feeder to the generator and the main switchgear room. Install fire pump feeder circuits in Type MI cable to the switchgear and generator resulting in a two hour rating. Include generator start circuit in Type MI. Budget cost.	1	Lump Sum	65.63	U	Undefined	D	3	D	NA
sh-02794	5	kitchen	ELECTRICAL	Lighting Service	Interior Fixtures	2x2 lighting fixtures do not appear to be vapor tight, a requirement for lighting in this type of environment.	Recommend replacing nine fixtures with double gasketed fixtures.	9	Ea.	4.76	U	Undefined	D	3	A	NA
ELECTRICAL Subtotal $(000):										79.42						
re-00808		All Facades	EXTERIOR SHELL	Walls	Masonry	This is a masonry building that is in good condition on the exterior, no signs of brick problems were noticed by our visual inspection from the ground. But within the next three years some maintenance will need and should be performed on the brick. This is a budget line item to do re-pointing work or a least inspections of the brick on a regular basis.	Brick re-pointing and inspections as required.	1	Lump Sum	33.75	3a	FY 2008/09	E	2	A	NA
re-00807		Roof	EXTERIOR SHELL	Roof	Membrane	The existing ballusted EDPM roof membrane will need replacement within the next ten years. It is experiencing some leaks especially in in the cooling tower area. An inspection needs to take place in that some of the roof drain covers are out of place and may allow debris to get into the system.	Remove and replace membrane roof with an un-ballasted fully adhered Sarnafil roof system per Harvard standards and similar to Belfer.	13,500	Lump Sum	151.90	3b	FY 2009/10	E	2	B	EQ
EXTERIOR SHELL Subtotal $(000):										185.65						

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and System

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

- 1a Currently Critical - correct a cited safety hazard
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- 2b Potentially Critical in a year - intermittent operations
- 2c Potentially Critical in a year - rapid deterioration
- 3a Necessary but Not Yet Critical - will require attention within the next 3 years
- 3b Necessary but Not Yet Critical - will require attention within the next 10 years
- 4a Recommended - Time-sensitive issue
- 4b Recommended - Non-time-sensitive issue (modernization)
- U Undefined Timeframe - does not meet current codes/standards - grandfathered or would typically addressed as part of a space/building renovation

Institutional Mission

- A Support University Program
- B Student Life Quality
- C Public Interface (Neighbors)
- D Safety,Security & Regulatory
- E Asset Preservation
- F Cost Containment
- G Accessibility
- H Sustainability

Observation Category

- 1 Deferred
- 2 Current/Future
- 3 Modernization

Implementation Strategy

- A Implement as a stand alone project - operations initiative
- B Implement as a stand alone CAPS project (>$100,000)
- C Address as part of a larger space renovation - operations initiative
- D Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

- EA Protect Energy & Atmosphere
- EQ Improve Indoor Environmental Quality
- MR Effective Use of Materials and Resources
- NA Not Applicable
- SS Promote a Sustainable Site
- WE Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
sh-02797	B	Swgr room	LIFE SAFETY	ELECTRICAL	Emer. Lights	The switchgear room has two painted metal exit signs.	Recommend installing illuminated exit signs with battery powered egress heads that will illuminate in case of a failure of the normal electrical system and the generator.	2	Ea.	1.28	2a	FY 2007/08	D	1	A	NA
bm-00292	Bsmt	Basement Mechanical Room	LIFE SAFETY	PLUMBING	Sprinklr Wet	The 6" sprinkler fire protection system is equipped with double check valves with a flanged interconnection arrangement. This meets the minimum requirements of the Plumbing Code.	Recommend a retrofit installation of a Reduced Pressure Zone Backflow Prevention Module (from the same manufacturer) between the two check valves to increase the level protection from backflow to the best available method to take all possible steps to avoid backflow and contamination of the Public Water Supply, in light of the severe penalties and liabilities that such a backflow would incur. Estimate is for design, permitting, installation to include repiping to allow for space and access to the device per Code, and initial State approved testing.	1	Ea.	9.28	4a	Undefined	D	3	A	NA
LIFE SAFETY Subtotal $(000):										10.56						
jl-02114	Bsmt	Emergency Generator	MECHANICAL	Equipment (Major)	Emerg. Generator	The emergency generator's starter battery pack is sitting directly on the concrete floor, with no anti-spill pan. This risks damage to the battery, which could impair the reliability of the emergency generator. This could also risk a spill of corrosive, hazardous materials in the generator room, which could damage the generator gear.	Install anti-spill battery pack pan to protect the batteries and generator from damage, and prevent a hazardous material spill.	1	Lump Sum	1.13	1a	FY 2006/07	D	1	A	EQ
bm-00288	RF	Cooling Tower Frame	MECHANICAL	Equipment(End Use)	Other	The paint on the frame of the existing cooling tower is peeling.	Provide corrosion protection / paint the frame for the existing cooling tower.	1	Lump Sum	1.19	3a	FY 2008/09	E	1	A	NA
MECHANICAL Subtotal $(000):										2.32						

