

# **FACILITY AUDIT REPORT**

## **HOPKINS HALL**

**#149**

**JUNE 1998**



**HOPKINS HALL**

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Department of Physical Facilities  
Division of Resource Management

**HOPKINS HALL**  
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## EXECUTIVE SUMMARY FOR HOPKINS HALL

Hopkins Hall houses The Department of Art, The Department of Art Education and The Department of Industrial, Interior, and Visual Communication Design. Hopkins Hall was constructed in 1958 and occupied in 1959 as a Fine Arts Building with a gross area of 51,156 SF. The 4-story building with basement was originally built for offices, classrooms and studio labs. In 1961 a building addition of 55,700 SF was added on the south side and occupied in 1962 to house additional studio labs and offices. The addition was added within a few years of the original building being completed. At the time of the audit the second and third floors of the 1962 addition of Hopkins Hall were being remodeled a floor at a time. The remodel is limited to wall, floor, ceiling and electrical lighting upgrades. No HVAC or plumbing upgrades are being made at this time to meet existing room requirements.

There was no central cooling system installed in the 1959 building. Individual offices, classrooms or laboratories use window or split system air conditioning units. Over the years, renovations to several of the studio labs have taken place to meet the changing needs of the department. The number of work labs with special exhaust systems creates unique HVAC and environmental requirements. In some cases HVAC and make-up air needs exceed the design criteria of the original systems installed. Many of the HVAC systems in the building are aging and some are well past the end of their expected life cycle, but continue to operate.

Several building components are approaching the end of their expected life and will need to be repaired or replaced over the next five to ten years. There are general maintenance projects that need to be completed within the next five years to repair normal wear items. Within the next five years the HVAC and exhaust systems and miscellaneous pumps and piping may fail and will need to be replaced.

## PROPOSED MAINTENANCE PROJECTS

### HOPKINS HALL #149

<b>A. Corrective Maintenance Projects:</b>	<b>Control No</b>	
1. <i>Cut out sealant around masonry openings and reseal.</i> .....	\$ 280,000	1706
2. <i>Replace the plumbing fixtures and drain lines in the labs.</i> ....	\$ 242,500	1580
3. <i>Replace the freight elevator in the 1959 building.</i> .....	\$ 150,000	2309
4. <i>Repair the loading dock and steps and replace the damaged louvers below the dock.</i> .....	\$ 12,000	3294
<b>Sub Total</b> .....	<b>\$ 684,500</b>	

<b>B. Building Improvement/Addition Projects:</b>		
1. <i>Install a new ADA elevator in the 1962 building.</i> .....	\$ 200,000	2922
2. <i>Replace the pneumatic controls with DDC.</i> .....	\$ 51,000	2204
3. <i>Install chiller and cooling tower in the 1959 building 200T.</i> \$	500,000	1707

4. Remove the fire doors in the 1959 building and replace with doors that meet present codes.....	\$ 50,000	3295
5. Replace the double hung windows with insulated units .	\$ 400,000	3420
6. Replace the ten heating air handling units in the original building with a new heating/cooling roof top unit, room control boxes, duct, controls. ....	\$ 680,000	3421
<b>Sub Total</b> .....	<b>\$1,881,000</b>	

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

1. Replace the four DDHV air handling units, the DDHV boxes and the ducts in the 1962 building. Size the units for present and future capacities .....	\$ 500,000	3422
<b>Sub Total</b> .....	<b>\$ 500,000</b>	

**Total Cost for all Projects** .....**\$3,065,500**

**HOPKINS HALL #149**

**RENOVATION PROJECTS IN PROGRESS OR RECENTLY COMPLETED**

<b>Projects:</b>		<b>Control No</b>
1. Replace the roof on both buildings app 22,616 SF.	\$ 200,000	315-96-932
2. Replace the pitted and worn limestone steps and landing at the front entrance..	\$ 31,000	5061-002099
3. Replace the incandescent lights with 32 watt lights.	\$ 30,000	5061-002283
4. Replace the 150 ton chiller.	\$ 555,925	315-94-527
5. Replace the spray paint booth.	\$ 55,000	5061-002528
6. Replace the ventilation system to studios.	\$ 265,022	315-91-267

## **GENERAL BUILDING INFORMATION**

### **HOPKINS HALL #149**

BUILDING ADDRESS: *128 N. Oval Mall*

GROSS SQ. FT.: *106,856*

NET ASSIGNABLE SQ. FT.: *86,750*

MECHANICAL/CUSTODIAL AREA SQ. FT.: *6,551*

YEAR OF CONSTRUCTION: *1958, 1961*

YEAR OF LAST RENOVATION: *1961*

NUMBER OF STORIES/BASEMENT: *Four Stories plus Full Basement*

AIR CONDITIONING (Percentage): *50%*

CURRENT USE: *Department of Art and Industrial Design*

TYPE OF CONSTRUCTION: *Reinforced Concrete Structure with Masonry Skin*

ESTIMATED REPLACEMENT COST: *\$ 15,439,000 \**

COST PER GROSS SQUARE FEET: *\$144.48*

WHEELCHAIR ACCESSIBILITY: *From the east on the south side of the original building over the ramp to the east door of the 1962 building.*

OVERALL BUILDING CONDITION: *Satisfactory \*\**

NUMBER OF EXIT STAIRWAYS: *Three (3)*

NUMBER OF EXITS: *Five (5)*

AREA SHOP RESPONSIBILITY: *Northeast*

\* *Replacement Cost assigned June 1996 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

### HOPKINS HALL #149

#### HEATING:

Source - *McCracken Power Plant*

Type Heating System - *Hot Water*

Main Steam Feed (Line size, valve location) -

Building Htg. Water (line size, valve location) - *8" in Room 040M*

**VENTILATION SYSTEM:** *Powered exhaust and special room exhaust systems*

#### COOLING:

BLDG. 50%, Chiller: *Centrifugal, 150 Ton, American Standard, 1962, R-113*

Window Units: 9, Thru-the-wall: *none*, Direct expansion units: *Four (4)*

**HVAC CONTROL SYSTEM:** *JC-80 Pneumatic*

#### ELECTRIC:

Source      Size (KVA)    Primary/Secondary Switchgear & Main Disc. (Rm.)

*PGN9/PGS3    750      13,200 / 208/120 VAC-PAC    063M*

#### PLUMBING SERVICES:

Water (size, valve location) - *4" room 079M, 3" room 046M*

Gas (size, valve location) - *3" room 040M*

Domestic Hot Water (size, valve location) - *2.5" DHWS, .75" DHWR room 063M & 040M*

Compressed Air (size, location) - *2.5" in room 063M, 2.5" in room 040M*

#### SEWERS:

Storm: *5@4", 7@6"*, Sanitary: *1@4", 3@6"*, Combined Storm/San:

#### METERS:

Gas (size, location) -

Water (size, location) - *1.5" cooling tower water room 440M*

Electric (size, location) - *room 063M*

#### ALARM SYSTEMS:

Fire Alarm, Main Panel Room 063M, Remote Panel Location Room

Fire Pump @    GPM,  Riser   , Pump Location, Room

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

Horns/Strobes,  Bells in  Halls,  Rooms

Other Alarms - *REMOTE ALARMED*

**ELEVATORS:**

Number: *One*, Type (passenger, freight): *Passenger/Freight*

Manufacturer: *Otis*, Size: *4,000#, 55x101*

**EMERGENCY GENERATOR:**

Size: *None*, Location:

**ASBESTOS SURVEY (1986):** *Pipe insulation in mechanical rooms, pipe chases and above ceilings on all floors.*

## **HOPKINS HALL NARRATIVE**

### **HISTORY**

Hopkins Hall houses The Department of Art, The Department of Art Education and The Department of Industrial, Interior, and Visual Communication Design. Hopkins Hall was constructed in 1958 and occupied in 1959 as a Fine Arts Building with a gross area of 51,156 SF. The 4-story building with basement was originally built for offices, classrooms and studio labs. In 1961 a building addition of 55,700 SF was added on the south side and occupied in 1962 to house additional studio labs and offices. The addition was added within a few years of the original building being completed. At this time the second and third floors of the 1962 addition of Hopkins Hall are being remodeled a floor at a time. The remodel is limited to wall, floor, ceiling and electrical lighting upgrades. No HVAC or plumbing upgrades are being made at this time to meet existing room requirements.

