

# **FACILITY AUDIT REPORT**

**DULLES HALL**

**#337**

**MARCH 31, 1998**

**DULLES HALL**

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# DULLES HALL

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## EXECUTIVE SUMMARY FOR DULLES HALL

Dulles Hall was constructed in 1974 and is occupied by The Department of History and the Melton Center for Jewish Studies. The three story building with basement was built as part of the University Hall complex with a pedestrian tunnel under 17<sup>th</sup> avenue connecting the two buildings. There are few classrooms in the basement area. The building is in good condition, with a new roof that was installed in 1996 and an added chiller and new cooling tower giving adequate cooling capacity for not only Dulles Hall but also for University Hall, Bricker Hall and Derby Hall. The major projects proposed for the building are an elevator modernization project to upgrade both elevators to meet today's standards, replace two old chillers and replace the 25 year old air handling units.

### PROPOSED MAINTENANCE PROJECTS

#### DULLES HALL #337

##### A. Corrective Maintenance Projects:

Control No

*None*

##### Sub Total

##### B. Building Improvement/Addition Projects:

*None*

Sub Total ..... \$

##### C. Building Component Replacements expected within the next 5-10 years:

1. Replace two Trane chillers and two cooling towers.	\$ 350,000	3463
2. Replace 25 year old HVAC air handling units.	\$ 307,000	3464
Sub Total.....	\$ 657,000	

Total Cost for all Projects.....\$ 657,000

### RENOVATION PROJECTS IN PROGRESS OR RECENTLY COMPLETED SINCE LAST AUDIT, DULLES HALL #337

#### Projects:

Control No

1. New roof.	\$ 86,000	315-94-910
2. Added 300 tons of chiller capacity.	\$ 387,400	315-93-174
3. Upgrade both elevators to today's standards.	\$ 200,000	315-94-911

## GENERAL BUILDING INFORMATION

### DULLES HALL #337

BUILDING ADDRESS: *230 west 17<sup>TH</sup> Ave.*

GROSS SQ. FT.: *40,948*

NET ASSIGNABLE SQ. FT.: *27,632*

MECHANICAL/CUSTODIAL AREA SQ. FT.: *4,769*

YEAR OF CONSTRUCTION: *1974*

YEAR OF LAST RENOVATION: *1974*

NUMBER OF STORIES/BASEMENT: *Three stories with basement*

AIR CONDITIONING (Percentage): *80%*

CURRENT USE: *Offices for History Faculty and Melton Center Staff*

TYPE OF CONSTRUCTION: *Steel Frame with Masonry Skin*

ESTIMATED REPLACEMENT COST: *\$ 6,033,000 \**

COST PER GROSS SQUARE FEET: *\$147.33*

WHEELCHAIR ACCESSIBILITY: *From the southwest entrance of the building to the main corridor and the elevators of the building.*

OVERALL BUILDING CONDITION: *Satisfactory \*\**

NUMBER OF EXIT STAIRWAYS: *Two (2)*

NUMBER OF OTHER EXITS: *Three (3)*

AREA SHOP RESPONSIBILITY: *North*

\* *Replacement Cost assigned June 1999 by The Office of University Resource Planning & Institutional Analysis.*

\*\* *The Office of University Resource Planning & Institutional Analysis C-1 Report Condition Code.*

## BUILDING SYSTEMS INFORMATION

### DULLES HALL #337

#### HEATING:

Source – *Power plant*

Type Heating System – *Hot water*

Main Steam Feed (Line size, valve location) – *none*

Building Htg. Water (line size, valve location) – *5” , in room 015M*

**VENTILATION SYSTEM:** *Four Multizone Systems*

#### COOLING:

BLDG. % 80, Chiller: *two Trane at 200 tons each, one Carrier at 300 tons and one McQuay at 100 tons.*

Window Units: *none*, Thru-the-wall: *none*, Direct expansion units: *none*

**HVAC CONTROL SYSTEM:** *Electric and pneumatic controls*

#### ELECTRIC:

Source    Size (KVA)    Primary/Secondary Switchgear & Main Disc. (Rm.)  
*PGS3/PGN9    1000    13,200/480/277    ROOM 015M*

#### PLUMBING SERVICES:

Water (size, valve location) – *3” room 003*

Gas (size, valve location) – *none*

Domestic Hot Water (size, valve location) – *2 1/2” DHWS*

Compressed Air (size, location) – *1” in room 015M*

#### SEWERS:

Storm - *1@5, 2@3”, Sanitary – 1@8”, Combined Storm/San– none*

#### METERS:

Gas (size, location) – *N/A*

Water (size, location) – *3”, room 003*

Electric (location) – *room 015M*

#### ALARM SYSTEMS:

Fire Alarm, Main Panel Room *015M*, Remote Panel Location Room *108*

Fire Pump @    GPM,  Riser    , Pump Location, Room

Sprinkler, Valve Location Room *150* ,  100%,  Partial,  Limited

Horns/Strobes,  Bells in  Halls,  Rooms

Other Alarms –

**ELEVATORS:**

Number–*Two*, Type (passenger, freight)- *Passenger*  
Manufacturer – *Otis*, Size– *3,000#, 64”x80”*

**EMERGENCY GENERATOR:**

Size- *none*

**ASBESTOS SURVEY (1986):** *No asbestos containing materials were identified in the building.*

## **DULLES HALL NARRATIVE**

### **HISTORY**

Dulles Hall was constructed in 1974 and is occupied by The Department of History and The Melton Center for Jewish Studies. The three story building with basement was built as part of the University Hall complex. There is a pedestrian tunnel under 17<sup>th</sup> avenue that connects the two buildings. There are four classrooms in the basement of the building.

The building is functioning as designed and has held up well over the 24 years since built. A new roof was installed in 1996 and a 300 ton chiller and a cooling tower was added in 1997 to give adequate cooling capacity for Dulles Hall as well as University Hall, Bricker Hall and Derby Hall. The major projects recommended for the building are an elevator modernization project to upgrade both elevators to meet today's ADA standards, to replace two Trane chillers and to replace a 25 year old air handling unit.

