



**HARVARD UNIVERSITY**  
**Faculty of Arts and**  
**Sciences**

*Facility Condition Assessment*  
*Program*

**Lehman Hall**  
**Report**

June 2007

ARAMARK Education  
Facility Services

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## **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

## Faculty of Arts and Sciences

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### Lehman Hall

#### Executive Summary

##### Background

Our inspection of Lehman Hall was started and completed during the week of January 23, 2007. The building is assembly space that consists of 25,567 gross square feet of space. It was constructed in 1929. The Building Manager is Bob Byrne.

##### Overall Condition Assessment Results

The total dollar costs of the issues related to our observations of the conditions at Lehman Hall are:

<u>Priority</u>	<u>Total \$K</u>
Priority 1	\$17
Priority 2	\$3
<u>Priority 3</u>	<u>\$70</u>
<b>Total</b>	<b>\$90</b>
Priority 4	\$2630
Priority U	\$440

##### Summary of Priority Results

Our inspection identified three (3) Critical Observations estimated at \$16,708, one (1) Potentially Critical Observation totaling about \$2,813, three (3) Necessary But Not Yet Critical Observations totaling \$69,759, eleven (11) Recommended Observations totaling \$2,630,314 and three (3) observations totaling \$439,587 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 \$3,159,181.



## Condition Assessment Results by Priority

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### **Priority 1**

Observations, totaling \$16,708, include equipping the existing fireplace with UL approved fixtures and flue lining if it is desired to keep it in service or if not then securing it with signage and a decorative method to prevent its use. Other observations for this priority include a complete surveying of the building's potable water system to identify all cross-connections, applying protection devices to those identified locations and installing a Reduced Pressure Zone Backflow Preventer on the water main.

### **Priority 2**

Observations, totaling \$2,813, include installing missing cover plates on opened junction boxes, installing a ground jumper wire across the water meter, re-securing the exterior lighting fixture and removing all of the storage from in front of the electrical panels and equipment.

### **Priority 3**

Observations, totaling \$69,759, include minor repairing of the slate roof and continuing with inspections over the next five years. Other observations for this priority include brick re-pointing and inspections as required.

### **Priority 4**

Observations, totaling \$2,630,314, include replacing the existing elevator with a new unit that corrects deficiencies and meets all modern Code requirements. Other observations for this priority include replacing the existing double hung windows with clad units with low E insulated glass.

### **Priority U**

Observations, totaling \$439,587, include installing separate supports for the low voltage cables to eliminate the code violation and removing the cables that are attached to the electrical tubing and installing their own supports. Other observations for this priority include installing a sprinkler fire protection system for the building.

## Condition Assessment Results Summary by System

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### **Electrical**

Observations, totaling \$525,781, include replacing the aged distribution panels with new larger capacity panels to provide for future renovations and expansion of the building, replacing the old feeder cables with new plastic insulated conductors and relocating a number of these panels to provide a proper working clearance in front of the new panels as needed. Other observations for this system include replacing the old cloth covered branch circuit wiring with new wiring, installing additional electrical circuits as needed and installing the new receptacles at a height that meets the current ADA requirement.

### **Exterior Shell**

Observations, totaling \$661,588, include replacing the existing double hung windows with clad units with low E insulated glass. Other observations for this system include brick re-pointing and inspections as required.

## Condition Assessment Results Summary by System (*Continued*)

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### **Heating**

Observations, totaling \$131,268, include replacing the remaining aged portions of steam piping with a hot water system during any planned building renovations.

### **Life Safety**

Observations, totaling \$431,501, include installing a sprinkler fire protection system for the building. This includes all system costs, including alarm costs, design, piping system, using surface mounting of piping with minimal wall penetrations, minor incidental repair of finishes and wall penetrations, testing for acceptance by insurance/fire department, incidental amount of overtime for minor issues, etc.

### **Mechanical**

Observations, totaling \$861,265, include replacing the existing elevator with a new unit that corrects deficiencies and meets all modern Code requirements. Other observations for this system include replacement of the hydraulic elevator components, especially the jacking cylinder, as they reach the end of their useful lives.

### **Plumbing**

Observations, totaling \$11,083, include a complete surveying of the building's potable water system to identify all cross-connections, applying protection devices to those identified locations and installing a Reduced Pressure Zone Backflow Preventer on the water main. Other observations for this system include a testing (destructive or non-destructive) of the sanitary sewer piping in accessible spaces throughout the property.

### **Ventilation**

Observations, totaling \$536,697, include replacing all the air handling units as they reach the end of their useful lives. Other observations for this system include modernizing and expanding the BMS to provide additional savings in energy use and maintenance costs.

## Condition Assessment Results Summary by Category

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### **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 "Current/Future" followed by "Modernization." The remaining observations are shown in "Deferred."

## Condition Assessment Results Summary by Category (Continued)

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### **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 “Address as part of a larger space renovation – CAPS (>\$100,000).” The remaining observations are shown in “Address as part of a larger space renovation – operations initiative” and “Implement as a stand alone project – operations initiative.”

### **ARAMARK Inspection Team**

Architectural – Dick Elliott

Electrical – Frank Quigley

Mechanical – Jim Lockaby

### **Harvard Representation**

Building Manager – Bob Byrne

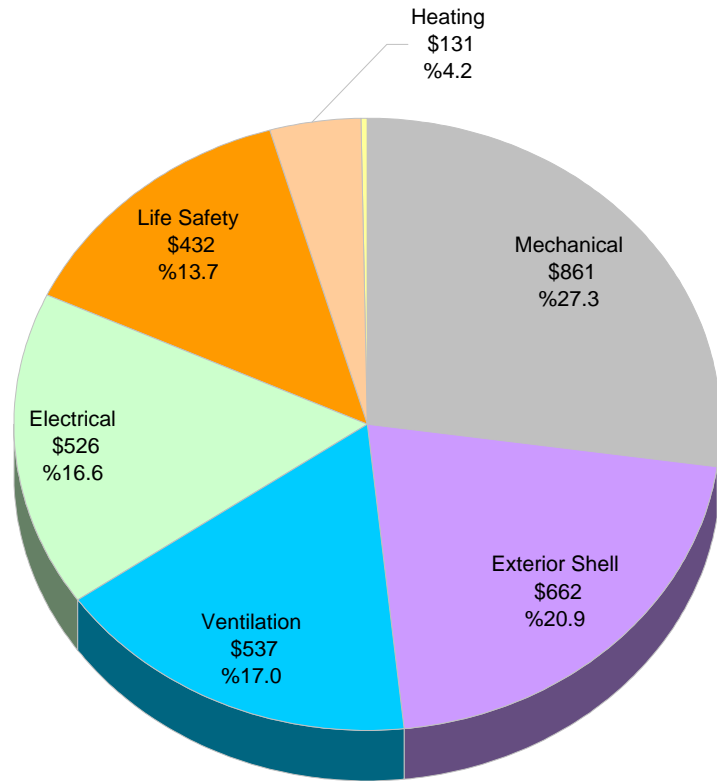
## Summary of All Identified Observations



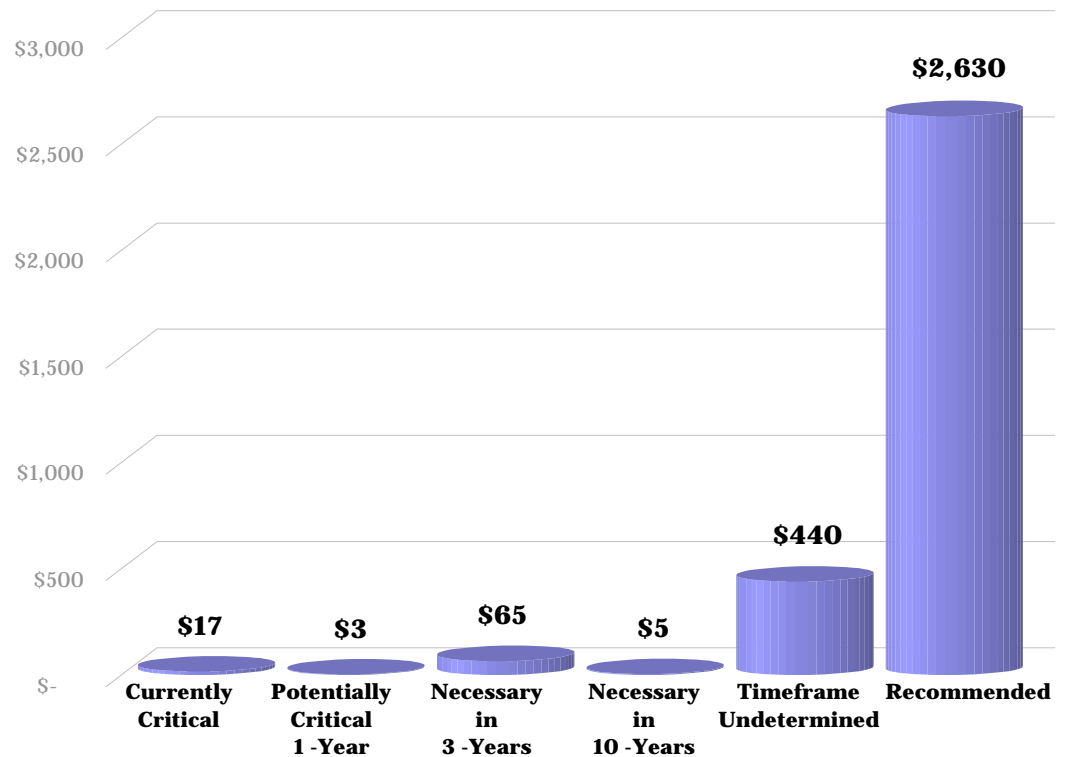
**FACULTY OF ARTS AND SCIENCES  
LEHMAN HALL (inspected in FY 2006/07)**