The building is functioning as designed, at this time, and has held up well over the 38 years since built. However, several building components are approaching the end of their expected life and will need to be replaced over the next five to ten years. These items when completed will protect and enhance the building performance and create a satisfying visual environment for students, faculty, staff and visitors.

There are some pool classrooms, but the building use is primarily offices and studio labs.

More than normal routine maintenance problems are beginning to show up in the elevator, the plumbing system, roof leaks, temperature control, electrical power and lighting and doors and door hardware.

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.

Occupancy of the building, reported by the Office of University Resource Planning & Institutional Analysis in the C-1 Building Space Assignment Report dated June 1996 for a Net Assignable Area of 106,856 SF, is as follows; Classroom Labs 39.4%, Administrative and Staff offices 16.2%, Faculty Offices 9.6%, Classrooms 2.9%, Exhibits 3.3%, Common Areas 21.9% and Custodial/Toilet/Mechanical 6.7%.

### **PRIMARY SYSTEMS**

The structural components of both buildings consist of reinforced concrete perimeter footers, walls and columns and interior concrete footings with columns

and beams that support the concrete one way joist floors and roof. These form the basic skeletal components of this four-story building with basement.

There are no major signs of settlement or movement in the building foundation or structural columns and supports. Some minor or local settlement cracks were noted in several columns on the west side and at the northeast window well of the building.

A brick veneer was installed on concrete block or clay ceramic tile to form the exterior walls of both buildings. Limestone panels and trim around the perimeter of the window walls and at the parapet complete the architectural elements that accent this building.

The exterior brick veneer is in good to fair condition, some cracking at exterior corners and columns due to settlement and/or expansion and contraction needs to be patched and caulked. Some spalling at exterior limestone panels due to expansion and contraction around the building needs to be sealed. The brick veneer and limestone panels, trim and parapet caps need to be cleaned and sealed.

Openings in the brick veneer for entrance doors, dock doors and window walls are accented with cut limestone or brick that form wall headers, sills and jambs. Other openings in the various wall elevations include louvered air intakes, exhaust louvers and glass block windows.

The single glazed windows are an aluminum double hung type that forms a window wall from floor to floor. Spaces between the head of the lower window and the sill of the window above are filled with marble panels. Some fixed glass block windows on the roof of the 1959 and 1962 buildings provide natural light to the studios below. The original caulking has dried and shrunk in head, sill and jamb joints of the windows and needs to be replaced.

The main entry doors are aluminum with store front glass to the side and are in good to fair condition. Other entry doors are aluminum with side lits. The original steel doors remain at the ground floor dock and east building entrances are in fair condition. These doors and frames need to be repaired and painted.

The original roof areas are of the concrete deck type, with light weight fill, insulation board, and a built-up-roof (BUR) consisting of hot asphalt felt layers and pea gravel. The sloped roofs to the glass block windows and the elevator roof are preformed concrete panels with insulation board, and a built-up-roof (BUR) consisting of hot asphalt felt layers. The roofs are original and have failed in several places and are scheduled to be replaced.

The counterflashing around the perimeter is in fair condition but needs to be recaulked at several open joints. Some miscellaneous flashing problems with split

caulking need to be repaired at this time. Some limestone parapet cap caulking joints on the roof need to be recaulked. The southeast parapet on the 1962 building is brick with a limestone cap with counterflashing to the roof side and is in fair condition.

## **INTERIOR SYSTEMS**

The reinforced concrete skeleton of the building is enclosed with concrete block or clay ceramic faced tiles to form interior walls, halls, rooms and stairwells. Halls in the original building have ceramic tile up to the locker header and a drywall surface to the ceiling with wood trim around the lockers. Some floors have glass windows above the lockers to the ceiling. Other walls are plaster on concrete block or fiber board over block for tack boards. Remodeled areas in the building are separated with studs and drywall.

The partitions and walls are all in good to fair to poor condition depending on the area. Many walls are covered with residues from the shop or studio materials in the vicinity. Some fine line cracking in concrete block or tile walls has occurred at settled columns and openings in the walls as expected.

The majority of the doors in this building are wood doors in metal frames and are in good to fair condition. Steel doors in steel frames are used at mechanical rooms. Some conference rooms and offices have an aluminum window wall and door. The metal fire doors in this building are in good to fair condition. The fire doors in the 1959 building have considerable glazing and side lits. These doors will need to be replaced and the side lits filled in with two hour walls. The southeast stairwell needs to be enclosed on the first floor or have a smoke shelf installed around the opening to the floor above. Some door and/or door hardware problems are showing up in maintenance calls. Lock mechanisms and door adjustments are beginning to fail and will require continued maintenance.

The floors in the 1959/62 buildings are asbestos asphalt tiles, plastic tile, terrazzo or carpet in some offices, conference and class rooms. The equipment rooms, basement halls and studio labs have exposed concrete floors that have been sealed. The floors throughout the buildings are in good to fair condition and have been fairly well maintained. The stairs are metal frame with concrete fill and are in good condition.

The ceilings in the building consist of suspended steel 1x2 metal pan tiles, 2x2 mineral fiber tiles, plaster, or are exposed. The ceilings on the first floor of the 1962 building consist of attached 2x4 metal perforated panels with concealed lights and wood trim. These panels are in fair to poor condition and need to be replaced. The ceilings in remodeled areas of this building consist of a suspended aluminum 2x4 grid system with mineral fiber tiles. The original hall ceilings are in fair condition.

Some ceiling tiles need to be replaced where roof and/or duct condensation leaks have occurred. The light fixtures, registers, grills and diffusers need to be cleaned.

The partitions, doors, walls, and ceilings vary in their condition rating depending on the location in the building and what remodeling has been completed. The partitions, doors, hardware, walls, floors, and ceilings have held-up relatively well after 38 years of service.

## **SERVICE SYSTEMS**

The major service systems, domestic cold and hot water, natural gas, compressed air, house vacuum, sanitary waste and storm drainage all appeared to be in fair condition and functioning at this time. The plumbing drainage system did not appear to have any problems. There was adequate water pressure at the faucets and fixtures on all of the floors. The main domestic water and hot water piping appears to have galvanized pipe mains and feeds with copper installed in repaired sections. The galvanized domestic and fire water mains are questionable for full flow deliveries. This piping will need to be replaced if water flows to fixtures diminish. The domestic hot water system is connected to the campus domestic hot water supply system. The piping for the domestic water systems did not appear to have any problems at this time. Since the piping and faucets are 37 years old and almost to the end of their useful life, cleaning and/or replacement should be planned for within the next few years. The restroom fixtures were functioning properly. There is a house vacuum system for cleaning in room 063M. The major service systems are all showing their age and continue to have breakdowns.