A review of the work orders indicated that there are a normal number of emergency and maintenance calls to the building. The most frequent calls relate to lock problems. However, this did not seem to present a serious concern with the building occupants.

In an interview with the building coordinator, it was learned that the occupants are basically satisfied with the overall condition and performance of the building systems. There was one problem with a faucet in the men's room that ran continuously. This problem was reported to the North Shop. It was also noted that the occupants were given keys so they could open the windows if they felt the need for fresh air.

Occupancy of the building, reported by The Office of University Resource Planning & Institutional Analysis in the C-1 Building Space Assignment Report dated September 1997 for a Net Assignable Area of 27,632 SF, is as follows; Administrative and Staff offices 66%, Classrooms 10%, Mechanical 17%, Custodial/Toilet 7%.

### **PRIMARY SYSTEMS**

The structural components consist of reinforced concrete perimeter and interior spread footers and poured in place concrete basement walls. There are steel columns and I-beam joists that support concrete floors on metal decks. These form the basic skeletal components of this three-story building with basement.

There are no major signs of settlement or movement in the building foundation or structural columns and supports.

A brick veneer was installed on concrete block to form the exterior walls. A band of aluminum below the brick parapet wall and a band of glazed bricks at the base of the building complete the architectural elements that accent this building. Openings in the brick for windows and entrance doors are accented with corbelled brick that form the head, jambs and window sills. The exterior brick is in good condition; however, the glazed bricks at the base need to be cleaned.

The windows are all single glazed, awning type, aluminum windows. The windows are in good condition.

The two main entry doors are aluminum with glass and are in good condition. There is a single steel door and one set of double steel doors at the dock. These doors are also in satisfactory condition.

The original built-up roof was replaced in 1996 with an E.P.D.M. roof and is in good condition. The flashing and metal parapet cap are also in good condition.

## **INTERIOR SYSTEMS**

The concrete floors and steel columns of the building are enclosed with concrete blocks or metal studs with drywall. There is an aluminum store front glass wall to the offices off the main lobby area. There are glazed tiles in the restrooms. The walls are in good condition throughout the building.

The building has mainly wood doors in metal frames. Steel fire doors in steel frames are used at mechanical rooms and stairwells. The door to room 306 is an aluminum glass door and there is limited glazing in most of the doors. All the doors are in good condition.

The wall finishes are mainly paint with wallpaper in the main lobby at the elevators. The restrooms have ceramic tiles on the walls. The wall finishes are in good condition.

The floors in this building are predominantly vinyl tiles. There is carpeting in some offices and in the faculty lounge on the second floor. The mechanical room has concrete floors with a clear sealant. The floors are in good condition except for the cracks in the tiles at the elevator lobbies on the first, second and third floors.

The ceilings in the building consists of a suspended aluminum, 2x4 grid, with mineral fiber board tiles. There were a few stained tiles in the east stairwell at the third floor level that need to be replaced. Even the restrooms have suspended ceiling tiles. Other than the stairwell, the ceilings are in good condition.

## **SERVICE SYSTEMS**

The major service systems, domestic cold and hot water, compressed air, sanitary and storm drainage all appeared to be in good condition and functioning well at this time. The plumbing drainage system did not appear to have any problems. There was one faucet in the men's room on the first floor that would not completely shut off. The rest of the restroom fixtures are in good condition. The domestic cold and hot water piping appears to be in good condition. The domestic hot water is supplied by the power plant.

The two passenger elevators are 24 years old and are in fair condition. The elevators do not meet present ADA standards and need to be upgraded. There is a \$200,000 unfunded project identified to modernize these passenger elevators.

A 5" heating hot water line from the power plant supplies the hot water for the heating coils of the multizone system, unit heaters in the mechanical rooms, stairwells and at the entrances. There were no complaints noted about the heating system.

Cooling is provided by the multizone system. Chilled water is supplied by chillers located in the basement of the building. These chillers supply cooling capacity for Dulles Hall, University Hall, Bricker Hall and Derby Hall. A new, 300 ton chiller was installed in 1997. A 100 ton, McQuay chiller was installed in 1993. There are two, 200 ton Trane chillers that are 24 years old and should be scheduled for replacement in the next five to ten years. These chillers have R-11 refrigerant. When this project is accomplished, the cooling towers associated with these chillers should also be replaced. The heating and cooling system has pneumatic, electric and an upgraded DDC control system. There were no problems noted with the cooling system

Exhaust fans located on the roof remove air from restrooms and common areas.

## **ELECTRIC**

Circuits number PGS3/PGN9 feed the 1000 KVA, 470/277 volt transformer located in room 015M which supplies the electrical service to Dulles Hall. Switchgear located in room 015M feeds the lighting and power distribution panels throughout the building. Panel sizes vary throughout the building depending on the load. At about 24 watts per square foot the building has more than an adequate power supply.

The building has 32-watt fluorescent tube throughout most of the building, with recessed incandescent light fixtures in the main lobby area. There are an adequate number of convenience outlets in the building.

## **SAFETY STANDARDS**

Dulles Hall is equipped with a manual fire alarm system consisting of pull stations at exits that provide local fire annunciation from the panel in room 015M.

There are lighted exit signs at each exit that are on an emergency circuit. There are emergency lights located throughout the building and in the stairwells.

Automatic door openers are installed at the main entrance of the building on the south side, from 17th avenue. This entrance gives access to the first floor and the elevators.

## **ASBESTOS**

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report titled "Inventory of Friable Asbestos Containing Material in Buildings of the Ohio State University (Main and Branch Campuses) and Recommendations for Corrective Action", prepared by PEI Associates and dated Sept. 1986, identifies no asbestos containing materials in the building.

## **PERIMETER**

The sidewalks around the building are in good condition. The driveways on the north and west sides are also in good condition. The caulk joint where the bricks meet the loading dock needs to be caulked. The lawn area on the east side has some foreign plants that should be removed. The ivy on the north side of the building should be removed. The shrubs on the east side should be trimmed. The storm drain at the dock should be cleaned

Entrances to the building are well lighted and area, flood and street lighting appear to be distributed properly. There are two security lights at the main entrance that need new lens covers. The building signs are in good condition.