**Summary of Identified Observations \*  
(in thousands of dollars)**

Observation Summary by Building System\*\*



Observation Summary by Priority\*\*



**Estimated Total: \$3,159.18  
\$124 per GSF**

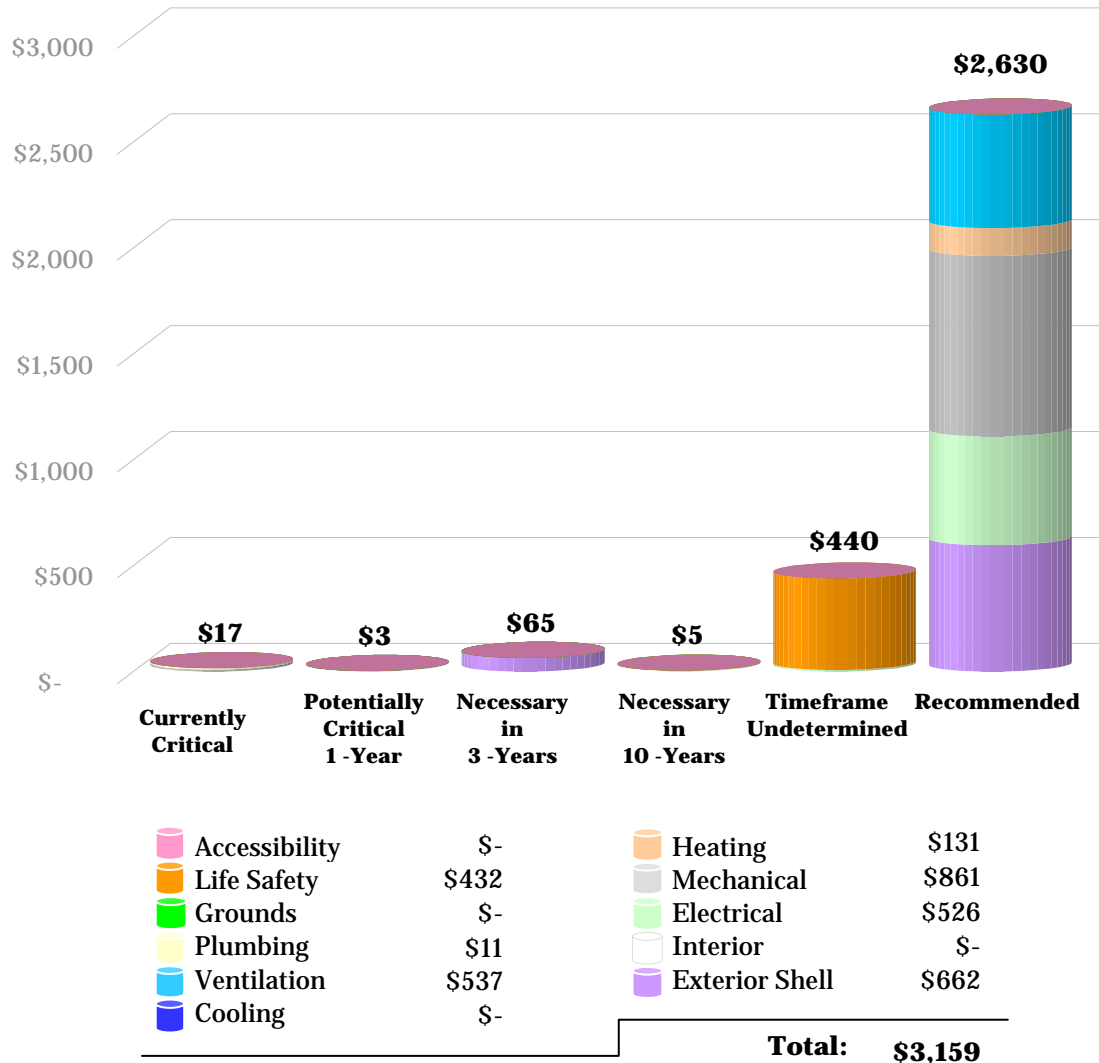
\*All costs represented in constant 2005 dollars

\*\* Includes all observations

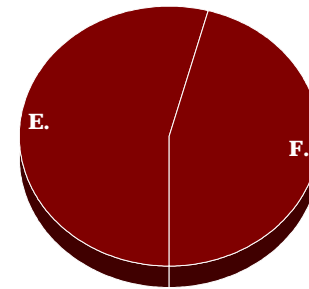
# FACULTY OF ARTS AND SCIENCES LEHMAN HALL (inspected in FY 2006/07)

## Summary of Identified Observations \* (in thousands of dollars)

### Building System\*\*

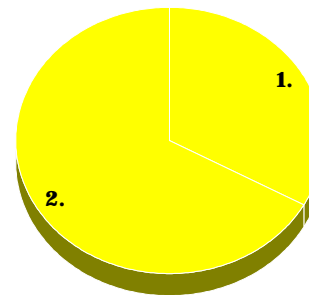


### Institutional Mission\*\*



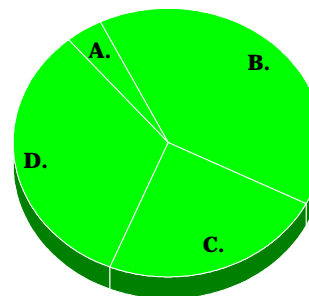
- A. Support University Program
- B. Student Life Quality
- C. Public Interface (Neighbors)
- D. Safety or Regulatory
- E. Asset Preservation
- F. Cost Containment
- G. Accessibility
- H. Sustainability

### 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

\*All costs represented in constant 2005 dollars

\*\* Includes all observations

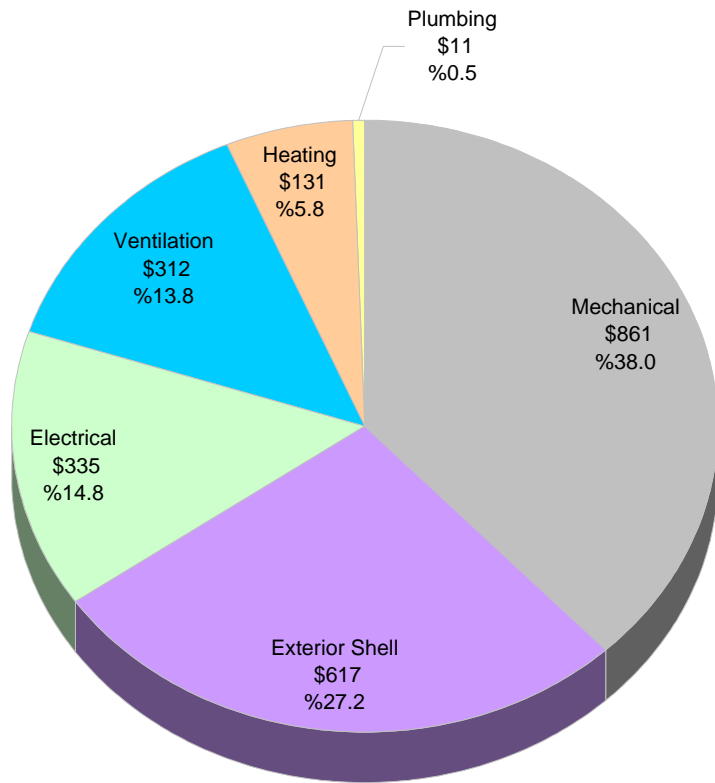
## Summary of Deferred Maintenance and Current/Future Observations