The passenger/ freight elevator at the southeast corner of the original building is the only elevator and gets a lot of wear and tear. It is in need of a complete renovation to improve its performance and appearance. There is a request to upgrade the elevator to meet current ADA requirements. The elevator was operating and maintenance records did indicate minor control problems. A project to install a new passenger elevator on the east side of the 1962 building has been recommended.

The 8" heating hot water HHW lines that feed the building are tapped into the central heating hot water loop located to the west of the building. Building heating water is pumped through the building from pumps located in mechanical room 040M.

The heating hot water system supplies convectors located on the outside walls under windows, fan coil units at entrances, unit heaters, hot decks and heating coils in the air handling units. The heating system appears to be operating properly. Some hot water heating lines were replaced in the original building in 1962 when the feed was transferred from room 063M to room 040M.

There was no central cooling system installed in the 1959 building. Individual offices, classrooms or laboratories use window air conditioning units that range from 3/4 to 2 tons of cooling each. Areas too large to be served with window units or requiring special controls have single zone split system DX air conditioning units or roof top air conditioning units. Two units on the roof of the original building are constant air volume (CAV) packaged roof top air conditioning units with DX cooling coils. Two units are condensers that serve air handling units in rooms 270 and 272.

Ten air handling units, in the original building, are constant air volume (CAV) two-zone units with hot water heating coils. All of these air handling units are 39 years old and past the end of their useful life and will require replacement in the next five years. In 1976 the units were modified with night setback as part of the energy conservation program.

The 1962 addition has an American Standard, 150 Ton, R-113 chiller located in room 040M that supplies chilled water to four DDHV units on the floors above. The DDHV air handling units are past the end of their useful life and may require replacement in the next five years. In 1976 the units were modified with night setback as part of the energy conservation program. Many of the HVAC systems in the building are aging and some are well past the end of their expected life cycle, but continue to operate.

Over the years, renovations to several of the class labs have taken place to meet the changing needs of the college. The number of work labs creates unique HVAC and environmental requirements. In several cases HVAC and Make-up air needs exceed the design criteria of the original systems installed. The latest HVAC project in 1993 included improvements to the ventilation and exhaust systems in the basement labs and kiln rooms.

At this time a project to replace the 1962 chiller has just begun. The work will include a new mechanical room, chiller, pumps, piping and a 750 KVA transformer. When the DDHV units are replaced a roof top air handling unit needs to be installed and sized for present and future room loads. When the 1957 building is air conditioned a new chiller, pumps, piping and roof top air handling unit needs to be installed. The buildings exhaust and makeup air requirements need to be included in the design.

Controls for the heating and cooling system are pneumatic and electric. A DDC upgrade to replace specific control modules to provide central communication has been requested.

Exhaust fans located throughout the building remove air from restrooms, common areas, studio labs and mechanical rooms.

## **ELECTRIC**

One 750 KVA 208/120 volt transformer on the south exterior wall supplies the electrical service to Hopkins Hall. Switchgear located in RM 063M feeds the lighting and power distribution panels throughout the building. A MCC panel in room 040M distributes power to mechanical equipment. Panel sizes vary throughout the building depending on the load. At about 7.02 watts per square foot the building appears to just have an adequate power supply in most circuits. As noted, a new 750 KVA 480/277 volt transformer is being installed with the chiller replacement.

The building has 40 watt fluorescent light fixtures throughout most of the building. Some areas have had the newer 32 Watt electronic ballast and bulb fixtures installed during room renovation and lighting upgrade projects. Some stairwells and halls are lighted with incandescent fixtures and track lighting. A program to replace the balance of the 40 watt fluorescent fixtures with 32 watt fluorescent fixtures would save energy. There is not an adequate number of convenience and lab outlets throughout the building.

## **SAFETY STANDARDS**

Hopkins Hall is equipped with a manual fire alarm system consisting of pull stations at exits that provide local fire annunciation from the panel to all floors. Emergency lighting is provided by a 10 KVA battery packs in room 063M. Lights are installed in the corridors and in stairwells. There are lighted exit signs at each exit.

The building safety systems consist of a standpipe with a local hose station located adjacent to the two north stairwells of the 1959 building. There are no hose stations at the south stairwell. An outlet for fire department use is located at each station in the original building but should be located within the stairwell.

Automatic door openers are installed at the east entrance and the double door at x107c for wheelchair access. The double doors open too fast and need to be slowed down.

Individual labs and several rooms are secured using electronic local keying to limit access none are remotely alarmed.

## **ASBESTOS**

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report: Inventory of Friable Asbestos Containing Material in Buildings of the Ohio State University (Main and Branch Campuses) and the Recommendations for Corrective Action by PEI Associates, Sept. 1986, identifies asbestos containing

materials in the equipment rooms, basement, to and from, first, second, third and fourth floors. All asbestos piping and asbestos containing materials including floor tiles and mastic within the limits of the building need to be removed during any renovation or repairs.

## **PERIMETER**

About 95 percent of the sidewalks around the building are in good to fair condition. Some sidewalks have small sections of spalling concrete, settled or raised concrete or settled areas in the sidewalk. Sections of the sidewalks around the building that have settled areas, low spots or tripping hazards need to be relevelled or replaced.

The concrete dock on the southeast side of the 1959 building is in fair to poor condition. Some concrete repairs or replacement is required on the walls, steps and floor of the dock.

The blacktop drive to the dock needs to have settled and spalled sections removed and patched.

Steps to the main entrance need to be replaced, relevelled and recaulked in several places.

The east entrance and patio area is in fair condition. Brick planting walls need to be repaired. The bridge to the first floor door is to be repaired. A new transformer is being installed in the southeast corner of the building north of the bridge and patio. Two kilns are located on the lower level of the patio. Trash and litter generated through their use needs to be cleaner by the department.

The lawn area on the north side has bare spots in the grass. There is no mulch around the shrubbery. All of the shrubbery and trees need to be trimmed and mulch installed. There is a drainage problem at the east side around the area wells and planting brick walls and should be regraded to the drain. All of the storm drains around the building should be cleaned.

Entrances to the building are well lighted and area, flood and street lighting appear to be distributed properly.

The building signs are in good condition.

