

FACILITY AUDIT REPORT
HOPKINS HALL
#149

JUNE 18, 1991

Prepared by:
The Ohio State University
Department of Physical Facilities
Division of Resource Management

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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: 1959

YEAR OF LAST RENOVATION: 1962 (addition was added)

NUMBER OF STORIES/BASEMENT: Four stories plus a full basement

AIR CONDITIONING (Percentage): 50 %

CURRENT USE: Department of Art and the Department of Industrial Design

TYPE OF CONSTRUCTION: Reinforced concrete structure, masonry skin

ESTIMATED REPLACEMENT COST: \$12,337,000.00 *

BUILDING APPEARANCE: Very dirty, but functional and utilized effectively.
Comfortable and convenient atmosphere for art studios

HANDICAPPED ACCESSIBILITY: Ramp is located in the courtyard on the east side of
the building and enters the building on the first floor. The elevator is
located at the end of the corridor a distance of 150'.

INITIAL CONSTRUCTION QUALITY: Good

OVERALL BUILDING CONDITION: Functionally Satisfactory

NUMBER OF EXIT STAIRWAYS: Three (3)

*Replacement cost assigned January 1991 by The Office of Campus Planning and Space Utilization.

BUILDING SYSTEMS INFORMATION

Hopkins Hall #149

HEATING:

Source Power Plant Hot Water
Type Heating System Hot Water Radiation
Steam (Line size, valve location) None
Building Htg Water (line size, valve location) 8" HWS, 8" HWR, Rm # 040

VENTILATION SYSTEM:

Dual Duct System in the south wing and fresh air ventilation in the north.

COOLING:

Bldg % 50 Chillers 150 Ton, American Standard
Window Units 5 Thru-the-wall None Direct exp. units 4

HVAC CONTROL SYSTEM:

JC-80 System

ELECTRIC: Source Size(KVA) Primary/Secondary Switchgear & Main Disc. (Rm)
1. Buckeye, PGN9/PGS3 750 13,200/208Y/120 VAC-PAC Rm #063M

PLUMBING:

Water (size, valve location) 4" Rm #079
Gas (size, valve location) 3" Rm #063M and 3" Rm #040; (Interconnected)
Domestic Hot Water (size, valve location) 2 1/2" DHWS, 3/4" DHWR, RM #063
Compressed Air (size, location) 2 1/2" Line Room #063M

SEWERS: Storm 2 @ 4", 1 @ 6" Sanitary 1 @ 4", 1 @ 5"

METERS:

Gas (size, location) None
Water (size, location) None
Electric (size, location) West Wall of Room # 063M

ALARM SYSTEMS:

Fire Alarm Yes Panel Location Rm #063M
Fire Pump No Pump Location None
Sprinklers No Panel Location None
Other Alarms Siamese Pumper located in SE corner of driveway

ELEVATORS:

Number One Type (passenger, freight) Passenger
Manufacturer Otis Size 4,000 lb. and 59 FPM

EMERGENCY GENERATOR: Size None Location

KEY BOX LOCATION: Northeast Entrance at basement landing

ASBESTOS SURVEY (1986): Pipe insulation containing asbestos was identified in various rooms.

HOPKINS HALL NARRATIVE

GENERAL

This Building Audit was conducted by Physical Facilities for the purpose of evaluating the present condition of the building for which Physical Facilities has a budgetary responsibility. This audit describes the current physical condition of the facility and identifies existing corrective maintenance and building component system replacement requirements.

It has been assumed that the program needs of the tenant departments are being met by the facility. In addition, this audit does not intend to assess the condition of this facility which is the budgetary responsibility of the tenant departments.

Audit objectives and methodology are described in greater detail in the "Building Audit Methodology" section of this report.