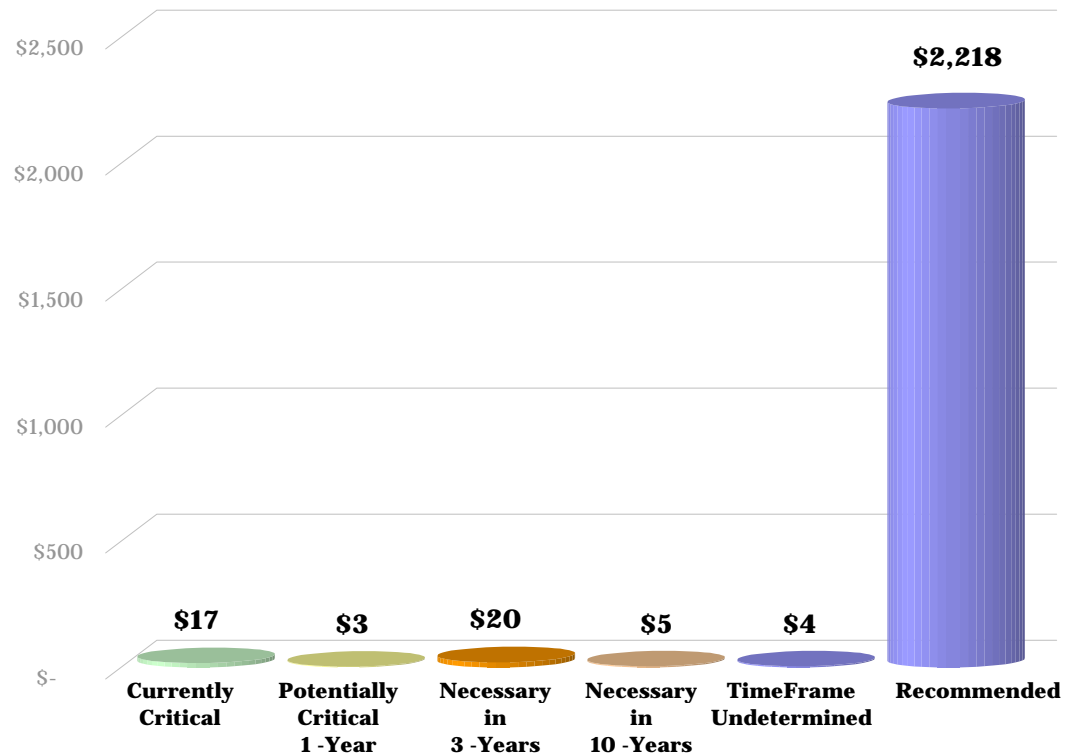
**FACULTY OF ARTS AND SCIENCES  
LEHMAN HALL (inspected in FY 2006/07)**

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

Summary of Need by Building System\*\*



Summary of Need by Priority\*\*



**Estimated Total: \$2,266.65  
\$89 per GSF**

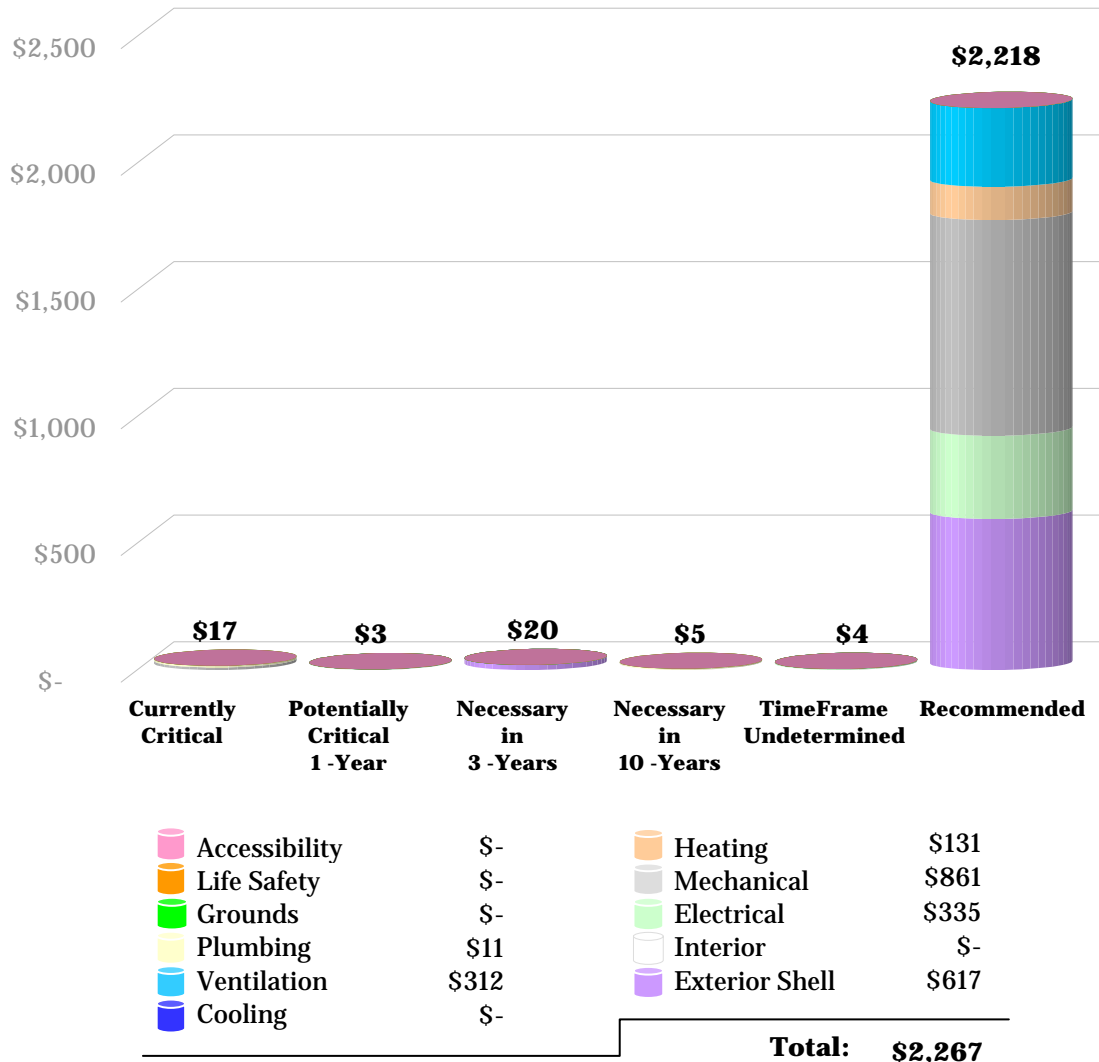
*\*All costs represented in constant 2005 dollars  
\*\* Includes Deferred and Current/Future observations only.*



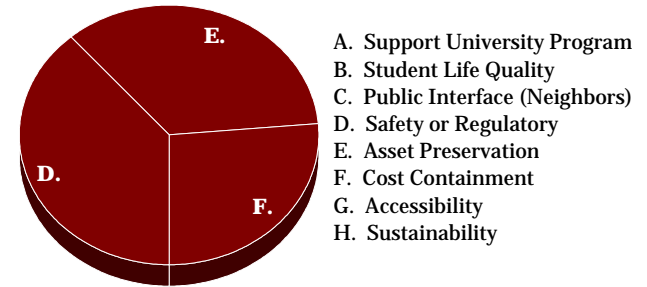
# FACULTY OF ARTS AND SCIENCES LEHMAN HALL (inspected in FY 2006/07)