**Minor Maintenance Projects (Less Than \$5000) EXTERIOR  
HOPKINS HALL #149 JUNE 30, 1997**

- 1 Caulk the settlement and expansion cracks in the sidewalks. Repair the cracked or settled sidewalk sections around the building.  
Workorder #01-5063-024875-51
- 2 Install weather-strips at all entrance doors.  
Workorder #01-5064-275384-72
- 3 Caulk the aluminum parapet caps, expansion joints on the roof and the counter flashing as soon as possible to prevent water from entering the parapet.  
Workorder #01-5064-275386-73
- 4 Remove the vines from the east walls. Trim the trees and shrubs around the whole building.  
Workorder #01-5063-024878-51
- 5 Patch the blacktop on the northeast drive and north sidewalk of the building.  
Workorder #01-5063-024881-51
- 6 Clean all of the roof drains and patch the roof leaks over the east and west stairwell of the 1959 building. Clean the drains in the areawells clean the pipe to the manhole.  
Workorder #01-5064-275398-66
- 7 Paint the steel doors and frames to rooms 177 and x108c five total.  
Workorder #01-5064-275399-66
- 8 Caulk the joints in the limestone caps of the areaways.  
Workorder #01-5063-024894-51
- 9 Caulk the open cracks in the brick and limestone to the first floor level on the north and west side.  
Workorder #01-5063-024896-51
- 10 Clean the moss on the brick and limestone of the areaways.  
Workorder #01-5063-024897-51

**Maintenance Projects (Less Than \$5000) INTERIOR**

**HOPKINS HALL #149 JUNE 30, 1997**

- 1 Clean the underground sanitary and storm piping, all laterals should also be cleaned.  
Workorder #01-5061-002128-20
- 2 Replace about fifteen percent of the perforated ceiling panels in the halls of the 1962 first floor that are damaged.  
Workorder #01-5064-275435-66
- 3 Repair the cracked windows.  
Workorder #01-5064-275436-72
- 4 Repair the plaster at room 163M.  
Workorder #01-5064-275437-66
- 5 Remove and replace the concrete treads in the northwest stairwell 10 pans.  
Workorder #01-5061-002128-20
- 6 Replace the missing ceramic tiles on the columns in room x105c.  
Workorder #01-5061-002128-20

1. Install backflow preventors on the domestic water feeds to the building.
2. Replace insulation removed from piping for repairs in the equipment rooms.
3. Planting walls on the southeast corner and east side need to be repaired where settled or brick is broken out.

Control #3419

## BUILDING EVALUATION SUMMARY

### I. BUILDING INFORMATION

Fac # **149** Facility Name: **HOPKINS HALL** Date: *06/30/97* Inspector: *JAO*  
 Year Constructed: *1959/62* Gross Sq. Ft *106,856* Net Sq. Ft *86,750*  
 Replacement Cost \$ *15,439,000* \*

### II. COMPONENT RATING

COMPONENT	BUILDING COMPONENT PERCENTAGE OF TOTAL COST **	BUILDING COMPONENT REPLACEMENT COST	BUILDING COMPONENT CONDITION VALUE MULTIPLIER	BUILDING COMPONENT CURRENT VALUE
Foundation	4.69	724,657	89	641,783
Columns and Beams	12.68	1,957,844	89	1,733,941
Exterior Walls	4.84	747,541	75	556,969
Ext. Windows & Doors	3.75	579,725	66	380,713
Roofing & Flashing	2.42	373,770	40	149,516
Partitions & Doors	7.86	1,212,846	85	1,033,712
Wall Finishes	2.40	371,228	62	228,940
Floor Finishes	4.55	701,773	66	460,863
Ceilings & Finishes	6.47	999,263	53	532,967
Conveying	1.52	233,924	55	127,888
Plumbing	13.70	2,115,489	62	1,318,749
Heating	7.91	1,220,474	66	809,639
Cooling and Vent.	9.07	1,401,003	53	747,239
Elect. Serv. & Dist.	1.56	241,552	69	166,683
Lighting and Power	10.52	1,624,756	66	1,066,999
Safety Standards	6.04	933,154	69	643,921
<b>TOTALS</b>	<b>100.00</b>	<b>15,439,000</b>	<b>69</b>	<b>10,600,522</b>

### III. BUILDING RATING SUMMARY

Overall Building Rating = **69%**

- \* Replacement Cost assigned June 1996 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 #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 724,657) x ( 89%) = (\$ 641,783)**

Possible	Condition	Component
Value	Value Multiplier	Value

**A. SYSTEM DESCRIPTION**

- | <u>Sat</u>                          | <u>Att</u>               |   |
|-------------------------------------|--------------------------|---|
|                                     |                          | <b>a. Footings:</b>                     |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Interior Footings/Piers .....           |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Interior Footings/Bearing Walls.....    |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Perimeter Footings.....                 |
| <input type="checkbox"/>            | <input type="checkbox"/> | Grade Beams.....                        |
| <input type="checkbox"/>            | <input type="checkbox"/> | Piles .....                             |
| <input type="checkbox"/>            | <input type="checkbox"/> | Caissons .....                          |
|                                     |                          | <b>b. Foundation Wall Materials:</b>    |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Concrete Cast-in-place.....             |
| <input type="checkbox"/>            | <input type="checkbox"/> | Concrete Block.....                     |
| <input type="checkbox"/>            | <input type="checkbox"/> | Stone .....                             |
| <input type="checkbox"/>            | <input type="checkbox"/> | Brick.....                              |
| <input type="checkbox"/>            | <input type="checkbox"/> | Other .....                             |
|                                     |                          | <b>c. Waterproofing and Underdrain:</b> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Coating.....                            |
| <input type="checkbox"/>            | <input type="checkbox"/> | Membrane .....                          |
| <input type="checkbox"/>            | <input type="checkbox"/> | Board.....                              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Drain Tile..... <i>in window wells</i>  |
|                                     |                          | <b>d. Slab on Grade:</b>                |
| <input type="checkbox"/>            | <input type="checkbox"/> | Plain .....                             |
| <input type="checkbox"/>            | <input type="checkbox"/> | Reinforced.....                         |
|                                     |                          | <b>e. Ground/Basement Floor Slab:</b>   |
| <input type="checkbox"/>            | <input type="checkbox"/> | Plain .....                             |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Reinforced.....                         |
|                                     |                          | <b>f. Special Substructures:</b>        |
| <input type="checkbox"/>            | <input type="checkbox"/> | .....                                   |

**COMMENTS:** *None*

## COLUMNS AND BEAMS

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 1,957,844) x (89%) = (\$ 1,733,941)**

Possible	Condition	Component
Value	Value Multiplier	Value

### A. SYSTEM DESCRIPTION

<u>Sat</u>	<u>Att</u>	
		<b>a. Columns and Beams:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Reinforced Concrete.....
<input type="checkbox"/>	<input type="checkbox"/>	Precast Concrete.....
<input type="checkbox"/>	<input type="checkbox"/>	Steel.....
<input type="checkbox"/>	<input type="checkbox"/>	Fireproofing.....
<input type="checkbox"/>	<input type="checkbox"/>	Wood.....
<input type="checkbox"/>	<input type="checkbox"/>	Other.....
		<b>b. Floor Joists:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete..... <i>one way</i>
<input type="checkbox"/>	<input type="checkbox"/>	Steel Trusses.....
<input type="checkbox"/>	<input type="checkbox"/>	Wood.....
<input type="checkbox"/>	<input type="checkbox"/>	Other.....
		<b>d. Floor Decks:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete Slab.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Precast Slab..... <i>over elevator room and studio roof</i>
<input type="checkbox"/>	<input type="checkbox"/>	Metal Deck w/concrete fill.....
<input type="checkbox"/>	<input type="checkbox"/>	Wood.....
		<b>e. Roof Joists:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Concrete.....
<input type="checkbox"/>	<input type="checkbox"/>	Steel Trusses.....
<input type="checkbox"/>	<input type="checkbox"/>	Wood.....
		<b>f. Pitched Roof System:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Pitch <input checked="" type="checkbox"/> 3/12, <input type="checkbox"/> 6/12, <input type="checkbox"/> 10/12
<input type="checkbox"/>	<input type="checkbox"/>	Dormers.....
<input type="checkbox"/>	<input type="checkbox"/>	Steel Rafters.....
<input type="checkbox"/>	<input type="checkbox"/>	Wood Rafters.....
<input type="checkbox"/>	<input type="checkbox"/>	Fireproofing.....
<input type="checkbox"/>	<input type="checkbox"/>	Underlayment.....
<input type="checkbox"/>	<input type="checkbox"/>	Insulation.....
<input type="checkbox"/>	<input type="checkbox"/>	Ventilation.....
<input type="checkbox"/>	<input type="checkbox"/>	Other..... <i>vertical glass block</i>

**g. Flat Roof System:**

- Slope ..... *0.25" per foot*
- Concrete Deck.....
- Precast Slab..... *over elevator room*
- Metal Deck w/concrete fill.....
- Metal Deck w/insulation.....
- Wood Deck .....
- Insulation..... *loose fill with 1.5" high density*
- Other .....