**Maintenance Projects (Less Than \$5000) INTERIOR  
DULLES HALL #337 MARCH 31, 1998**

- 1 Replace stained ceiling tiles at the third floor of the east stairwell, a scratched tile at room 207 and broken ceiling tiles in the west basement stairwell.  
Workorder # 5064-304907-65
- 2 Refinish doors to men's and women's restrooms.  
Workorder # 5064-304907-65
  
- 1 Install backflow preventors on the domestic water feeds to the building.  
Control # 3465

**Minor Maintenance Projects (Less Than \$5000) EXTERIOR  
DULLES HALL #337 MARCH 31, 1998**

- 1 Reseal the joint at the loading dock wall.  
Work order # 01-5061-002128-20
- 2 Cover the rebar in the concrete wall leading to the mechanical room.  
Work order # 01-5061-002128-20
- 3 Trim the shrubs on the east side of the building.  
Workorder # 5063-028321-52
- 4 Remove the ivy of the north side of the building.  
Workorder # 5063-028321-52
- 5 Replace a lens cover on the security light at the main entrance.  
Workorder # 5064-304912-73
- 6 Back fill at the south wall and add gravel to prevent dirt splashing on the wall.  
Workorder # 5063-028322-52
- 7 Repair the bare spots in the lawn on the east and south sides of the building.  
Workorder # 5063-028321-52
- 8 Straighten post and chain at the east entrance.  
Workorder # 5063-028321-52
- 9 Clean air intakes on the north side of the building.  
Workorder # 5064-304914-65
- 10 Repaint the dock ceiling.  
Workorder # 5064-304907-65

**BUILDING INFORMATION**

Fac # **337**, Facility Name: **DULLES HALL**, Date: **3/31/98** Inspector: **AJR**  
 Year Constructed: **1974**, Gross Sq. Ft: **40,948**  
 Net Sq. Ft: **20,674**, Replacement Cost: **\$ 6,033,000 \***

**COMPONENT RATING**

<b>COMPONENT</b>	<b>BUILDING COMPONENT PERCENTAGE OF TOTAL COST **</b>	<b>BUILDING COMPONENT REPLACEMENT COST</b>	<b>BUILDING COMPONENT CONDITION VALUE MULTIPLIER</b>	<b>BUILDING COMPONENT CURRENT VALUE</b>
Foundation	5.95	359,182	89	318,504
Columns and Beams	13.22	797,762	89	707,415
Exterior Walls	9.53	574,691	83	475,122
Ext. Windows & Doors	2.69	162,577	77	125,737
Roofing & Flashing	2.09	126,029	98	123,100
Partitions & Doors	7.85	473,868	80	379,128
Wall Finishes	3.03	182,742	80	146,206
Floor Finishes	6.89	415,895	77	321,652
Ceilings & Finishes	8.21	495,293	73	363,243
Conveying	4.26	257,099	74	190,269
Plumbing	3.13	189,043	74	139,904
Heating	10.03	604,938	74	447,693
Cooling and Vent.	7.73	466,307	72	336,805
Elect. Serv. & Dist.	1.52	92,001	81	74,220
Lighting and Power	12.28	741,050	77	573,126
Safety Standards	1.57	94,522	67	63,019
<b>TOTALS</b>	<b>100.00</b>	<b>6,033,000</b>	<b>79</b>	<b>\$4,785,143</b>

**BUILDING RATING SUMMARY**

Overall Building Rating = **79%**

\* *Replacement Cost assigned June 1999 by The Office of University Resource Planning & Institutional Analysis without the furnishings and fixed equipment allocation.*

\*\* *Percent allocation of each building component is calculated from The Means Standard Construction Cost data for College Classroom Buildings.*

**FOUNDATIONS**

FAC #:337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING:** (\$ 259,182) x ( 89%) = \$ 318,504

Possible	Condition	Component
Value	Value Multiplier	Value

**SYSTEM DESCRIPTION**

**Sat Att**

- a. Footings:**
- [ X ] [ ] Interior Footings/Piers ..... *spread footers*
- [ ] [ ] Interior Footings/Bearing Walls .....
- [ X ] [ ] Perimeter Footings..... *spread footers*
- [ ] [ ] Grade Beams .....
- [ ] [ ] Piles .....
- [ ] [ ] Caissons.....
- b. Foundation Wall Materials:**
- [ X ] [ ] Concrete Cast-in-place .....
- [ ] [ ] Concrete Block .....
- [ ] [ ] Stone .....
- [ ] [ ] Brick .....
- [ ] [ ] Other.....
- c. Waterproofing and Underdrain:**
- [ X ] [ ] Coating .....
- [ ] [ ] Membrane.....
- [ ] [ ] Board .....
- [ X ] [ ] Drain Tile..... *4" at perimeter*
- d. Slab on Grade:**
- [ ] [ ] Plain.....
- [ ] [ ] Reinforced .....
- e. Ground/Basement Floor Slab:**
- [ ] [ ] Plain.....
- [ X ] [ ] Reinforced .....
- f. Special Substructures:**
- [ ] [ ] .....

**COMMENTS:**

*The foundations are in good condition.*

## COLUMNS AND BEAMS

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING:** ( $\$ \underline{797,762}$ ) x ( $\underline{89\%}$ ) =  $\$ \underline{707,415}$

Possible	Condition	Component
Value	Value Multiplier	Value

**SYSTEM DESCRIPTION**

Sat     Att

**a. Columns and Beams:**

- Reinforced Concrete .....
- Precast Concrete.....
- Steel .....
- Fireproofing .....
- Wood.....
- Other .....

**b. Floor Joists:**

- Concrete .....
- Steel Trusses .....
- Wood .....
- Other .....

**d. Floor Decks:**

- Concrete Slab.....
- Precast Slab.....
- Metal Deck w/concrete fill.....
- Wood .....