HISTORY

Hopkins Hall (original building) was built in 1959. In 1962 the building was about doubled in size with the addition of the south wing. The building was built as a "Fine Arts Building" to replace Hayes Hall. The building is occupied by the Departments of Art, Art Education, and Industrial Design. There are several studios, laboratories and shop areas located in the building. The usage breakdowns are as follows: Classrooms 9.3%; Offices 18.6%; Laboratories 57.8%; Exhibition 4.3%; Mechanical 10.0%.

The diversity of the uses of the different laboratories creates several problems for the maintenance and upkeep of the building. The basement which houses the pottery and ceramic labs is a major housekeeping problem. The clay dust infiltrates the HVAC system and is distributed throughout the building. The first floor has a woodworking shop, neon light laboratory and pool classroom. The second floor has a computer lab, pool classroom and paint studios. The third floor has the silk screening lab, another computer lab, and several faculty offices. The fourth floor is primarily studios used by graduate students. Each of these uses creates special environmental problems that the building systems must handle. These problems will be discussed below with each building system.

PRIMARY SYSTEMS

The foundations, substructure, and superstructure all appear to be in good condition. There are no signs of settlement or movement in the building foundation. The basement floor slab has several cracks that appear to have occurred shortly after the building was built. These cracks should be ground out and caulked to seal and prevent any further damage.

The exterior closure is brick veneer with some serpentine and stone panels. The caulking around the window frames has deteriorated and should be removed and replaced. The east side of the building is covered with vines over about 50% of the exterior. A large part of the exterior wall area is glass because of the many windows that were installed to provide natural light for the studios. The brick is at that age that it should be cleaned and sealed in the next few years.

The single glazed aluminum frame windows are in good condition and when operated

opened and closed without any problems. We counted 291 windows in Hopkins Hall.

The windows on the south side of the building that face the oval have been tinted to reduce the heat gain from the sun, but different color tints have been used. These windows should all be tinted the same to provide uniformity to the building exterior.

The roofing was installed in 1959 and 1962 when the buildings were built. There have been 6 reported roof leaks and the tin shop was in the process of repairing a leak the first day of inspecting the building for this audit. There were several tunnel blisters observed when walking across the roof. While the roof has performed well and there have been few reported leaks, it will be necessary to replace this roof or we will experience many more leaks as it continues to deteriorate.

SECONDARY SYSTEMS

The partitions, doors, walls and ceilings at Hopkins Hall have experienced considerable wear and tear. Several of the interior doors have had paint spilled or splattered. The ceramic laboratories have generated clay dust that has collected on the walls and ceilings of the lower level. The doors from the stairwells to the corridors have the paint worn off and need to be painted.

The two pool classrooms in Hopkins are used almost every available hour of the week. These rooms generate about 400 students that enter and leave the building every hour from 8:00 am to 5:00 pm. This traffic in addition to the art students that have classes in Hopkins every day creates tremendous demands on the housekeeping staff and the building systems.

The stairwells and restrooms that have glazed block walls need to be washed. The stairs have concrete treads that need to be replaced because of spalling. The corridors that have metal ceiling tiles need to have the walls and ceilings cleaned and painted. The wood doors from the corridors to the rooms need to be cleaned (artist paint removed) and refinished.

The pool classrooms should be painted. Room 262 has a suspended ceiling (2' X 4') tiles that needs to be cleaned along with the light fixtures. Room 162 that has an exposed concrete ceiling needs to be painted and the light fixtures cleaned. There are nine (9) broken chairs in the rear of room 162 that need to be replaced.

SERVICE SYSTEMS

The elevator in Hopkins has been reliable and experiences few breakdowns. The interior of the cab is painted by the art students each quarter with art graffiti. This only interferes with the operation of the elevator when they paint the control buttons while painting the walls. The major components of the elevator are worn and a project is proposed to modernize the mechanical equipment for the elevator.