**COMMENTS:** *None*

# EXTERIOR WALLS

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 747,541) x (75%) = (\$ 556,969)**

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

**A. SYSTEM DESCRIPTION**

Sat      Att

**a. Walls:**

- Concrete CIP PRECAST... *around roof glass block*
- Concrete Block .....
- Brick MASONRY VENEER .....
- Slab Veneer ..... *serpentine panels*
- Window/Curtainwall .....
- Metal Siding .....
- Other .....

**b. Wall Lintels over Openings:**

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

**c. Wall Trim:**

- Limestone .....
- Brick .....
- Marble.....
- Wood .....
- Other..... *green serpentine panels*

**d. Finishes:**

- Plain.....
- Stucco .....
- Paint.....
- Parging..... *over concrete on roof*
- Exposed Aggregate .....
- Drivit .....
- Other.....

**e. Exterior Wall Backing System:**

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

[ ] [ ] Wood Studs .....

**COMMENTS:**

*The concrete walls at the roof windows on the 1962 building are spalling where steel reinforcing is too close to the surface. These areas need to be patched and sealed.*

*Cracks in the brick and limestone need to be caulked or sealed to prevent water penetration.*

*Caulking around doors and windows need to be replaced.*

## EXTERIOR WINDOWS AND DOORS

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>597,725</u>) x (66%) = (\$ <u>380,713</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				

### A. SYSTEM DESCRIPTION

Sat      Att

**a. Window materials:**

- [ ]     [ ]    Wood .....
- [ ]     [ ]    Steel .....
- [X]     [ ]    Alum .....
- [ ]     [ ]    PVC .....
- [ ]     [ ]    Other .....

**b. Windows type & number:**

- [X]     [ ]    Double Hung ..... *447*
- [ ]     [ ]    Awning .....
- [ ]     [ ]    Casement .....
- [ ]     [ ]    Pivoted .....
- [ ]     [ ]    Sliding .....
- [X]     [ ]    Fixed ..... *24 glass block*
- [ ]     [ ]    Other .....

**c. Window glazing:**

- [ ]     [X]    Single pane .....
- [ ]     [ ]    Double pane .....

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

- [X]     [ ]    Store Front .....
- [ ]     [ ]    Vestibule .....
- [X]     [ ]    Single pane .....
- [ ]     [ ]    Double pane .....
- [X]     [ ]    Other ..... *green serpentine panels*

**e. Door Materials:**

- [ ]     [ ]    Wood .....
- [ ]     [X]    Steel .....
- [X]     [ ]    Alum .....

**f. Doors type & number:**

- [ ]     [ ]    Vestibule Double .....
- [X]     [ ]    Double ..... *at main entrance*
- [X]     [ ]    Exit ..... *four*
- [X]     [ ]    Stair Exit ..... *three double aluminum*
- [ ]     [ ]    Garage .....
- [ ]     [ ]    Special .....

**g. Hardware:**

- Automatic opener.....*at ramp door*
- Push Bar Openers wt Closures.....
- Key Cards.....

**COMMENTS:**

*The single glazed windows need to be replaced with more energy efficient double glazed windows.*

*Paint the steel doors to room 177 and the doors to room x108c.*

*Cracked window glass needs to be replaced.*

**ROOFING**

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 373,770) x (40%) = (\$ 149,516)**

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

**A. SYSTEM DESCRIPTION**

**Sat      Att**

**a. Roof Covering:**

- [ ] [X] Built-up [X]asphalt [ ]Coal Tar [ ]Modified .....
- [ ] [X] Built-up w/gravel [X]asphalt [ ]Coal Tar .....23,220 SF
- [ ] [ ] Asphalt Roll.....
- [ ] [ ] Asphalt Shingle .....
- [ ] [ ] Copper .....
- [ ] [ ] EPDM.....
- [ ] [X] Other.....*Glass Block Skylights*

**b. Flashing:**

- [ ] [X] Materials: [X]Cu [ ]Galv [ ]Al [ ]EPDM [ ]SS [ ]PVC
- [ ] [X] Base & Counter .....866 LF
- [X] [ ] Cap.....
- [ ] [X] Reglet.....*in limestone coping and walls 1082 LF*
- [X] [ ] Valley & Ridge.....

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

- [X] [ ] Type [ ]SS [ ]Galv [ ]Al [X]Cu [ ]PVC .....360 LF

**d. Drainage:**

- [X] [ ] Gutters w/ Exterior Downspouts .....110 LF
- [ ] [ ] Scuppers w/o Exterior Downspouts .....
- [ ] [X] Drains w/ Interior Storm Drains .....
- [X] [ ] Emergency Overflow.....*over the edge*

**e. Parapets:**

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

**f. Parapet Caps:**

- [ ] [ ] Metal [ ]SS [ ]Galv [ ]Al [ ]Cu [ ]PVC .....
- [ ] [ ] Tile .....
- [X] [ ] Limestone .....*at roof level*
- [ ] [ ] Precast .....
- [ ] [ ] Other .....

**h. Roof accessories:**

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

**COMMENTS:**

*All of the roofs are original and have been patched in many places. The roofs and flashings are to be replaced within the next year. Open cracks in caulking joints need to be sealed at this time.*

*The drains on the roof need to be cleaned.*

## PARTITIONS AND DOORS

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>1,2212,846</u>) x ( <u>85%</u>) = \$ <u>1,033,712</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				

### A. SYSTEM DESCRIPTION

Sat      Att

**a. Partition Framing:**

- [ ]       [ ]      Concrete Block .....
- [ ]       [ ]      Clay Tile Block.....
- [ ]       [ ]      Glazed 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 .....*store fronts and above lockers*
- [ ]       [ ]      Wood Paneling .....
- [ ]       [ ]      Composite Paneling.....
- [ ]       [ ]      Steel Panels.....
- [ ]       [ X]      Tile/Glazed .....*tile on first floor columns*
- [ ]       [ ]      Other.....*fiber board and wood trim*

**d. Interior Doors & Frames:**

- [ ]       [ ]      Met Door/Met Frame.....
- [ ]       [ ]      Wood Door/Wood Frame .....
- [ ]       [ ]      Wood Door/Metal Frame .....
- [ ]       [ ]      Glazing .....
- [ ]       [ ]      Roll-up.....
- [ ]       [ ]      Sliding .....
- [ ]       [ X]      Other.....*fire doors with glass lights*

**e. Hardware:**

- [ ]       [ ]      Door [X]Knobs [ ]Levers .....
- [ ]       [ ]      Door Closures.....