**e. Roof Joists:**

- Concrete .....
- Steel .....
- Wood .....

**f. Pitched Roof System:**

- Pitch [ ]3/12, [ ]4.5/12, [ ]10/12.....
- Dormers .....
- Steel Purlins .....
- Wood Rafters .....
- Fireproofing .....
- Underlayment.....
- Insulation.....
- Ventilation .....
- Other .....

**g. Flat Roof System:**

- Slope .....0.25"/foot
- Concrete Deck.....
- Precast Slab.....

- Metal Deck w/concrete fill .....
- Metal Deck w/insulation.....
- Wood Deck.....
- Insulation .....
- Other.....

**COMMENTS:**

*There were no problems noted with the columns and beams. Minor settlement in the concrete floors were noted at the elevator lobbies on the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> floors.*

## EXTERIOR WALLS

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING:** (\$ 574,691) x ( 83%) = \$ 475,122

Possible Value	x	Condition Value Multiplier	=	\$	Component Value
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**SYSTEM DESCRIPTION**

**Sat Att**

**a. Walls:**

- Concrete [X]CIP [ ]PRECAST.....*the basement walls*
- Concrete Block/brick.....
- Brick [ ]MASONRY [X]VENEER .....
- Veneer.....
- Window/Curtainwall .....
- Metal Siding..... *the penthouse*
- Other.....

**b. Wall Lintels Over Openings:**

- Concrete [ ]PRECAST [ ]CIP .....
- Limestone .....
- Brick Masonry .....
- Steel .....
- Wood .....
- Other.....

**c. Wall Trim:**

- Limestone .....
- Brick..... *soldier courses and rowlocks*
- Marble.....
- Wood .....
- Other..... *glazed brick at the base*

**d. Finishes:**

- Plain.....
- Stucco .....
- Paint.....
- Parging.....
- Exposed Aggregate .....
- Drivit .....
- Other.....

**e. Exterior Wall Backing System:**

- Concrete.....
- Concrete Block .....
- Brick Masonry .....
- Ceramic Glazed Clay Tiles.....
- Metal Studs.....

[ ] [ ] Wood Studs .....

**COMMENTS:**

*The exterior walls are in good condition and have decorative, corbel brick work around the windows and the entrances. The glazed brick at the base of the building need to be cleaned.*

## EXTERIOR WINDOWS AND DOORS

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING:** (\$ 162,577) x (77%) = \$ 125,737  
Possible Condition Component  
Value Value Multiplier Value

### SYSTEM DESCRIPTION

Sat Att

**a. Window materials:**

- Wood .....
- Steel .....
- Alum.....
- PVC .....
- Other .....

**b. Windows type & number:**

- Double Hung .....
- Awning ..... 81
- Casement .....
- Pivoted.....
- Sliding .....
- Fixed.....
- Other.....

**c. Window glazing:**

- Single pane .....
- Double pane.....

**d. Window Wall and/or Store Front:**

- Store Front.....
- Vestibule..... *at main entrance*
- Single pane .....
- Double pane.....
- Other.....

**e. Door Materials:**

- Wood .....
- Steel ..... *at the dock and to mechanical room*
- Alum..... *entrances on east and south side*

**f. Doors type & number:**

- Vestibule Double ..... 4
- Double *.one to the dock and one to the mechanical room*
- Exit ..... *one single at the dock*
- Stair Exit..... *on the east side*
- Garage.....
- Special .....

**g. Hardware:**

- Automatic opener ..... *at the main entrance*
- Push Bar Openers wt Closures .....
- Key Cards .....

**COMMENTS:**

*The single glazed, awning type windows are in good condition. The exterior doors are also in good condition.*

# ROOFING

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>126,029</u>) x ( <u>98%</u>) = \$ <u>123,100</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Roof Covering:**

- [ ] [ ] Built-up [ ]asphalt [ ]Coal Tar [ ]Modified .....
- [ ] [ ] Built-up w/gravel [ ]asphalt [ ]Coal Tar .....
- [ ] [ ] Asphalt Roll.....
- [ ] [ ] Asphalt Shingle .....
- [ ] [ ] Copper .....
- [X] [ ] EPDM.....9,960 SF
- [ ] [ ] Other .....

**b. Flashing:**

- [X] [ ] Materials: [ ]Cu [ ]Galv [X]Al [X]EPDM [ ]SS [ ]PVC..
- [X] [ ] Base & Counter .....715 LF
- [ ] [ ] Cap.....
- [ ] [ ] Reglet.....
- [ ] [ ] Valley & Ridge.....

**c. Gravel Stop & Edge Strips:**

- [X] [ ] Type [ ]SS [ ]Galv [X]Al [ ]Cu [ ]PVC .....203 LF

**d. Drainage:**

- [X] [ ] Gutters w/ Exterior Downspouts .....42 LF
- [X] [ ] Scuppers w/o Exterior Downspouts ..... one
- [X] [ ] Drains w/ Interior Storm Drains .....
- [X] [ ] Emergency Overflow.....at scupper

**e. Parapets:**

- [ ] [ ] Concrete.....
- [X] [ ] Brick .....
- [ ] [ ] Precast .....
- [ ] [ ] Other.....

**f. Parapet Caps:**

- [X] [ ] Metal [ ]SS [ ]Galv [X]Al [ ]Cu [ ]PVC .....
- [ ] [ ] Tile .....
- [ ] [ ] Limestone .....
- [ ] [ ] Precast .....
- [ ] [ ] Other .....

**h. Roof accessories:**

- [ ] Lightning Protection .....
- [ ] Roof Curbs .....
- [ ] Equipment Frames.....
- [ ] Pitch Pockets .....
- [ ] Other .....

**COMMENTS:**

*The roof was replaced in 1996 and is in very good condition.*

## PARTITIONS AND DOORS

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>473,868</u>) x ( <u>80%</u>) = \$ <u>379,128</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
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**SYSTEM DESCRIPTION**

**Sat     Att**

**a. Partition Framing:**

- Concrete Block ..... *stairwells and basement walls*
- Clay Tile Block.....
- Glazed Clay Tile Block .....
- Masonry.....
- Wood Stud.....
- Metal Stud .....
- Other.....