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

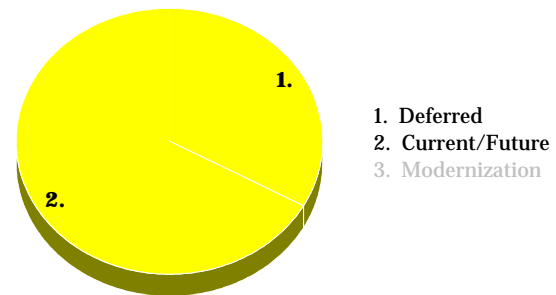
### Building System\*\*



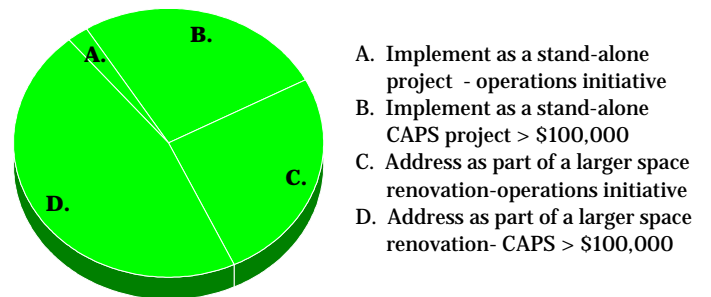
### Institutional Mission\*\*



### Observation Category\*\*



### Implementation Strategy\*\*



\*All costs represented in constant 2005 dollars

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

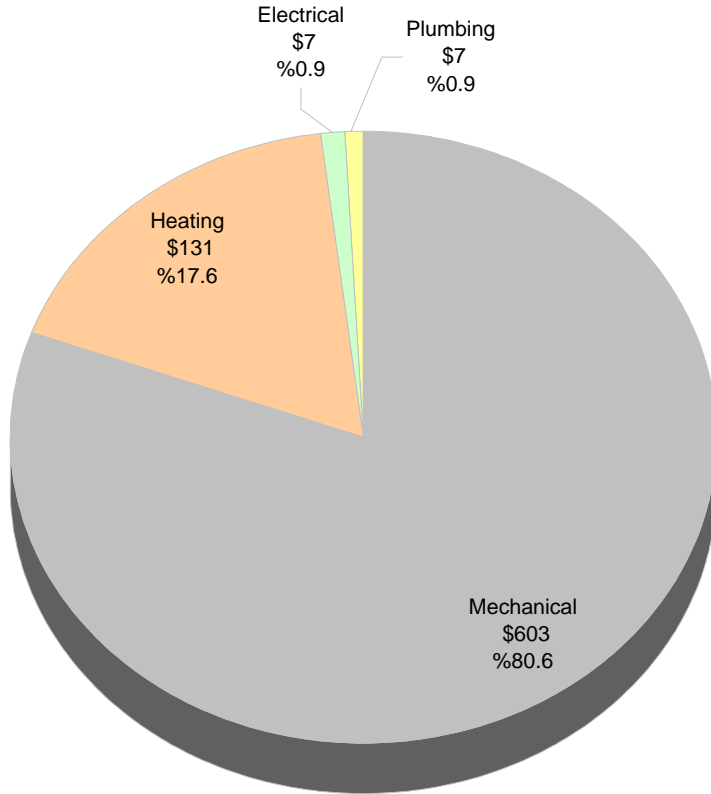
## Summary of Deferred Maintenance



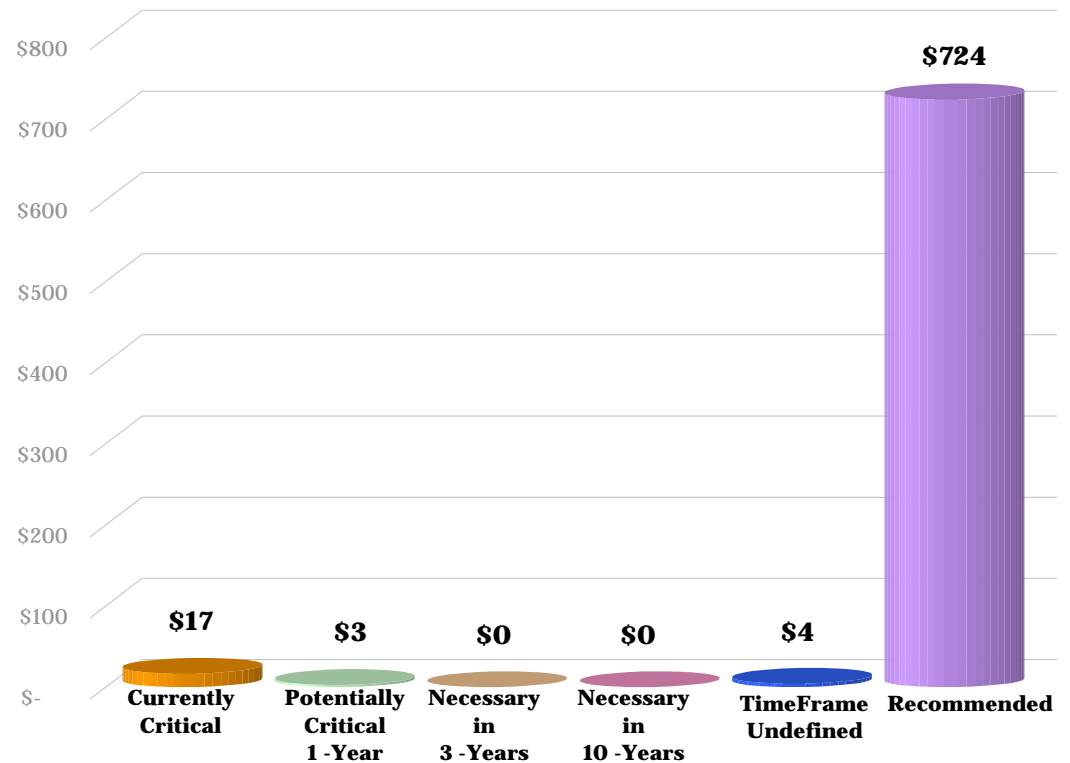
**FACULTY OF ARTS AND SCIENCES  
LEHMAN HALL (inspected in FY 2006/07)**

**Summary of Deferred Observations \*  
(in thousands of dollars)**

Summary of Need by Building System\*\*



Summary of Need by Priority\*\*



**Estimated Total: \$747.87  
\$29 per GSF**

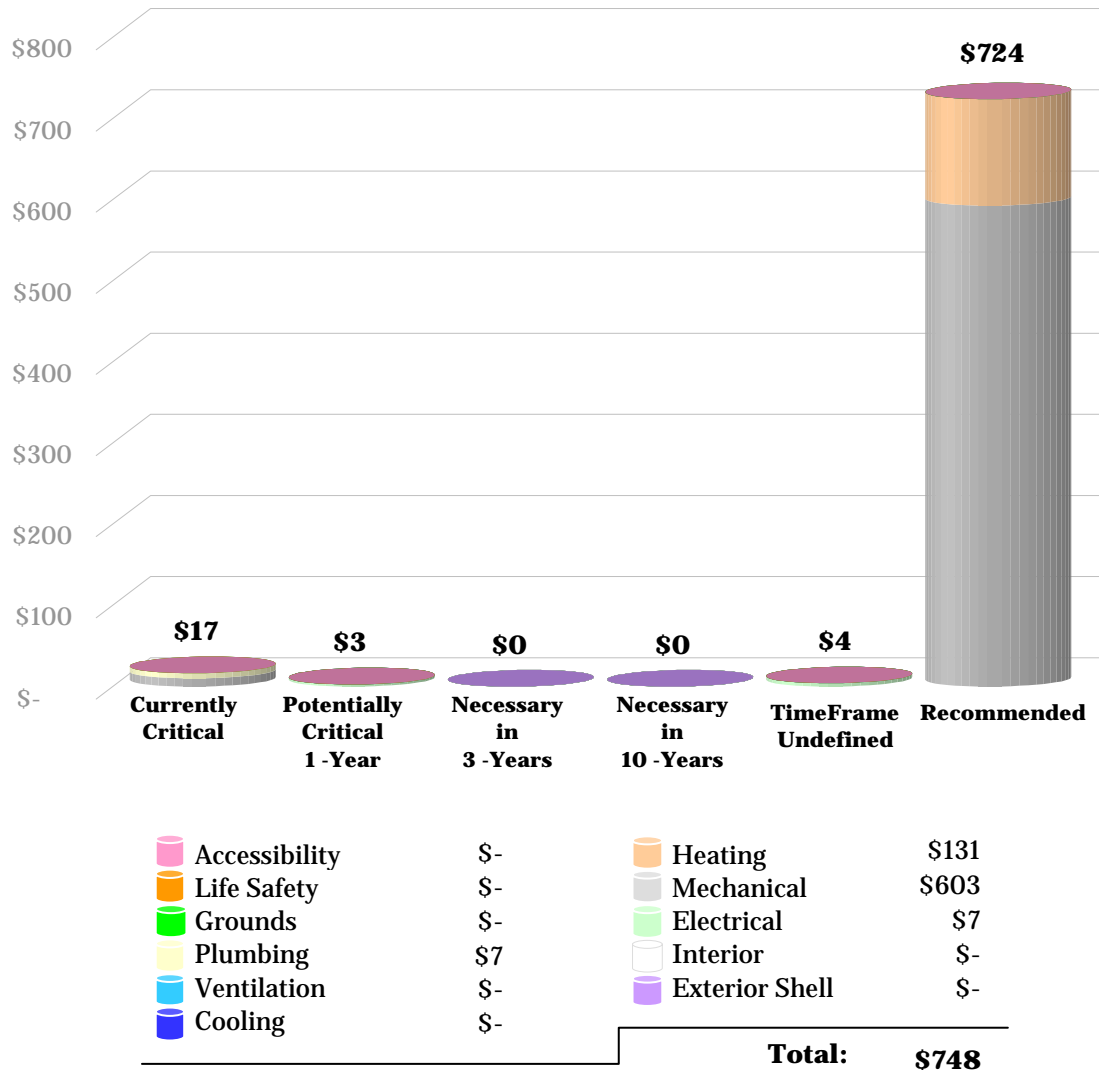
*\*All costs represented in constant 2005 dollars*

*\*\* Includes Deferred observations only.*

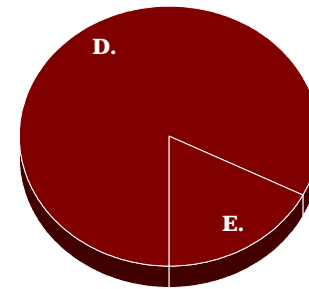
# FACULTY OF ARTS AND SCIENCES LEHMAN HALL (inspected in FY 2006/07)

## Summary of Deferred Observations \* (in thousands of dollars)

### Building System\*\*



### Institutional Mission\*\*



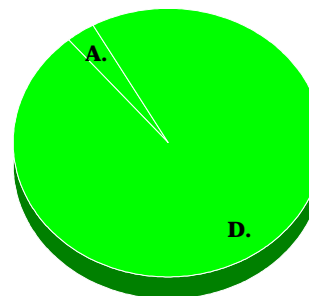
- A. Support University Program
- B. Student Life Quality
- C. Public Interface (Neighbors)
- D. Safety or Regulatory
- E. Asset Preservation
- F. Cost Containment
- G. Accessibility
- H. Sustainability

### 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

\*All costs represented in constant 2005 dollars

\*\* Includes Deferred observations only.