- Kick/Push Plates .....
- Security & Detection.....
- Automatic Openers .....
- Fire Door Magnets .....
- Other .....

**COMMENTS:**

*Some tiles on the first floor columns needs to be replaced where missing.*

*The fire doors in the stairwells have large windows and side windows. These should be replaced with walls and fire doors.*

## WALL FINISHES

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>371,228</u>) x ( <u>62%</u>) = \$ <u>228,940</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				

### A. SYSTEM DESCRIPTION

**Sat      Att**

**a. Wall Finishes:**

- [ X ]    [ ]    Paint .....
- [ X ]    [ ]    Vinyl Wall Coverings ..... *they are painted over*
- [ X ]    [ ]    Paneling Prefinished .....
- [ X ]    [ ]    Cork .....
- [ ]    [ ]    Wallpaper.....
- [ ]    [ X ]    Ceramic Tile .....
- [ ]    [ ]    Marble.....
- [ ]    [ ]    Stone .....
- [ ]    [ ]    Trim & Wainscot .....
- [ X ]    [ ]    Decoration..... *fiber board with spackled finish*
- [ X ]    [ ]    Glass.....
- [ X ]    [ ]    Other ..... *brick*

**COMMENTS:**

*Finishes are generally in good condition on all floors except the basement where the ceramic labs are located.*

*The missing ceramic tiles on the columns on the first floor need to be replaced.*

## FLOOR FINISHES

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>701,773</u>) ( <u>66%</u>) = \$ <u>460,863</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>
---

### A. SYSTEM DESCRIPTION

<u>Sat</u>	<u>Att</u>	
		<b>a. Carpet:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rolled.....
<input type="checkbox"/>	<input type="checkbox"/>	Tile.....
		<b>b. Concrete Topping:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clear Sealant.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Antislip.....
<input type="checkbox"/>	<input type="checkbox"/>	Epoxy.....
		<b>c. Resilient:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vinyl Composition Tile.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vinyl/Plastic Tile.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Asphalt Tile.....
<input type="checkbox"/>	<input type="checkbox"/>	Linoleum Tile.....
<input type="checkbox"/>	<input type="checkbox"/>	Vinyl Roll.....
<input type="checkbox"/>	<input type="checkbox"/>	Rubber.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>d. Ceramic Tile</b> <input checked="" type="checkbox"/> Mosaic <input type="checkbox"/> Quarry <input type="checkbox"/> Pavers.....
<input type="checkbox"/>	<input type="checkbox"/>	<b>f. Masonry</b> <input type="checkbox"/> Marble <input type="checkbox"/> Granite <input type="checkbox"/> Slate <input type="checkbox"/> Brick.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>g. Terrazzo</b> <input checked="" type="checkbox"/> Marble <input type="checkbox"/> Granite.....
<input type="checkbox"/>	<input type="checkbox"/>	<b>h. Wood</b> <input type="checkbox"/> Tiles <input type="checkbox"/> T&G Hardwood <input type="checkbox"/> Planking.....
<input type="checkbox"/>	<input type="checkbox"/>	<b>i. Pedestal</b> <input type="checkbox"/> Vinyl Tiles <input type="checkbox"/> Grills <input type="checkbox"/> Supply Air <input type="checkbox"/> Vent. ...
		<b>j. Base Molding:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vinyl.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wood.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Terrazzo.....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ceramic Tile.....
<input type="checkbox"/>	<input type="checkbox"/>	Masonry.....

**COMMENTS:** *none*

## CEILINGS AND FINISHES

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>999,263</u>) x (<u>53%</u>) = (\$ <u>532,967</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>
--

### A. SYSTEM DESCRIPTION

**Sat**      **Att**

**a. System Type:**

- [ ]     [ ]    Exposed .....
- [ ]     [ ]    Applied to Structure .....
- [ ]     [ ]    Suspended Stud .....
- [ ]     [ ]    Suspended Steel Grid .....
- [ ]     [ ]    Suspended Aluminum Grid .....
- [ ]     [ ]    Suspended Sealed Grid.....
- [ ]     [ ]    Suspended Concealed Spline.....

**b. Materials:**

- [ ]     [ ]    Drywall ..... *in restrooms*
- [ ]     [ ]    Plaster ..... *on some exterior walls*
- [ ]     [ ]    Mineral Fiber Board .....
- [ ]     [ ]    Fiberglas Board.....
- [ ]     [ ]    Cementitious Fiber Board.....
- [ ]     [ ]    Metal Pan Tile .....
- [ ]     [X]    Other ..... *2x4 honeycomb grid with wood trim*

**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:**

*The honeycomb grid and metal pan ceiling tiles in several halls are in poor condition and need to be replaced.*

## CONVEYING

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>233,924</u>) x ( <u>55%</u>) = (\$ <u>127,888</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>
---

### A. SYSTEM DESCRIPTION

Sat      Att

**a. Elevators:**

- |                                     |                                     |                       |                          |
|-------------------------------------|-------------------------------------|-----------------------|--------------------------|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Number .....          | <i>One Otis</i>          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Type .....            | <i>Passenger/Freight</i> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Speed.....            | <i>50 FPM</i>            |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Capacity (lbs.).....  | <i>4000 Lbs.</i>         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Dimensions .....      | <i>55"x101"</i>          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Door Operation: ..... |                          |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Center.....           |                          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | To Side.....          |                          |

**b. Lifts and Hoists:**

- |                          |                          |              |  |
|--------------------------|--------------------------|--------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Number ..... |  |
| <input type="checkbox"/> | <input type="checkbox"/> | Type .....   |  |

**c. Moving Stairs and Walks:**

- |                          |                          |              |  |
|--------------------------|--------------------------|--------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Number ..... |  |
| <input type="checkbox"/> | <input type="checkbox"/> | Type .....   |  |

**d. Conveyors:**

- |                          |                          |              |  |
|--------------------------|--------------------------|--------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Number ..... |  |
| <input type="checkbox"/> | <input type="checkbox"/> | Type .....   |  |

**COMMENTS:**

*The freight elevator is 38 years old and needs to be replaced.*

*A new passenger elevator is proposed on the east side of the 1962 addition.*

## MECHANICAL/PLUMBING DOMESTIC

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 2,115,489) x ( 62%) = (\$ 1,318,749)**

Possible	Condition	Component
Value	Value Multiplier	Value

**A. SYSTEM DESCRIPTION**

**Sat      Att**

**a. Services Available:**

- |                                     |                                     |  |
|-------------------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Cold Water .....                         |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Backflow Valve .....                     |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Hot Water .....                          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Natural Gas .....                        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Compressed Air .....                     |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Other ..... <i>sediment traps</i>        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Other ..... <i>central vacuum system</i> |

**b. Piping & Fittings:**

- |                                     |                                     |                     |
|-------------------------------------|-------------------------------------|---------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Cast Iron .....     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Ductile Iron .....  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Copper Pipe .....   |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Copper Tubing ..... |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Steel .....         |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Galv. Steel .....   |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Other .....         |