**b. Special partitions and Walls:**

- Demountable.....
- Toilet .....
- Screen Walls.....
- Glass .....
- Gate.....
- Other.....

**c. Wall Material:**

- Plaster .....
- Drywall.....
- Glass .....
- Wood Paneling .....
- Composite Paneling.....
- Steel Panels.....
- Tile/Glazed ..... *in restrooms*
- Other.....

**d. Interior Doors & Frames:**

- Met Door/Met Frame.....
- Wood Door/Wood Frame.....
- Wood Door/Metal Frame .....
- Glazing .....
- Roll-up.....
- Sliding .....
- Other..... *glass door to offices at the lobby*

**e. Hardware:**

- [ ] Door Knobs Levers .....
- [ ] Door Closures.....
- [ ] Kick/Push Plates.....
- [ ] Security & Detection .....
- [ ] Automatic Openers.....
- [ ] Fire Door Magnets.....
- [ ] Other.....

**COMMENTS :**

*The partitions and doors are all in good condition.*

## WALL FINISHES

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING:** (\$ 182,742) x (80%) = \$ 146,206

Possible	Condition	Component
Value	Value Multiplier	Value

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Wall Finishes:**

- [ X ] [ ] Paint .....
- [ X ] [ ] Vinyl Wall Coverings ..... *in lobby areas on each floor*
- [ ] [ ] Prefinished Paneling .....
- [ ] [ ] Cork .....
- [ ] [ ] Wallpaper.....
- [ X ] [ ] Ceramic Glazed Tile ..... *in restrooms*
- [ ] [ ] Marble.....
- [ ] [ ] Stone .....
- [ ] [ ] Trim & Wainscot .....
- [ ] [ ] Decoration.....
- [ ] [ ] Glass.....
- [ ] [ ] Other .....

**COMMENTS:**

*Wall finishes are in fair condition.*

## FLOOR FINISHES

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>415,895</u>) (<u>77%</u>) = \$ <u>321,652</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat    Att**

- a. Carpet:**
- [ X ]    [   ]    Rolled ..... *in some offices*
- [   ]    [   ]    Tile.....
- b. Concrete Topping:**
- [ X ]    [   ]    Clear Sealant.....*on equipment room floors*
- [   ]    [   ]    Antislip .....
- [ X ]    [   ]    Epoxy.....*penthouse*
- c. Resilient:**
- [   ]    [ X ]    Vinyl Composition Tile.....
- [   ]    [ X ]    Vinyl/Plastic Tile.....
- [   ]    [   ]    Asphalt Asbestos Tile.....
- [   ]    [   ]    Linoleum Tile .....
- [   ]    [   ]    Vinyl Roll .....
- [   ]    [   ]    Rubber .....
- [ X ]    [   ]    **d. Ceramic Tile** [X]Mosaic [   ]Quarry [   ]Pavers .....
- [   ]    [   ]    **f. Masonry** [   ]Marble [   ]Granite [   ]Slate [   ]Brick.....
- [   ]    [   ]    **g. Terrazzo** [   ]Marble [   ]Granite .....
- [   ]    [   ]    **h. Wood** [   ]Tiles [   ]T&G Hardwood [   ]Planking .....
- [   ]    [   ]    **i. Pedestal** [   ]Vinyl Tiles [   ]Grills [   ]Supply Air [   ]Vent....
- j. Base Molding:**
- [ X ]    [   ]    Vinyl.....
- [   ]    [   ]    Wood .....
- [   ]    [   ]    Terrazzo.....
- [ X ]    [   ]    Ceramic Tile ..... *restrooms*
- [   ]    [   ]    Masonry .....

**COMMENTS:**

*The tiles and carpeting are in good condition except for the tiles in the lobby areas on the first, second and third floors.*

## CEILINGS AND FINISHES

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING:** (\$ 495,296) x ( 73%) = \$ 363,243

Possible Value	Condition Value Multiplier	Component Value
-------------------	-------------------------------	--------------------

### SYSTEM DESCRIPTION

Sat    Att

**a. System Type:**

- Exposed ..... *in equipment room*
- Applied to Structure .....
- Suspended Stud .....
- Suspended Steel Grid .....
- Suspended Aluminum Grid .....
- Suspended Sealed Grid.....
- Suspended Concealed Spline.....

**b. Materials:**

- Drywall .....
- Plaster .....
- Mineral Fiber Board ..... *throughout*
- Fiberglas Board.....
- Cementitious Fiber Board.....
- Metal Pan Tile .....
- Other .....

**c. Finishes:**

- Paint.....
- Prefinished [X]Paint [ ]vinyl [ ]Fabric
- Other .....

**d. Openings & Inserts:**

- Air Distribution .....
- Lighting Fixtures .....
- Access Panels .....
- Sprinklers.....
- Smoke Detectors.....
- Speakers.....
- Skylights .....
- Other .....

### COMMENTS:

*Most areas have 2 X 4 ceiling tiles with the exception of the main lobby area where there are 2 X 2 tiles. There are a few stained and broken tiles in the east and west stairwells.*

CONVEYING

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ 257,099) x (74%) = \$ 190,269</b>		
Possible Value	Condition Value Multiplier	Component Value

SYSTEM DESCRIPTION

Sat Att

a. Elevators:

- Number.....two Otis
- Type.....Passenger
- Speed .....100 FPM
- Capacity (lbs.).....3,000 Lbs.
- Dimensions.....64"x80"
- Door Operation:.....
- Center .....
- To Side .....

b. Elevators:

- Number.....
- Type.....
- Speed .....
- Capacity (lbs.).....
- Dimensions .....
- Door Operation:.....
- Center .....
- To Side .....

c. Lifts and Hoists:

- Number.....
- Type.....

d. Moving Stairs and Walks:

- Number.....
- Type.....

e. Conveyors:

- Number.....
- Type.....