Faculty of Arts and Sciences  
 Lehman Hall  
 Facility Profile Summary

Address: **Harvard Yard**  
 GSF: **25,567**  
 Description: **Masonry Building**

Construction Date: **1929**  
 Building Additions:  
 Major Renovations:

Contact Person  
 Name: **Bob Byrne**  
 Phone: **617-485-0747 (Office)**  
 Email: **rbyrnes@harvard.psu.edu**

Programs Supported: Assembly

**Building Documentation Available**

	<i>Yes</i>	<i>No</i>	<i>Location/Contact/Content</i>
General Floor Plans with Room #'s		X	
Design Drawings		X	
Narrative Systems Descriptions/Overview		X	
Equipment Inventory		X	
ADA Survey		X	
Energy Data Reports		X	
Life Safety Survey		X	
Hazardous Material Survey		X	
Other Relevant and Recent Studies :		X	

**Facility Strengths: Well maintained by building manager.**

**Recent Facility Improvements:**

**Planned Facility Projects or Modernization:**

**Priority Facility Needs for Investigation:**

## Observations by Priority



# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and Priority

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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-02259	Attic	Attic	MECHANICAL	Equipment(End Use)	Other	A chimney with two flues open into the attic were observed. Operating personnel stated their belief that these connect to secured or removed fireplaces.	Recommend investigation of these open flues, and their closure for safety.	1	Lump Sum	4.50	1a	FY 2006/07	D	1	A	NA
jl-02258	1	Common Room	MECHANICAL	Equipment(End Use)	Other	There is an unsecured fireplace in the room. It appears that is has been in use due to presence of charred wood in hearth. The fireplace is not equipped with UL approved fixtures. The condition of the circa 1925 chimney flue is unknown, and it may have unsealed joints that could expose combustibles to hot gases or flame, or may leak carbon dioxide into building spaces.	Recommend decision be made if fireplace is desired to be in service. If so, then recommend that it be equipped with UL approved fixtures, and the flue be lined with UL approved product, with pricing as given in this estimate. If it is not desired to remain available for use, recommend signage and decorative securing method be employed to prevent use, at the lower cost of approximately \$500.	1	Lump Sum	5.63	1a	FY 2006/07	D	1	A	EQ
bm-00521	Bsmt	After Water Main & Janitor Sink	PLUMBING	Dom. Cold Water	B.F. Preventer	There are cross-connections in the building's 4" 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 preclude any 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
Priority 1 SUBTOTAL \$(000):										16.71						

# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and Priority

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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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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
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G	Accessibility
H	Sustainability

Observation Category	
1	Deferred
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Implementation Strategy	
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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.
fq-00123	5th	Stairs, mechanical room	ELECTRICAL	Branch Circuitry	Other	During the site visit the following items were seen: There were approximately 15 open junction boxes missing covers, mostly in the basement. There was no jumper wire seen run across the water meter. On the exterior of the building there is a lighting fixture that has pulled away from the building allowing moisture to get into the building behind it. There is a lot of storage in front of electrical panels and equipment but in the main electrical room you can barely get into the room which is a code violation. All of these items should be attended to very soon.	Correct the various minor electrical items: Install missing cover plates on opened junction boxes, install a ground jumper wire seen run across the water meter, re-secure the exterior lighting fixture and remove all of the storage from in front of electrical panels and equipment (Ongoing Project)	2 Lump Sum	2.81	2a	FY 2007/08	D	1	A	NA
Priority 2 SUBTOTAL \$(000):									2.81						
re-00968		Roof	EXTERIOR SHELL	Roof	Shingle	Per the WS Aiken website the most recent inspection took place in 2006 and minor issues were indicated as needing repair. Misc slate repairs were required as well snow guard repair. In general the slate roof is in good condition and only requires slate repair and inspection for the next five years or so.	Inspections to continue and misc repairs to take place. Approximately 10 square of slate repair should be budgeted for the next three years. (Ongoing Project)	10 Ea.	20.25	3a	FY 2009/10	E	2	A	EQ
re-00967		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. It looks as though quite a bit of re-pointing work has been done over the years due to changes in mortar color. 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. This is a budget item that should cover misc. repair work over the next three years.	1 Lump Sum	45.01	3a	FY 2009/10	E		A	NA
bm-00522	All	All	PLUMBING	Sani Swr (Major)	Piping	The sanitary sewer piping appears to be a variety of different ages. The newer sections were found in the kitch area. There were no deteriorating or cracked pipes found in this property.	There are no existing sanitary problems observed and the piping looks to be in good shape. Some may be approaching its 50 year life expectancy. A test (destructive or non-destructive) of the sanitary sewer piping in accessible spaces throughout the property is recommended on the older cast iron pipe.. Unplanned failures may damage other building components and impact use of the building.	1 Lump Sum	4.50	3b	FY 2015/16	E	2	A	NA
Priority 3 SUBTOTAL \$(000):									69.76						



# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and Priority

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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-02318	All	All	VENTILATION	AHU/H & V Unit	Controls	The building has an existing aged BMS, circa 1970's or early 80's per operating personnel. The system is limited in both capability and coverage, providing only a portion of the potential energy savings that a modern BMS could provide.	Recommend BMS modernization and expansion to provide additional savings in energy use and maintenance costs. The estimate is meant to provide a budget that will provide for update and a certain amount of coverage. Recommend a detailed analysis be done to determine the exact nature of needed and desired points of control and programming. This work can be done incrementally over time, with considerations of energy cost savings balanced with budgeting and disruption. (Phased Ongoing Project)	1 Lump Sum	225.03	4a	Undefined	F	3	B	EA
fq-00118	All	All with old wiring.	ELECTRICAL	Branch Circuitry	Wiring	The branch circuit wiring in the building has been changed in parts of the building but in other still needs to be updated as there are still areas with old cloth covered branch circuit wiring. The condition of this wiring is poor due to age and the break down of the insulating material over the span of many years. Some of the electrical devices such as lighting switches are believe to be at least 30 years old. There were a lot of receptacles seen that were installed at approximately three inches above the finished floor which does not meet current ADA requirements.	It is suggested to remove the old cloth covered wiring and install new wiring to the parts of the building that still utilize this old cloth covered branch wiring. During the renovation it is suggested to provide and install additional electrical circuits as needed. During the replacement of the branch circuit wiring and receptacles the location of the new receptacles should be installed at a height that meets the current ADA requirements.	6,700 S.F.	120.62	4b	Undefined	E	3	C	NA
fq-00120	All	Electrical/Telecomm Installations	ELECTRICAL	Fire & Life Safety	Other	During the installation of electrical conduits, cables and telecommunications cables contractors need to drill holes and make openings to pass these conduits and cables between floors and wall. Once the installation is complete these open penetrations are supposed to be filled with fire proofing material to prevent the spread of flames should a fire break out. A good number of these open penetrations were seen that have not been filled.	Around all electrical conduit and wire and telecommunications cable openings in the walls, floors and ceilings, provide and install fire stopping material to those areas that currently do not have them.	185 Ea.	3.73	4b	Undefined	D	3	A	NA
fq-00121	All	Ceilings	ELECTRICAL	Lighting Service	Interior Fixtures	Parts of the building currently utilize fluorescent lighting fixtures that have T-12 lamps and magnetic ballasts which are less energy efficient as compared to T-8 lamps and electronic ballasts. A number of these fixtures are in poor condition or they use incandescent lamps fixtures. The incandescent lamps are not energy efficient and have a short life span requiring frequent lamps changes. A number of these fixtures are dated and difficult to access to change the lamps.	Disconnect and remove the existing aged fluorescent lamps and ballasts fixtures and replace them with new electronic ballasts and T-8 lamps fixtures to provide better general lighting and to conserve energy. Disconnect and remove the old incandescent lamp fixtures and replace with new fixtures with compact fluorescent lamps or fluorescent lamp fixtures. During this process, clean all of the fixture housings and lenses	75 Ea.	25.48	4b	Undefined	F	3	A	EA

# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and Priority

Current Observations, Asset ID

**Asset: LEHMAN HALL**

Priority	
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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.
fq-00125	B	Several Locations	ELECTRICAL	Secondary Service	Switch Gear	There are approximately (25) branch circuit distribution panels seen that contained old circuit breakers or screw-in fuse panels. The feeders to these panels are also aged as some of them may have (RH) cloth covered feeder cables. This is based on the visual inspection as there was no access to see the feeders. Most of these panels are full with little or no room for spare capacity and they have exceeded their expected life cycle and should be replaced. A number of these panels have been installed on stairwell making it difficult and dangerous to perform electrical work on these panels. These panels should be relocated to a location that is more accommodating	Disconnect and remove the aged distribution panels and replace them with new larger capacity panels to provide for future renovations and expansion of the building. Replace the old feeder cables with new plastic insulated conductors. Relocate a number of these panels to provide proper working clearance in front of the new panels as needed and required.	25 Ea.	327.70	4b	Undefined	E	2	C	NA
fq-00127	B	Electric sub-main	ELECTRICAL	Secondary Service	Switch Gear	The existing 1200 amp electrical service appears to be of the 1970 to 1975 vintage. is at the end of its life expectancy. Although it is not causing any problems at this time it should be considered to be replaced with any major electrical renovation that happens in the future.	It is recommended to replace the existing electrical service with the next large scale electrical renovation as it is aged and at the end of its expected life. By scheduling the replacement of the electrical service measures can be taken to schedule, engineer and put out to bid for the new electrical service as well as for the installation.	1 Ea.	37.35	4b	Undefined	E	3	C	NA
re-00966		All Facades	EXTERIOR SHELL	Openings	Windows	The existing windows look to be original to the building, they are uninsulated. Extensive maintenance and upkeep has been performed on them over the years. They are not efficient units and have reached the end of their useful life.	Remove and replace the existing double hung windows with clad units with low E insulated glass. 12 units at \$3500, 70 units at \$2500 each, 32 units at \$1500 each.	1 Lump Sum	596.33	4b	Undefined	F	2	B	EQ
jl-02317	All	All	HEATING	Steam Supply	Piping	Some portions of the steam piping in the building are aged, with portions possibly circa 1929 per operating personnel, although large sections have been repaired or replaced at various subsequent times. Due to the inherently corrosive nature of steam condensate and the age of some components, the steam piping is well past its expected life and can be expected to experience additional leakage in the future. These leaks may cause disruption to building operations and possibly risk damage to the building and contents.	Recommend replacement of the remaining aged portions of steam piping in any planned building renovations, with consideration of abandoning of any in-wall portions of the steam system rather than bearing the cost of opening walls to reach it, and replacing it entirely with a hot water system. This will potentially save energy, operate more quietly, provide better comfort, experience little or no future pipe corrosion if properly treated, etc. The estimate is meant to include design, demolition, installation, repair of finishes, testing, commissioning, etc., as needed for a complete job. Although the estimated cost is meant to be for the complete job, the work and cost can be done incrementally to minimize disruption and budget impact if necessary.	1 Lump Sum	131.27	4b	Undefined	E	1	D	EA

# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and Priority

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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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-02306	All	Elevator	MECHANICAL	Elevators	Other	The elevator is well past its expected life (reportedly circa 1950's, w/ "update" in the 1960's), the machinery is unprotected in the attic instead of in a machinery room, it is only 1000 pound capacity, is not suitable for ADA, and the controls are very aged. The unit is located in the center of a stairway.	Recommend replacement of the elevator with a new unit that corrects deficiencies of the existing, meeting all modern Code requirements. The estimate is meant to include design, permitting, demolition, installation (including a new shaft), repair of finishes, testing, commissioning, etc., as needed for a complete job.	1	Lump Sum	592.80	4b	Undefined	D	1	D	NA
jl-02307	Bsmt	Basement Elevator Room	MECHANICAL	Elevators	Other	The hydraulic elevator is at the end of its expected life. Failure of the hydraulic cylinder is both a safety and environmental risk.	Recommend planned replacement of elevator components, especially the jacking cylinder, as they reach the end of their useful lives. Recommend a conservative estimate of remaining life be made to minimize safety and environmental risks. The estimate is meant to include design, demolition, installation, repair of finishes, testing, commissioning, etc., as needed for a complete job.	1	Lump Sum	258.33	4b	Undefined	D	2	C	MR
jl-02308	B, A	Basement and Attic Mechanical Rooms	VENTILATION	AHU/H & V Unit	Air Handling Unit	The Air Handlers serving the building are aged (estimated as circa 1970's), and are at the end of their expected lives.	Recommend planned replacement of the AHU's as they reach the end of their useful lives in the near future. The estimate is meant to include design, permitting, demolition, installation, repair of finishes, testing, commissioning, etc., as needed for a complete job.	1	Lump Sum	311.67	4b	Undefined	E	2	D	EQ
Priority 4 SUBTOTAL \$(000):										2,630.31						
fq-00119	All	Basement and other locations	ELECTRICAL	Branch Circuitry	GFCI	Standard receptacles are installed in locations were GFCI type outlets should be installed as a safety precaution and as good practice. At this location it is not a code requirement but should be done to help ensure a safe environment. As part of this observation it was noted that on the exterior of the building there is no convenience receptacle near the HVAC unit as there should be a GFCI receptacle installed for servicemen working on the unit.	Remove the standard receptacles and replace them with GFCI type outlets as needed. Provide and install a new GFCI receptacle on the exterior of the building for servicemen working on the HVAC unit.	30	Ea.	3.81	U	Undefined	D	3	A	NA
fq-00124	B	Basement	ELECTRICAL	Support Systems	Low Voltage	Telecommunication, telephone cables, etc. have been installed and attached to electrical tubing and do not have their own means of support which is a violation of NEC Article #800. 133.	Provide and install separate supports for the low voltage cables to eliminate the code violation. Disconnect and remove these cables that are attached to electrical tubing and install them to their own supports.	95	Ea.	4.28	U	Undefined	D	1	A	NA

# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and Priority

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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1a	Currently Critical - correct a cited safety hazard
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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-00520	All	All	LIFE SAFETY	PLUMBING	Sprinklr Wet	Building has no sprinkler fire protection system. A new sprinkler main was found capped off in the basement mechanical room.	Install sprinkler system. This includes all system costs, including alarm costs (such as flow alarms, valve supervision, wiring and conduits, etc.), design, piping system, using surface mounting of piping with minimal wall penetrations, minor incidental repair of finishes and wall penetrations, testing for acceptance by insurance/fire dept., incidental amount of overtime for minor issues, etc.	25,567 S.F.	431.50	U	Undefined	D	3	B	NA
Priority U SUBTOTAL \$(000):									439.59						
<b>LEHMAN HALL Total \$(000):</b>									<b>3,159.18</b>						

## Observations by System



# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and System

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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.
fq-00123	5th	Stairs, mechanical room	ELECTRICAL	Branch Circuitry	Other	During the site visit the following items were seen: There were approximately 15 open junction boxes missing covers, mostly in the basement. There was no jumper wire seen run across the water meter. On the exterior of the building there is a lighting fixture that has pulled away from the building allowing moisture to get into the building behind it. There is a lot of storage in front of electrical panels and equipment but in the main electrical room you can barely get into the room which is a code violation. All of these items should be attended to very soon.	Correct the various minor electrical items: Install missing cover plates on opened junction boxes, install a ground jumper wire seen run across the water meter, re-secure the exterior lighting fixture and remove all of the storage from in front of electrical panels and equipment (Ongoing Project)	2 Lump Sum	2.81	2a	FY 2007/08	D	1	A	NA
fq-00118	All	All with old wiring.	ELECTRICAL	Branch Circuitry	Wiring	The branch circuit wiring in the building has been changed in parts of the building but in other still needs to be updated as there are still areas with old cloth covered branch circuit wiring. The condition of this wiring is poor due to age and the break down of the insulating material over the span of many years. Some of the electrical devices such as lighting switches are believe to be at least 30 years old. There were a lot of receptacles seen that were installed at approximately three inches above the finished floor which does not meet current ADA requirements.	It is suggested to remove the old cloth covered wiring and install new wiring to the parts of the building that still utilize this old cloth covered branch wiring. During the renovation it is suggested to provide and install additional electrical circuits as needed. During the replacement of the branch circuit wiring and receptacles the location of the new receptacles should be installed at a height that meets the current ADA requirements.	6,700 S.F.	120.62	4b	Undefined	E	3	C	NA
fq-00120	All	Electrical/Telecomm Installations	ELECTRICAL	Fire & Life Safety	Other	During the installation of electrical conduits, cables and telecommunications cables contractors need to drill holes and make openings to pass these conduits and cables between floors and wall. Once the installation is complete these open penetrations are supposed to be filled with fire proofing material to prevent the spread of flames should a fire break out. A good number of these open penetrations were seen that have not been filled.	Around all electrical conduit and wire and telecommunications cable openings in the walls, floors and ceilings, provide and install fire stopping material to those areas that currently do not have them.	185 Ea.	3.73	4b	Undefined	D	3	A	NA
fq-00121	All	Ceilings	ELECTRICAL	Lighting Service	Interior Fixtures	Parts of the building currently utilize fluorescent lighting fixtures that have T-12 lamps and magnetic ballasts which are less energy efficient as compared to T-8 lamps and electronic ballasts. A number of these fixtures are in poor condition or they use incandescent lamps fixtures. The incandescent lamps are not energy efficient and have a short life span requiring frequent lamps changes. A number of these fixtures are dated and difficult to access to change the lamps.	Disconnect and remove the existing aged fluorescent lamps and ballasts fixtures and replace them with new electronic ballasts and T-8 lamps fixtures to provide better general lighting and to conserve energy. Disconnect and remove the old incandescent lamp fixtures and replace with new fixtures with compact fluorescent lamps or fluorescent lamp fixtures. During this process, clean all of the fixture housings and lenses	75 Ea.	25.48	4b	Undefined	F	3	A	EA

# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and System

Current Observations, Asset ID

**Asset: LEHMAN HALL**

Priority	
1a	Currently Critical - correct a cited safety hazard
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2a	Potentially Critical in a year - life safety exposure
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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
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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.
fq-00125	B	Several Locations	ELECTRICAL	Secondary Service	Switch Gear	There are approximately (25) branch circuit distribution panels seen that contained old circuit breakers or screw-in fuse panels. The feeders to these panels are also aged as some of them may have (RH) cloth covered feeder cables. This is based on the visual inspection as there was no access to see the feeders. Most of these panels are full with little or no room for spare capacity and they have exceeded their expected life cycle and should be replaced. A number of these panels have been installed on stairwell making it difficult and dangerous to perform electrical work on these panels. These panels should be relocated to a location that is more accommodating	Disconnect and remove the aged distribution panels and replace them with new larger capacity panels to provide for future renovations and expansion of the building. Replace the old feeder cables with new plastic insulated conductors. Relocate a number of these panels to provide proper working clearance in front of the new panels as needed and required.	25 Ea.	327.70	4b	Undefined	E	2	C	NA
fq-00127	B	Electric sub-main	ELECTRICAL	Secondary Service	Switch Gear	The existing 1200 amp electrical service appears to be of the 1970 to 1975 vintage. is at the end of its life expectancy. Although it is not causing any problems at this time it should be considered to be replaced with any major electrical renovation that happens in the future.	It is recommended to replace the existing electrical service with the next large scale electrical renovation as it is aged and at the end of its expected life. By scheduling the replacement of the electrical service measures can be taken to schedule, engineer and put out to bid for the new electrical service as well as for the installation.	1 Ea.	37.35	4b	Undefined	E	3	C	NA
fq-00119	All	Basement and other locations	ELECTRICAL	Branch Circuitry	GFCI	Standard receptacles are installed in locations were GFCI type outlets should be installed as a safety precaution and as good practice. At this location it is not a code requirement but should be done to help ensure a safe environment. As part of this observation it was noted that on the exterior of the building there is no convenience receptacle near the HVAC unit as there should be a GFCI receptacle installed for servicemen working on the unit.	Remove the standard receptacles and replace them with GFCI type outlets as needed. Provide and install a new GFCI receptacle on the exterior of the building for servicemen working on the HVAC unit.	30 Ea.	3.81	U	Undefined	D	3	A	NA
fq-00124	B	Basement	ELECTRICAL	Support Systems	Low Voltage	Telecommunication, telephone cables, etc. have been installed and attached to electrical tubing and do not have their own means of support which is a violation of NEC Article #800. 133.	Provide and install separate supports for the low voltage cables to eliminate the code violation. Disconnect and remove these cables that are attached to electrical tubing and install them to their own supports.	95 Ea.	4.28	U	Undefined	D	1	A	NA
<b>ELECTRICAL Subtotal \$(000):</b>									<b>525.78</b>						

# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and System

Current Observations, Asset ID

**Asset: LEHMAN HALL**

Priority	
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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.
re-00968		Roof	EXTERIOR SHELL	Roof	Shingle	Per the WS Aiken website the most recent inspection took place in 2006 and minor issues were indicated as needing repair. Misc slate repairs were required as well snow guard repair. In general the slate roof is in good condition and only requires slate repair and inspection for the next five years or so.	Inspections to continue and misc repairs to take place. Approximately 10 square of slate repair should be budgeted for the next three years. (Ongoing Project)	10 Ea.	20.25	3a	FY 2009/10	E	2	A	EQ
re-00967		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. It looks as though quite a bit of re-pointing work has been done over the years due to changes in mortar color. 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. This is a budget item that should cover misc. repair work over the next three years.	1 Lump Sum	45.01	3a	FY 2009/10	E		A	NA
re-00966		All Facades	EXTERIOR SHELL	Openings	Windows	The existing windows look to be original to the building, they are uninsulated. Extensive maintenance and upkeep has been performed on them over the years. They are not efficient units and have reached the end of their useful life.	Remove and replace the existing double hung windows with clad units with low E insulated glass. 12 units at \$3500, 70 units at \$2500 each, 32 units at \$1500 each.	1 Lump Sum	596.33	4b	Undefined	F	2	B	EQ

**EXTERIOR SHELL Subtotal \$(000):** 661.59

jl-02317	All	All	HEATING	Steam Supply	Piping	Some portions of the steam piping in the building are aged, with portions possibly circa 1929 per operating personnel, although large sections have been repaired or replaced at various subsequent times. Due to the inherently corrosive nature of steam condensate and the age of some components, the steam piping is well past its expected life and can be expected to experience additional leakage in the future. These leaks may cause disruption to building operations and possibly risk damage to the building and contents.	Recommend replacement of the remaining aged portions of steam piping in any planned building renovations, with consideration of abandoning of any in-wall portions of the steam system rather than bearing the cost of opening walls to reach it, and replacing it entirely with a hot water system. This will potentially save energy, operate more quietly, provide better comfort, experience little or no future pipe corrosion if properly treated, etc. The estimate is meant to include design, demolition, installation, repair of finishes, testing, commissioning, etc., as needed for a complete job. Although the estimated cost is meant to be for the complete job, the work and cost can be done incrementally to minimize disruption and budget impact if necessary.	1 Lump Sum	131.27	4b	Undefined	E	1	D	EA
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**HEATING Subtotal \$(000):** 131.27



# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and System

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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.
bm-00520	All	All	LIFE SAFETY	PLUMBING	Sprinklr Wet	Building has no sprinkler fire protection system. A new sprinkler main was found capped off in the basement mechanical room.	Install sprinkler system. This includes all system costs, including alarm costs (such as flow alarms, valve supervision, wiring and conduits, etc.), design, piping system, using surface mounting of piping with minimal wall penetrations, minor incidental repair of finishes and wall penetrations, testing for acceptance by insurance/fire dept., incidental amount of overtime for minor issues, etc.	25,567 S.F.	431.50	U	Undefined	D	3	B	NA

<b>LIFE SAFETY Subtotal \$(000):</b>	<b>431.50</b>
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jl-02258	1	Common Room	MECHANICAL	Equipment(End Use)	Other	There is an unsecured fireplace in the room. It appears that it has been in use due to presence of charred wood in hearth. The fireplace is not equipped with UL approved fixtures. The condition of the circa 1925 chimney flue is unknown, and it may have unsealed joints that could expose combustibles to hot gases or flame, or may leak carbon dioxide into building spaces.	Recommend decision be made if fireplace is desired to be in service. If so, then recommend that it be equipped with UL approved fixtures, and the flue be lined with UL approved product, with pricing as given in this estimate. If it is not desired to remain available for use, recommend signage and decorative securing method be employed to prevent use, at the lower cost of approximately \$500.	1 Lump Sum	5.63	1a	FY 2006/07	D	1	A	EQ
jl-02259	Attic	Attic	MECHANICAL	Equipment(End Use)	Other	A chimney with two flues open into the attic were observed. Operating personnel stated their belief that these connect to secured or removed fireplaces.	Recommend investigation of these open flues, and their closure for safety.	1 Lump Sum	4.50	1a	FY 2006/07	D	1	A	NA
jl-02307	Bsmt	Basement Elevator Room	MECHANICAL	Elevators	Other	The hydraulic elevator is at the end of its expected life. Failure of the hydraulic cylinder is both a safety and environmental risk.	Recommend planned replacement of elevator components, especially the jacking cylinder, as they reach the end of their useful lives. Recommend a conservative estimate of remaining life be made to minimize safety and environmental risks. The estimate is meant to include design, demolition, installation, repair of finishes, testing, commissioning, etc., as needed for a complete job.	1 Lump Sum	258.33	4b	Undefined	D	2	C	MR
jl-02306	All	Elevator	MECHANICAL	Elevators	Other	The elevator is well past its expected life (reportedly circa 1950's, w/ "update" in the 1960's), the machinery is unprotected in the attic instead of in a machinery room, it is only 1000 pound capacity, is not suitable for ADA, and the controls are very aged. The unit is located in the center of a stairway.	Recommend replacement of the elevator with a new unit that corrects deficiencies of the existing, meeting all modern Code requirements. The estimate is meant to include design, permitting, demolition, installation (including a new shaft), repair of finishes, testing, commissioning, etc., as needed for a complete job.	1 Lump Sum	592.80	4b	Undefined	D	1	D	NA