Harvard University

Facility Condition Assessment

Observations Sorted by Asset and System

Current Observations, Asset ID

Asset: TAUBMAN BUILDING

Priority

- 1a Currently Critical - correct a cited safety hazard
- 1b Currently Critical - return a system to operation
- 1c Currently Critical - stop accelerated deterioration
- 2a Potentially Critical in a year - life safety exposure
- 2b Potentially Critical in a year - intermittent operations
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- 3a Necessary but Not Yet Critical - will require attention within the next 3 years
- 3b Necessary but Not Yet Critical - will require attention within the next 10 years
- 4a Recommended - Time-sensitive issue
- 4b Recommended - Non-time-sensitive issue (modernization)
- U Undefined Timeframe - does not meet current codes/standards - grandfathered or would typically addressed as part of a space/building renovation

Institutional Mission

- A Support University Program
- B Student Life Quality
- C Public Interface (Neighbors)
- D Safety,Security & Regulatory
- E Asset Preservation
- F Cost Containment
- G Accessibility
- H Sustainability

Observation Category

- 1 Deferred
- 2 Current/Future
- 3 Modernization

Implementation Strategy

- A Implement as a stand alone project - operations initiative
- B Implement as a stand alone CAPS project (>$100,000)
- C Address as part of a larger space renovation - operations initiative
- D Address as part of a larger space renovation - CAPS(>$100,000)

Sustainability Category

- EA Protect Energy & Atmosphere
- EQ Improve Indoor Environmental Quality
- MR Effective Use of Materials and Resources
- NA Not Applicable
- SS Promote a Sustainable Site
- WE Improve Water Efficiency

Project Number	Floor	Location	System	Sub-System	Sub-Sub System	Observation	Correction	Unit	Measure	Total $(000)	Priority	Scheduled Year	Inst. Miss.	Obs. Cat.	Imp. Strat.	Sust. Cat.
bm-00289		Mechanical RM	PLUMBING	Dom. Cold Water	B.F. Preventer	There are cross-connections in the building's potable water system, and the building lacks a Reduced Pressure Zone Backflow Preventer on the water main. The unprotected cross-connects pose a risk of contamination of the water supply both inside the building and of the public water supply.	Recommend a complete survey of the water system of the building to identify all cross-connections. These identified locations need to have protection devices applied to them as prescribed by the Plumbing Code, to meet the minimum level of protection. In light of the severe penalties and other liabilities of any survey discrepancy or future unprotected cross connects occurring, it is further recommended that a Reduced Pressure Zone Backflow Preventer be considered for installation on the water main. This device will minimize risk to the public water supply. Estimate is meant to provide for the survey, design, permitting, installation of approved devices at all cross connects, a Reduced Pressure Zone Backflow Preventer at the water main, repair of finishes, testing, commissioning, etc. as required for a complete job.	1	Ea.	6.58	1a	FY 2006/07	D	1	A	NA
bm-00291	All	All	PLUMBING	Gas System	Piping	The gas piping system is not labeled or color code.	Label and color code gas piping in the building.	1	Lump Sum	1.80	3a	FY 2007/08	D	2	A	NA
bm-00290	All	All	PLUMBING	Gas System	Piping	The diesel piping system which services the emergency generator is not labeled or color coded..	Label and color code all diesel piping in the building.	1	Lump Sum	2.09	3a	FY 2007/08	D	2	A	EQ
PLUMBING Subtotal $(000):										10.47						
jl-02121	Roof	Roof Mechanical Room	VENTILATION	Ex. Fan (End Use)	Other	The room has no emergency refrigerant exhaust system for the chiller plant. This violates both the Building Code and OSHA. However, the room does have an exhaust system and a refrigerant leak detector.	Recommend providing an emergency refrigerant exhaust system for the chiller plant. This can apparently be done by connecting the alarm signal from the existing detector to a realy to start the exhaust fan, and equipping the fan with inlet duct to draw from the bottom of the room. This estimate is meant to include design, permitting, installation, testing and balancing, commissioning, etc. as needed for a complete job.	1	Lump Sum	6.56	1a	FY 2006/07	D	1	A	EQ
VENTILATION Subtotal $(000):										6.56						
TAUBMAN BUILDING Subtotal $(000):										**1,780.29**						

Ten Year Plan

KSG
Facility Condition Assessment
TAUBMAN BUILDING (inspected in FY 2006/07)
Ten Year Plan: Projected Costs by Observation
(in thousands of dollars)