COMMENTS:

The elevators are 24 years old and should be up-dated to meet current standards and code requirements

## MECHANICAL/PLUMBING

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

**COMPONENT RATING: (\$ 189,043) x (74%) = \$ 139,904**

Possible	Condition	Component
Value	Value Multiplier	Value

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Services Available:**

- [ ] Cold Water .....3" DWS
- [ ]  Backflow Valve .....
- [ ] Hot Water .....2-1/2"
- [ ] [ ] Natural Gas.....
- [ ] [ ] Compressed Air.....
- [ ] [ ] Other.....

**b. Piping & Fittings:**

- [ ] Cast Iron .....
- [ ] [ ] Vitrified Clay .....
- [ ] Copper Pipe .....
- [ ] Copper Tubing.....
- [ ] Steel .....
- [ ] [ ] Galv. Steel .....
- [ ] [ ] Other.....

**c. Water Heaters:**

- [ ] [ ] Gas.....
- [ ] [ ] Steam Converter/Tank.....
- [ ] [ ] Steam Instantaneous .....
- [ ] Central Hot Water.....

**d. Drainage:**

- [ ] Storm Drains.....3",3" & 5" to west and south
- [ ] Sanitary Drainage ..... 1@ 8"
- [ ] Floor Drains .....
- [ ] [ ] Sump Pumps .....

**e. Fixtures: Number**

- [ ] Water Closets ..... 13
- [ ] Urinals ..... 6
- [ ] Lavatory Sinks ..... 11
- [ ] Kitchen Sinks ..... 6
- [ ] Service Sinks ..... 4
- [ ] [ ] Showers .....
- [ ] Electric Water Coolers ..... 4

- f. Sprinkler Systems:**
- Wet .....*in room 150*
- Dry.....
- Carbon Dioxide .....
- Halon .....
- g. Standpipe Systems:**
- []Wet []Dry .....
- Fire Hose Valves []2.5" []1.25" .....
- Hose Cabinets, Hoses []Installed []Removed .....

**COMMENTS:**

*A back flow valve needs to be installed in the domestic water line. Overall the plumbing system is in good condition.*

## MECHANICAL/HEATING

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>604,938</u>) x ( <u>74%</u>) = \$ <u>447,693</u></b>						
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Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Heat Source:**

- Central Plant Steam .....
- Central Plant Hot Water ..... *5" in room 015M*

**b. System Type:**

- Steam .....
- Hot Water .....
- Warm Air.....

**c. Air Handling Units:**

- Multizone Preheat Heating Reheat.....
- Dual Duct Preheat Heating Reheat.....
- Make-up Air Preheat Heating Reheat.....
- Variable Volume Air Preheat Heating Reheat .....
- Constant Volume Air Preheat Heating Reheat.....
- Other.....

**d. Air Filters:**

- PrefilterMulti DDAHU MUAHU VAVAHU CAV
- BagfilterMulti DDAHU MUAHU VAVAHU CAV
- Other.....

**e. Space Equipment:**

- Radiators.....
- Convectors.....
- Unit Heaters.....*at entrances and in stairwells*
- Reheat Coils .....
- DD Boxes .....
- CAV Boxes.....
- 2-Pipe Fan Coil.....
- Other.....

**f. Control Type:**

- Pneu Electric DDC DDC Upgrade.....

**COMMENTS:**

*There were no complaints noted regarding the heating system and the system is functioning as designed.*

## COOLING/VENTILATING

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>466,307</u>) x (<u>72%</u>) = \$ <u>336,805</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

### SYSTEM DESCRIPTION

Sat	Att	
		<b>a. System/Capacity:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water .....800 ton total
<input type="checkbox"/>	<input type="checkbox"/>	DX .....
		<b>b. Chillers Capacity/Year/Refrigerant/Manufacturer:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Centrifugal .....2at 200 tons/ 1974/R-11/Trane
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reciprocating.....100 tons/1993/R-22/McQuay
<input type="checkbox"/>	<input type="checkbox"/>	Absorption .....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Screw ..... 300 tons/1997/R-22/Carrier
		<b>c. Condenser Side:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Type/Capacity <input checked="" type="checkbox"/> CW <input checked="" type="checkbox"/> DX .....
		<b>d. Air Handling Units:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Multizone <input checked="" type="checkbox"/> CW <input type="checkbox"/> DX <input type="checkbox"/> HUMD .....
<input type="checkbox"/>	<input type="checkbox"/>	Dual Duct <input type="checkbox"/> CW <input type="checkbox"/> DX <input type="checkbox"/> HUMD .....
<input type="checkbox"/>	<input type="checkbox"/>	Make-up Air <input type="checkbox"/> CW <input type="checkbox"/> DX <input type="checkbox"/> HUMD.....
<input type="checkbox"/>	<input type="checkbox"/>	Variable Volume <input type="checkbox"/> CW <input type="checkbox"/> DX <input type="checkbox"/> HUMD.....
<input type="checkbox"/>	<input type="checkbox"/>	Constant Volume <input type="checkbox"/> CW <input type="checkbox"/> DX <input type="checkbox"/> HUMD .....
<input type="checkbox"/>	<input type="checkbox"/>	Other.....
		<b>e. Additional Air Filters:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Postfilter <input type="checkbox"/> Multi <input type="checkbox"/> DDAHU <input type="checkbox"/> MUAHU <input type="checkbox"/> VAVAHU <input type="checkbox"/> CAV
<input type="checkbox"/>	<input type="checkbox"/>	Other <input type="checkbox"/> HEPA <input type="checkbox"/> BAG <input type="checkbox"/> CARTRIDGE <input type="checkbox"/> CHARCOAL
		<b>f. Direct Expansion: Number</b>
<input type="checkbox"/>	<input type="checkbox"/>	Window units .....
<input type="checkbox"/>	<input type="checkbox"/>	Thru-the-wall.....
<input type="checkbox"/>	<input type="checkbox"/>	Single zone .....
<input type="checkbox"/>	<input type="checkbox"/>	Other .....
		<b>g. Distribution Boxes:</b>
<input type="checkbox"/>	<input type="checkbox"/>	VAV <input type="checkbox"/> FC <input type="checkbox"/> REHEAT .....
<input type="checkbox"/>	<input type="checkbox"/>	CAV <input type="checkbox"/> FC <input type="checkbox"/> REHEAT.....
<input type="checkbox"/>	<input type="checkbox"/>	DUAL DUCT <input type="checkbox"/> FC <input type="checkbox"/> REHEAT .....
		<b>h. Special Systems:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Type.....
<input type="checkbox"/>	<input type="checkbox"/>	Capacity.....
		<b>i. Control Systems:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Pneu <input checked="" type="checkbox"/> Electric <input type="checkbox"/> DDC <input checked="" type="checkbox"/> DDC Upgrade.....