**c. Water Heaters:**

- |                                     |                          |  |
|-------------------------------------|--------------------------|--|
| <input type="checkbox"/>            | <input type="checkbox"/> | Gas .....                                |
| <input type="checkbox"/>            | <input type="checkbox"/> | Steam Converter/Tank .....               |
| <input type="checkbox"/>            | <input type="checkbox"/> | Steam Instantaneous .....                |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Central Hot Water ..... <i>2.5" DHWS</i> |

**d. Drainage:**

- |                                     |                          |                         |
|-------------------------------------|--------------------------|-------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Storm Drains .....      |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Sanitary Drainage ..... |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Floor Drains .....      |

**e. Fixtures: Number**

- |                                     |                                     |                              |    |
|-------------------------------------|-------------------------------------|------------------------------|----|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Water Closets .....          | 34 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Urinals .....                | 16 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Lavatory Sinks .....         | 31 |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Kitchen Sinks .....          | 2  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Service Sinks .....          | 10 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Showers .....                |    |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Electric Water Coolers ..... | 10 |

**f. Sprinkler Systems:**

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

**COMMENTS:**

*Galvanized steel water piping will need to be replaced.*

*A back flow valve needs to be installed in the domestic water line.*

*Pipe failures have been increasing in the sanitary waste piping indicating a need to replace the pipe and install an acid waste system to some studio labs.*

*The 2.5" fire department hose connection in the hall may need to be relocated into the stairwells if the fire doors are replaced.*

*The underground sanitary and storm piping and all laterals should be cleaned.*

## MECHANICAL/HEATING

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>1,220,474</u>) x ( <u>66%</u>) = (\$ <u>809,639</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				

**A. SYSTEM DESCRIPTION**

- | <u>Sat</u> | <u>Att</u> |   |
|------------|------------|---|
|            |            | <b>a. Heat Source:</b>                                    |
| [ ]        | [ ]        | Central Plant Steam .....                                 |
| [X]        | [ ]        | Central Plant Hot Water .....8" HWS/R                     |
|            |            | <b>b. System Type:</b>                                    |
| [ ]        | [ ]        | Steam .....   |
| [X]        | [ ]        | Hot Water .....   |
| [X]        | [ ]        | Warm Air .....  |
|            |            | <b>c. Air Handling Units:</b>                             |
| [ ]        | [X]        | Multizone [ ]Preheat [X]Heating [ ]Reheat.....            |
| [X]        | [ ]        | Dual Duct [ ]Preheat [X]Heating [ ]Reheat.....            |
| [ ]        | [ ]        | Make-up Air [ ]Preheat [ ]Heating [ ]Reheat .....         |
| [ ]        | [ ]        | Variable Volume Air [ ]Preheat [ ]Heating [ ]Reheat ..... |
| [X]        | [ ]        | Constant Volume Air [ ]Preheat [X]Heating [ ]Reheat.....  |
| [X]        | [ ]        | Other ..... <i>dust removal units in some labs</i>        |
|            |            | <b>d. Air Filters:</b>                                    |
| [X]        | [ ]        | Prefilter[X]Multi [X]DDAHU [ ]MUAHU [ ]VAVAHU [ ]CAV      |
| [ ]        | [ ]        | Bagfilter[ ]Multi [ ]DDAHU [ ]MUAHU [ ]VAVAHU [ ]CAV      |
| [ ]        | [ ]        | Other .....   |
|            |            | <b>e. Space Equipment:</b>                                |
| [ ]        | [ ]        | Radiators.....  |
| [X]        | [ ]        | Convectors.....   |
| [X]        | [ ]        | Unit Heaters.....   |
| [ ]        | [ ]        | Reheat Coils .....  |
| [X]        | [ ]        | DD Boxes .....  |
| [ ]        | [ ]        | CAV Boxes.....  |
| [X]        | [ ]        | 2-Pipe Fan Coil..... <i>at entrances</i>                  |
| [ ]        | [ ]        | Other .....   |
|            |            | <b>f. Control Type:</b>                                   |
| [X]        | [ ]        | [X]Pneu [X]Electric [ ]DDC [ ]DDC Upgrade .....           |

**COMMENTS:**

*The DDHV air handling units in the 1962 building are 38 years old and need to be replaced.*

*The ten air handling units in the 1957 building are 40 years old and will need to be replaced within five years.*

## COOLING/VENTILATING

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 1,401,003) x (53%) = (\$ 747,239)**

Possible	Condition	Component
Value	Value Multiplier	Value

**A. SYSTEM DESCRIPTION**

**Sat     Att**

**a. System/Capacity:**

- [ X ]     [ ]    Water..... *150 Tons*
- [ ]     [ ]    DX.....

**b. Chiller Capacity/Year/Refrigerant/Manufacturer:**

- [ ]     [ X ]    Centrifugal ..... *150 Ton/1962/R-113/American Standard*
- [ ]     [ ]    Reciprocating .....
- [ ]     [ ]    Absorption .....
- [ ]     [ ]    Screw .....

**c. Condenser Side:**

- [ X ]     [ ]    Type/Capacity [X]CW [ ]DX ..... *150 ton*

**d. Air Handling Units:**

- [ ]     [ ]    Multizone [ ]CW [ ]DX [ ]HUMD .....
- [ ]     [ X ]    Dual Duct [X]CW [ ]DX [ ]HUMD .....
- [ ]     [ ]    Make-up Air [ ]CW [ ]DX [ ]HUMD .....
- [ ]     [ ]    Variable Volume [ ]CW [ ]DX [ ]HUMD .....
- [ X ]     [ ]    Constant Volume [ ]CW [X]DX [ ]HUMD .....
- [ ]     [ ]    Other .....

**e. Additional Air Filters:**

- [ ]     [ ]    Postfilter [ ]Multi [ ]DDAHU [ ]MUAHU [ ]VAVAHU [ ]CAV
- [ ]     [ ]    Other [ ]HEPA [ ]BAG [ ]CARTRIDGE [ ]CHARCOAL

**f. Direct Expansion: Number**

- [ X ]     [ ]    Window units..... *9 Units*
- [ ]     [ ]    Thru-the-wall .....
- [ X ]     [ ]    Single zone..... *2 Split Systems*
- [ X ]     [ ]    Other ..... *2 rooftop units*

**g. Distribution Boxes:**

- [ ]     [ ]    VAV [ ]FC [ ]REHEAT.....
- [ ]     [ ]    CAV [ ]FC [ ]REHEAT.....
- [ X ]     [ ]    DUAL DUCT [ ]FC [ ]REHEAT .....

**h. Special Systems:**

- [ ]     [ ]    Type ..... *dust and heat removal exhaust fans*
- [ ]     [ ]    Capacity .....

**i. Control Systems:**

- [ ]     [ X ]    [X]Pneu [X]Electric [ ]DDC [ ]DDC Upgrade.....

**j. Fans:**

- [ ] Exhaust equipment ..... 22 Exhaust Fans
- [ ] Recalculating .....