Assumed Rate of Inflation: 3.0%

Asset	ID	System	Description	Original Uninflated Cost (Cost Year)	Year 1 FY 2006/07	Year 2 FY 2007/08	Year 3 FY 2008/09	Year 4 FY 2009/10	Year 5 FY 2010/11	Year 6 FY 2011/12	Year 7 FY 2012/13	Year 8 FY 2013/14	Year 9 FY 2014/15	Year 10 FY 2015/16	Recommended or Undefined
TAUBMAN BUILDING	jl-02111	COOLING	The building is cooled with a single, water-cooled, constant speed, R-11 refrigerant centrifugal chi...	1,350.2 (FY 2006/07)				$ 1,475.4							
TAUBMAN BUILDING	jl-02113	COOLING	The existing tower is aged, is past its expected life, has corrosion, and has a damaged basin.	67.6 (FY 2006/07)				$ 73.9							
TAUBMAN BUILDING	jl-02122	COOLING	The chilled water loop is a primary loop only, preventing the savings of energy in a variable speed ...	67.5 (FY 2006/07)											$ 67.5
TAUBMAN BUILDING	sh-02795	ELECTRICAL	Fire pump wiring leaving the pump room was observed in conduit with fire wrap tape. Conduit above th...	65.6 (FY 2006/07)											$ 65.6
TAUBMAN BUILDING	sh-02796	ELECTRICAL	Switchgear and transformer appear dirty and is need of cleaning and maintenance. Most recent testing...	7.9 (FY 2006/07)	$ 7.9										
TAUBMAN BUILDING	sh-02794	ELECTRICAL	2x2 lighting fixtures do not appear to be vapor tight, a requirement for lighting in this type of en...	4.8 (FY 2006/07)											$ 4.8
TAUBMAN BUILDING	sh-02793	ELECTRICAL	Sample electric closet observed on the 4th floor revealed a need for fire stop material around the c...	1.2 (FY 2006/07)		$ 1.2									
TAUBMAN BUILDING	re-00807	EXTERIOR SHELL	The existing ballusted EDPM roof membrane will need replacement within the next ten years. It is exp...	151.9 (FY 2006/07)				$ 166.0							
TAUBMAN BUILDING	re-00808	EXTERIOR SHELL	This is a masonry building that is in good condition on the exterior, no signs of brick problems wer...	33.8 (FY 2006/07)			$ 35.8								
TAUBMAN BUILDING	bm-00292	LIFE SAFETY	The 6" sprinkler fire protection system is equipped with double check valves with a flanged intercon...	9.3 (FY 2006/07)											$ 9.3
TAUBMAN BUILDING	sh-02797	LIFE SAFETY	The switchgear room has two painted metal exit signs.	1.3 (FY 2006/07)		$ 1.3									
TAUBMAN BUILDING	bm-00288	MECHANICAL	The paint on the frame of the existing cooling tower is peeling.	1.2 (FY 2006/07)			$ 1.3								
TAUBMAN BUILDING	jl-02114	MECHANICAL	The emergency generator's starter battery pack is sitting directly on the concrete floor, with no an...	1.1 (FY 2006/07)	$ 1.1										

KSG
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TAUBMAN BUILDING (inspected in FY 2006/07)
Ten Year Plan: Projected Costs by Observation
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Asset	ID	System	Description	Original Uninflated Cost (Cost Year)	Year 1 FY 2006/07	Year 2 FY 2007/08	Year 3 FY 2008/09	Year 4 FY 2009/10	Year 5 FY 2010/11	Year 6 FY 2011/12	Year 7 FY 2012/13	Year 8 FY 2013/14	Year 9 FY 2014/15	Year 10 FY 2015/16	Recommended or Undefined
TAUBMAN BUILDING	bm-00289	PLUMBING	There are cross-connections in the building's potable water system, and the building lacks a Reduced...	6.6 (FY 2006/07)	$ 6.6										
TAUBMAN BUILDING	bm-00290	PLUMBING	The diesel piping system which services the emergency generator is not labeled or color coded..	2.1 (FY 2006/07)		$ 2.2									
TAUBMAN BUILDING	bm-00291	PLUMBING	The gas piping system is not labeled or color code.	1.8 (FY 2006/07)		$ 1.9									
TAUBMAN BUILDING	jl-02121	VENTILATION	The room has no emergency refrigerant exhaust system for the chiller plant. This violates both the ...	6.6 (FY 2006/07)	$ 6.6										
Total All Observations				**$ 1,780.3**	**$ 22.1**	**$ 6.5**	**$ 37.1**	**$ 1,715.3**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 147.2**