**j. Fans:**

- [ ] Exhaust equipment ..... *.8 Exhaust Fans*
- [ ] Recirculating.....

**COMMENTS:**

*The chillers in Dulles Hall supply cooling capacity for Dulles, University, Bricker and Derby Halls. The original two Trane R-11 units are getting close to the end of their life cycle and need to be replaced in the next five to ten years.*

## ELECTRICAL SERVICE AND DISTRIBUTION

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING:</b> (\$ <u>92,001</u> ) x ( <u>81%</u> ) = \$ <u>74,220</u>		
Possible Value	Condition Value Multiplier	Component Value

### SYSTEM DESCRIPTION

#### a. Service:

Substation:  Buckeye,  McCracken Power Plant  AEP

Primary Voltage:  13,200 Volts,  Volts

Switch Gear Circuit No.: *PGS3/PGN9*

Transformer:

Manufacture	Type	KVA	Secondary/Voltages	Location
<i>NIAGARA</i>	<i>DRY</i>	<i>1000</i>	<i>480/277</i>	<i>ROOM 015M</i>

#### b. Distribution System:

##### 1. Motor Control Center (MCC) Room *015M and Penthouse*

Panelboard  Fused,  Circuit Breakers

Voltage  480/3,  277/3,  208/3,  240/1

Amperage  1200A,  800A,  600A,  400A,  200A

##### 2. Lighting Room *015M*

Panelboard  Fused,  Circuit Breakers

Voltage  480/3,  277/3,  208/3,  240/1

Amperage  800A,  400A,  250A,  200A,  150A,  100A

##### 3. Building Power Room *015M*

Panelboard  Fused,  Circuit Breakers

Voltage  480/3,  277/3,  208/3,  240/1

Amperage  800A,  400A,  250A,  200A,  150A,  100A

#### c. Conduit and wire:

Conduit  Steel,  Aluminum,  PVC,  Flexible

Conductor  Copper,  Aluminum,  MIT

Wire:  PVC Cover,  Romex,  Armored Cable(BX)

#### d. Emergency System:

Battery backup Room *015M*

Emergency Panel Room *015M*

UPS Room

#### e. Emergency Generator: *none*

### COMMENTS:

*The electrical distribution system is 24 years old and is in good condition. The transformer is more than adequate for the building load.*

## ELECTRICAL LIGHTING AND POWER

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>741,050</u>) x (<u>77%</u>) = \$ <u>573,126</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat     Att**

**a. Lighting (lamp type):**

- Fluor 40 watt.....
- Fluor 32 watt..... *in most of the building*
- Fluor Can .....
- Incandescent ..... *in entrance areas*
- HID  Mercury  HPS  Metal Halide .....
- Low Voltage (12V).....
- Other .....

**b. Lighting Levels**

- Halls.....
- Rooms.....
- Mechanical Rooms .....

**c. Fixture Condition**

- Fixtures .....
- Bulbs.....
- Fixture Lens..... *security lights at main entrance*

**d. Receptacles & Switches:**

- Wall Outlet 20A .....
- GFIC Breakers .....
- Switches.....
- Cover Plates.....

**c. Special:**

- Lightning Protection .....
- Communication  Clock  Public Address  Bells ....
- Alarm  Fire  Security .....
- Telecommunication  Phones  Data  Cable TV ....
- Data Systems .....
- Fiber Optics .....

**COMMENTS:**

*The building has 32 watt fixtures throughout with incandescent lighting at the east and south entrances. There is one security light at the south entrance that requires a lens cover and a new bulb. There is one security light at the east entrance that requires a new bulb.*

**SAFETY STANDARDS**

FAC #: 337

DATE: 3/31/98

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>94,522</u>) x ( <u>67%</u>) = \$ <u>63,019</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Exits:**

Stair Construction:

- [ ] [ ] concrete .....
- [X] [ ] steel ..... *rubber treads with concrete fill*
- [ ] [ ] wood.....
- [X] [ ] Number of Exit Stairs..... *two*
- [X] [ ] Number of Other Exits ..... *three*

**b. Fire Rating:**

- [X] [ ] Construction Type: I\_ II\_ III X IV\_ V\_ VI\_\_\_.....
- Building Height: *34 ft, 3 stories* .....

**c. Extinguishing Systems:**

- [X] [ ] Portable.....
- [ ] [ ] Standpipe .....
- [ ] [ ] Hose Cabinets.....
- [ ] [ ] Hoses .....
- [X] [ ] Sprinklers..... *limited to trash room*
- [ ] [ ] Gas Suppression .....
- [ ] [ ] Other .....

**d. Detection & Alarm Systems:**

- [X] [ ] Pull Stations.....
- [X] [ ] Bells.....
- [ ] [ ] Horns .....
- [ ] [ ] Strobes .....
- [X] [ ] Annunciator Panel ..... *in main lobby and in room 015M*
- [X] [ ] Smoke Detectors.....
- [ ] [ ] Halls .....
- [ ] [ ] Elevators.....
- [ ] [ ] Rooms .....
- [ ] [ ] Equip Rooms.....
- [X] [ ] Ducts .....

**e. Lighting Systems:**

- [X] [ ] Exit Signs [ ]BATTERY [X]EMC .....
- [X] [ ] Exit Lighting [ ]BATTERY [X]EMC .....
- [X] [ ] Emergency Lighting [ ]BATTERY [X]EMC .....
- [ ] [ ] Emergency Generator .....