<b>MECHANICAL Subtotal \$(000):</b>	<b>861.26</b>
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# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and System

Current Observations, Asset ID

**Asset: LEHMAN HALL**

Priority	
1a	Currently Critical - correct a cited safety hazard
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1c	Currently Critical - stop accelerated deterioration
2a	Potentially Critical in a year - life safety exposure
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3a	Necessary but Not Yet Critical - will require attention within the next 3 years
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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)
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G	Accessibility
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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-00521	Bsmt	After Water Main & Janitor Sink	PLUMBING	Dom. Cold Water	B.F. Preventer	There are cross-connections in the building's 4" 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 preclude any 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-00522	All	All	PLUMBING	Sani Swr (Major)	Piping	The sanitary sewer piping appears to be a variety of different ages. The newer sections were found in the kitch area. There were no deteriorating or cracked pipes found in this property.	There are no existing sanitary problems observed and the piping looks to be in good shape. Some may be approaching its 50 year life expectancy. A test (destructive or non-destructive) of the sanitary sewer piping in accessible spaces throughout the property is recommended on the older cast iron pipe.. Unplanned failures may damage other building components and impact use of the building.	1 Lump Sum	4.50	3b	FY 2015/16	E	2	A	NA
<b>PLUMBING Subtotal \$(000):</b>									<b>11.08</b>						

jl-02318	All	All	VENTILATION	AHU/H & V Unit	Controls	The building has an existing aged BMS, circa 1970's or early 80's per operating personnel. The system is limited in both capability and coverage, providing only a portion of the potential energy savings that a modern BMS could provide.	Recommend BMS modernization and expansion to provide additional savings in energy use and maintenance costs. The estimate is meant to provide a budget that will provide for update and a certain amount of coverage. Recommend a detailed analysis be done to determine the exact nature of needed and desired points of control and programming. This work can be done incrementally over time, with considerations of energy cost savings balanced with budgeting and disruption. (Phased Ongoing Project)	1 Lump Sum	225.03	4a	Undefined	F	3	B	EA
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# Harvard University

## Facility Condition Assessment

### Observations Sorted by Asset and System

Current Observations, Asset ID

**Asset: LEHMAN HALL**

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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-02308	B, A	Basement and Attic Mechanical Rooms	VENTILATION	AHU/H & V Unit	Air Handling Unit	The Air Handlers serving the building are aged (estimated as circa 1970's), and are at the end of their expected lives.	Recommend planned replacement of the AHU's as they reach the end of their useful lives in the near future. The estimate is meant to include design, permitting, demolition, installation, repair of finishes, testing, commissioning, etc., as needed for a complete job.	1 Lump Sum	311.67	4b	Undefined	E	2	D	EQ

**VENTILATION Subtotal \$(000):** 536.70

**LEHMAN HALL Subtotal \$(000):** 3,159.18

# Ten Year Plan



**FACULTY OF ARTS AND SCIENCES**

Facility Condition Assessment

LEHMAN HALL (inspected in FY 2006/07)

Ten Year Plan: Projected Costs by Observation

(in thousands of dollars)



Assumed Rate of Inflation:

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
LEHMAN HALL	fq-00125	ELECTRICAL	There are approximately (25) branch circuit distribution panels seen that contained old circuit brea...	327.7 (FY 2006/07)											\$ 327.7
LEHMAN HALL	fq-00118	ELECTRICAL	The branch circuit wiring in the building has been changed in parts of the building but in other sti...	120.6 (FY 2006/07)											\$ 120.6
LEHMAN HALL	fq-00127	ELECTRICAL	The existing 1200 amp electrical service appears to be of the 1970 to 1975 vintage. is at the end of...	37.4 (FY 2006/07)											\$ 37.4
LEHMAN HALL	fq-00121	ELECTRICAL	Parts of the building currently utilize florescent lighting fixtures that have T-12 lamps and magne...	25.5 (FY 2006/07)											\$ 25.5
LEHMAN HALL	fq-00124	ELECTRICAL	Telecommunication, telephone cables, etc. have been installed and attached to electrical tubing and...	4.3 (FY 2006/07)											\$ 4.3
LEHMAN HALL	fq-00119	ELECTRICAL	Standard receptacles are installed in locations were GFCI type outlets should be installed as a safe...	3.8 (FY 2006/07)											\$ 3.8
LEHMAN HALL	fq-00120	ELECTRICAL	During the installation of electrical conduits, cables and telecommunications cables contractors nee...	3.7 (FY 2006/07)											\$ 3.7
LEHMAN HALL	fq-00123	ELECTRICAL	During the site visit the following items were seen: There were approximately 15 open junction boxes...	2.8 (FY 2006/07)		\$ 2.9									
LEHMAN HALL	re-00966	EXTERIOR SHELL	The existing windows look to be original to the building, they are uninsulated. Extensive maintenanc...	596.3 (FY 2006/07)											\$ 596.3
LEHMAN HALL	re-00967	EXTERIOR SHELL	This is a masonry building that is in good condition on the exterior, no signs of brick problems wer...	45.0 (FY 2006/07)				\$ 49.2							
LEHMAN HALL	re-00968	EXTERIOR SHELL	Per the WS Aiken website the most recent inspection took place in 2006 and minor issues were indicat...	20.3 (FY 2006/07)				\$ 22.1							
LEHMAN HALL	jl-02317	HEATING	Some portions of the steam piping in the building are aged, with portions possibly circa 1929 per op...	131.3 (FY 2006/07)											\$ 131.3

**FACULTY OF ARTS AND SCIENCES**

Facility Condition Assessment

LEHMAN HALL (inspected in FY 2006/07)

Ten Year Plan: Projected Costs by Observation

(in thousands of dollars)



Assumed Rate of Inflation:

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	
LEHMAN HALL	bm-00520	LIFE SAFETY	Building has no sprinkler fire protection system. A new sprinkler main was found capped off in the ...	431.5 (FY 2006/07)											\$ 431.5	
LEHMAN HALL	ji-02306	MECHANICAL	The elevator is well past its expected life (reportedly circa 1950's, w/ "update" in the 1960's), th...	592.8 (FY 2006/07)											\$ 592.8	
LEHMAN HALL	ji-02307	MECHANICAL	The hydraulic elevator is at the end of its expected life. Failure of the hydraulic cylinder is both...	258.3 (FY 2006/07)											\$ 258.3	
LEHMAN HALL	ji-02258	MECHANICAL	There is an unsecured fireplace in the room. It appears that is has been in use due to presence of c...	5.6 (FY 2006/07)	\$ 5.6											
LEHMAN HALL	ji-02259	MECHANICAL	A chimney with two flues open into the attic were observed. Operating personnel stated their belief ...	4.5 (FY 2006/07)	\$ 4.5											
LEHMAN HALL	bm-00521	PLUMBING	There are cross-connections in the building's 4" potable water system, and the building lacks a Redu...	6.6 (FY 2006/07)	\$ 6.6											
LEHMAN HALL	bm-00522	PLUMBING	The sanitary sewer piping appears to be a variety of different ages. The newer sections were found i...	4.5 (FY 2006/07)										\$ 5.9		
LEHMAN HALL	ji-02308	VENTILATION	The Air Handlers serving the building are aged (estimated as circa 1970's), and are at the end of th...	311.7 (FY 2006/07)											\$ 311.7	
LEHMAN HALL	ji-02318	VENTILATION	The building has an existing aged BMS, circa 1970's or early 80's per operating personnel. The syste...	225.0 (FY 2006/07)											\$ 225.0	
<b>Total All Observations</b>					\$ 3,159.2	\$ 16.7	\$ 2.9	\$ -	\$ 71.3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5.9	\$ 3,069.9