**COMMENTS:**

*The chiller is 35 years old and uses R-113 refrigerant and is in the process of being replaced with a unit that will meet present and future cooling requirements of the 1962 addition.*

*The DDHV air handling units are 35 years old and will need to be replaced within the next five years with larger units. The DDHV air handling units should be replaced with a roof top air handling unit.*

*The building heating and cooling control system needs to be upgraded to a DDC system.*

*The 1957 building needs to be air conditioned and should include a roof top air handling unit, VAV boxes, chiller and pumps.*

# ELECTRICAL SERVICE AND DISTRIBUTION

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

**COMPONENT RATING: (\$ 241,552) x ( 69%) = (\$ 166,683)**

Possible	Condition	Component
Value	Value Multiplier	Value

## A. SYSTEM DESCRIPTION

### a. Service:

Substation:  Buckeye,  McCracken Power Plant

Primary Voltage:  13,200 Volts,  Volts

Switch Gear Circuit No.: *PGN9/PGS3*

Transformer:

Manufacture	Type	KVA	Secondary/Voltages	Room
<i>VONTRAN</i>	<i>MINERAL</i>	<i>750</i>	<i>208/120</i>	<i>063M</i>
<i>To be installed</i>	<i>750</i>	<i>480/277</i>		

### b. Distribution System:

#### 1. Motor Control Center (MCC) Room *063M*

Panelboard  Fused,  Circuit Breakers

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

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

#### 2. Lighting Room *063M*

Panelboard  Fused,  Circuit Breakers

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

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

#### 3. Building Power Room *063M*

Panelboard  Fused,  Circuit Breakers

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

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

#### 4. Isolated Ground Power Room

Panelboard  Fused,  Circuit Breakers

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

Amperage  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 *063M*

Emergency Panel Room

UPS Room

### e. Emergency Generator:

Size N/A KVA, Location, Room #

**COMMENTS:**

*A 750 KVA/480V transformer and switches are being installed with the new chiller installation.*

## ELECTRICAL LIGHTING AND POWER

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ 1,624,756) x ( 69%) = (\$ 1,066,999)</b>
---

Possible	Condition	Component
Value	Value Multiplier	Value

### A. SYSTEM DESCRIPTION

**Sat**      **Att**

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

- [ ]    [X]    Fluor 40 watt.....
- [X]    [ ]    Fluor 32 watt.....*in several halls and remodeled rooms*
- [ ]    [ ]    Fluor Can .....
- [ ]    [X]    Incandescent ..... *some have been abandoned in place*
- [X]    [ ]    HID [X]Mercury [X]HPS [ ]Metal Halide.....
- [ ]    [ ]    Low Voltage (12V).....
- [ ]    [ ]    Other .....

**b. Lighting Levels**

- [X]    [ ]    Halls.....
- [X]    [ ]    Rooms.....
- [X]    [ ]    Mechanical Rooms .....

**c. Fixture Condition**

- [X]    [ ]    Fixtures .....
- [X]    [ ]    Bulbs .....
- [X]    [ ]    Fixture Lens .....

**d. Receptacles & Switches:**

- [ ]    [X]    Wall Outlet 20A.....
- [ ]    [ ]    GFCI Breakers .....
- [X]    [ ]    Switches.....
- [X]    [ ]    Cover Plates .....

**c. Special:**

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

**COMMENTS:**

*The remaining 40 watt lighting needs to be replaced with 32 watt lighting in several areas.*

## SAFETY STANDARDS

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

<b>COMPONENT RATING: (\$ <u>933,154</u>) x ( <u>69%</u>) = (\$ <u>643,921</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				

**A. SYSTEM DESCRIPTION**

**Sat      Att**

**a. Exits:**

Stair Construction:

- [ ]    [X]    concrete .....
- [X]    [ ]    steel .....
- [ ]    [ ]    wood.....
- [X]    [ ]    Number of Exit Stairs ..... *three*
- [X]    [ ]    Number of Other Exits ..... *six*

**b. Fire Rating:**

- [ ]    [ ]    Construction Type: I\_ II X III\_ IV\_ V\_ VI\_.....
- Building Height: 53 ft., 4 stories .....

**c. Extinguishing Systems:**

- [X]    [ ]    Portable.....
- [X]    [ ]    Standpipe .....
- [X]    [ ]    Hose Cabinets.....
- [X]    [ ]    Hoses ..... *no*
- [ ]    [ ]    Sprinklers.....
- [ ]    [ ]    Gas Suppression .....
- [ ]    [ ]    Other .....

**d. Detection & Alarm Systems:**

- [X]    [ ]    Pull Stations.....
- [X]    [ ]    Bells.....
- [X]    [ ]    Horns .....
- [ ]    [ ]    Strobes .....
- [X]    [ ]    Annunciator Panel ..... *063M*
- [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:**

*The concrete treads at the northwest corner stairwell to the first floor need to be replaced.*

*The wheelchair ramp on the east side of the building is to be replaced.*

## BUILDING PERIMETER EVALUATION

FAC #: 149

DATE: 06/30/97

INSPECTOR: JAO

### A. SYSTEM DESCRIPTION

<u>Sat</u>	<u>Att</u>	
		<b>a. Building Access:</b>
[ ]	[X]	Driveway .....
[ ]	[X]	Loading Dock .....
		Sidewalks.....
[X]	[ ]	Front .....
[X]	[ ]	Side.....
[X]	[ ]	Rear .....
		Steps .....
[ ]	[X]	Front.....
[ ]	[X]	Side.....
[ ]	[ ]	Rear .....
[ ]	[X]	Ramp .....
		<b>b. Lawn and Landscaping:</b>
[X]	[ ]	Lawn .....
[ ]	[X]	Shrubs.....
[ ]	[X]	Trees .....
[ ]	[ ]	Undesirable Insect .....
[ ]	[X]	Bedding Material .....
[ ]	[ ]	Watering System.....
		<b>c. General Site Information:</b>
[X]	[ ]	Signage .....
[X]	[ ]	Address Identification.....
[X]	[ ]	Security Lights.....
[X]	[ ]	Street Lights.....
[ ]	[X]	Drainage .....
[X]	[ ]	Storm Drains.....

### COMMENTS:

*The driveway to the loading dock needs to be repaired.*

*Some brick, concrete and blacktop sidewalks have spalled, settled or heaved and need to be repaired.*

*The loading dock surface, walls and louvers need to be repaired or replaced.*

*The front main entrance limestone steps and surface has weathered and spalled and need to be replaced.*

*Trees and shrubs around the building need to be trimmed and mulch installed.*

*The parapet caps on the window well walls need to be caulked at joints and the moss cleaned off the walls and limestone.*

*Planting walls on the southeast corner and east side need to be repaired where settled.*

*All of the window well area drains and the pipe needs to be cleaned.*

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
CW .....	CONDENSER WATER OR CHILLED WATER
DCW .....	DOMESTIC COLD WATER
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
EMC .....	EMERGENCY CIRCUIT
FPM.....	FEET PER MINUTE
GPM .....	GALLONS PER MINUTE
HID .....	HIGH INTENSITY DISCHARGE LIGHT
HHW .....	HEATING HOT WATER
HPS .....	HIGH PRESSURE STEAM (125 PSI)
HVAC.....	HEATING, VENTILATING AND AIR CONDITIONING
KV .....	KILOVOLTS
KVA .....	KILOVOLTS AMPS
KW .....	KILOWATTS
LF .....	LINEAL FEET
LPS .....	LOW PRESSURE STEAM (15 PSI)
MCC .....	MOTOR CONTROL CENTER
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)
SF .....	SQUARE FEET
S/P .....	STAND PIPE
SY .....	SQUARE YARDS
TR.....	TERMINAL REHEAT
V .....	VOLTS
VAV .....	VARIABLE AIR VOLUME

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