**f. Lightning Protection**

**COMMENTS:**

*Exit and emergency lighting has been installed in halls, stairs and at exits.*



The Ohio State University  
Department of Physical Facilities  
**BUILDING AUDIT METHODOLOGY**

**1. BUILDING AUDIT PROGRAM OBJECTIVE**

To provide a building-by-building inventory, including maintenance deficiencies that currently exist, for the 172 OSU buildings that the Department of Physical Facilities is budgetary responsible. These audits will be used to establish repair and renovation projects, budget cost estimates for these projects, and overall levels of required maintenance funding.

**2. BUILDING AUDIT APPROACH**

A five step procedure is used to meet the program objectives:

1. Collect Historical and Inventory Data on each building.
2. Interview Building Occupants.
3. Perform a Building Inspection.
4. Complete Building Evaluation Forms.
5. Issue Written Report.

**3. DATA ORGANIZATION**

The data collected is stored by hard copy with field notes in a building file established for each building. The report data is being stored in a database program that allows retrieval of specific data as it is needed. The "Building Evaluation" forms contain ratings for the condition of each building component and a description of any deficiencies for those components. The "Building Information" sheets provide data on the utilities to the buildings and the type of systems in each building.

**4. COST ESTIMATES**

Costs are for budgeting purposes only and are based on The Means Standard Construction Cost data, auditor experience, industry sources and OSU project cost data. Costs are reported current to the year of the audit. The building component values assigned in the "Building Evaluation" forms are not cost estimates. These values are calculated from the replacement cost provided by The Office of Campus Planning and space Utilization for each OSU building. This building replacement cost is allocated to each building component to provide an estimated value for each component. Project cost estimates will exceed the building component values in most situations because of tear-out, handling and site limitations that occur in building component replacement projects.

**5. DATA USAGE**

Repair and Renovation Projects: provided to assist in the budgeting process for the Department of Physical Facilities. Building Evaluation: provided to give a numerical rating for each building on campus quantifying its percentage of deficiency.

## 6. LIMITATIONS

(1) All inspections are visual and do not include physical tests, instrumentation or metering measurements, sampling, or monitoring.

(2) Only random typical offices or laboratories are entered. Typical spaces are deemed to be representative of average conditions throughout each building.

(3) The scope of the analysis does not include complete OSHA, energy, or physical impaired access study. Buildings and components are inspected for condition and general safety requirements rather than specialized code conformance.

(4) It is assumed that the State of Ohio Division of Factory and Building Inspection at the time of construction approved the buildings inspected. The recommendations listed in the reports are not an attempt to bring these existing buildings up to present day code standards. Rather, the intent is to eliminate obvious problems and to upgrade the buildings in a reasonable manner in regard to occupant safety.

(5) Cost estimates are in current year dollars and include contractor mark-ups, construction administration costs, and architectural/engineering costs where applicable. Escalation factors must be applied for future work. Combining of projects should serve to decrease costs. These estimates are strictly for purposes of budgeting, and final pricing will be required when the specific scope of work for the project is defined.

(6) The building inspections are defined to include the following:

(a) Includes general repainting and redecorating, wholesale replacement of building and system components on-going maintenance, replacement and renovation projects are not included.

(b) Includes exterior building walls and attached items.

(c) Includes the first step up at all entries. Ramps outside the buildings are included; the steps and walks up to the ramps are not included.

(d) Blinds, drapes, light bulbs, and movable furniture are not included.

(e) Fixed equipment inside the buildings that is installed and maintained by a specific academic department or using agency is not included.

(f) Utility lines supplying the buildings are not included.

(g) The program needs of the using department are assumed to be satisfied. No consideration has been given to anticipate any changes in current occupant space needs.

## ABBREVIATIONS

A/C .....	AIR CONDITIONING
AHU .....	AIR HANDLING UNIT
ATT .....	ATTENTION
BLDG .....	BUILDING
BUR.....	BUILT UP ROOF
COND.....	CONDENSATE WATER
CAV .....	CONSTANT AIR VOLUME
DDAHU .....	DUAL DUCT AIR HANDLING UNIT
DDHV .....	DUAL DUCT HIGH VELOCITY
DHWH .....	DOMESTIC HOT WATER HEATER
DHWR.....	DOMESTIC HOT WATER RETURN
DHWS .....	DOMESTIC HOT WATER SUPPLY
DHWT.....	DOMESTIC HOT WATER TANK
DX .....	DIRECT EXPANSION AIR CONDITIONER
EWC .....	ELECTRIC WATER COOLER
FPM.....	FEET PER MINUTE
GPM .....	GALLONS PER MINUTE
HID .....	HIGH INTENSITY DISCHARGE LIGHT
HPS .....	HIGH PRESSURE STEAM (125 PSI)
HVAC.....	HEATING, VENTILATING AND AIR CONDITIONING
KV .....	KILOVOLTS
KVA .....	KILOVOLTS AMPS
KW .....	KILOWATTS
LC .....	LIQUID COOLED
LF .....	LINEAL FEET
LPS .....	LOW PRESSURE STEAM (15 PSI)
MBH.....	THOUSAND BTU PER HOUR
MCC .....	MOTOR CONTROL PANEL
MPS.....	MEDIUM PRESSURE STEAM (50 PSI)
MZCV .....	MULTIZONE CONSTANT VOLUME AIR HANDLING
N/A .....	NOT APPLICABLE
PSI.....	POUNDS PER SQUARE INCH
RM.....	ROOM
RTU.....	ROOF TOP UNIT (HEATING OR A/C)
SAT .....	SATISFACTORY
SF .....	SQUARE FEET
S/P .....	STAND PIPE
SR.....	STEAM RETURN LINE
SS .....	STEAM SUPPLY LINE
SY.....	SQUARE YARDS
TR.....	TERMINAL REHEAT
V .....	VOLTS
VAV .....	VARIABLE AIR VOLUME

**APPENDIX**  
Reduced Scale Building Floor Plans  
C-1 Building Space Assignments