The plumbing systems in Hopkins have some operational problems. The laboratories all have service sinks that are used to clean paint brushes, pottery and ceramic tools, and other equipment used by the art classes. While the instructors have cautioned the students about what materials are to be discarded into the drains, we still have several drains being clogged because of clay, paint, and other items being put into them. The Programmed Maintenance Shop has recently completed a study of this problem and has proposed a preventative maintenance

program to clean the sediment traps and interceptors on a scheduled basis.

The domestic water systems did not appear to have any problems. Several of the fixtures have been stained from paint or other materials, but they functioned properly. It seem to be the consensus of the staff that any replacement of the fixtures would result in the new fixtures being stained and put in the same condition very quickly.

The hot water heating system is in good condition. Several of the rooms are very dirty from clay dust and saw dust that has collected on the convectors and finned tube heat exchangers. This effects the efficiency of these units, but there were not observed any operating problems with this system.

The ventilation system is currently being studied by consulting engineers to "upgrade building ventilation in the most critical areas, including additional exhaust from selected studios and instructional laboratories". The air quality in Hopkins Hall has been a concern because of the many different chemicals and paints used. A project to improve this air quality is currently funded, but we are proposing an additional project of \$300,000 to complete the ventilation changes recommended by the consulting engineers. Any current ducts or air handlers that will continue to be used after the ventilation modifications should be cleaned.

The chiller that supplies chilled water for cooling the 1962 addition was rebuilt earlier this year. This should provided adequate performance for the next few years, but sometime in the future the demand to provide air conditioning for the other parts of the building will require this chiller being replaced with one of larger capacity.

ELECTRICITY

The transformer that supplies Hopkins sits in the courtyard on the south side of the original wing. The switchgear is located in room 063m in the lower level of Hopkins. There appears to be adequate electrical service for the current needs of the building. There have been a few window air conditioners installed that required special receptacles be installed, but there was adequate breaker capacity.

The building has a combination of fluorescent lamps and incandescent lights. The areas where art work is displayed has had incandescent lighting installed with dimmer controls. The motorized dimmers for the art gallery are currently being replaced. The lighting fixtures throughout the building are in need of a good cleaning. The 30 years of accumulated dust and dirt are affecting the efficiency of the lighting and provide a poor appearance.

The electric meter is located in room 063M. The demand meter reads 0.6, which is equal to 360 KW. The transformer is rated at 637.5 KW, which means we are at about 56% of capacity. The breaker panels are used to turn lights on and off when there are dimmers on the circuits, which has resulted in abnormal wear and tear on the breaker panel boxes. Replacement of the motorized dimmers for the gallery should eliminate some of this.

SAFETY STANDARDS

Hopkins Hall is equipped with a manual fire alarm system. Portable fire extinguishers and hose cabinets are located on each floor of the building.

Emergency lighting is provided by a dualite inverter system.

The University Health Service completed an air quality study for Hopkins Hall because of use of the different paints, paint thinners and chemicals used. To improve the air quality in Hopkins Hall ventilation changes are being designed by Philip E. Absi & Associates. The first phase of these ventilation changes will be installed in 1992, but additional funds will have to be allocated to complete the second phase.

ASBESTOS

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report: Inventory of friable Asbestos-Containing Materials in Buildings of the Ohio State University (Main and Branch Campuses) and Recommendations for Corrective Action by PEI Associates, September 1986, identifies asbestos containing materials in pipe insulation throughout the building.

BUILDING PERIMETER

The exterior of the building has several items that need attention. The front steps on the south side are pitted from ice melt being applied and need to be replaced. The planters on the oval side of the building are overgrown, full of weeds, and need to be mulched. The benches on the south side and west side are usable, but in poor condition. Some of the brick pavers on the west side are heaved and need to be re-installed.

Vines are growing over the east side of the building that should be removed to clean and seal the exterior masonry. The handicapped ramp from the courtyard is deteriorating and needs the re-bar sealed and concrete patched. The loading dock on the east end of the building also needs some concrete repairs.

The birds have nested in the air inlet grilles for the ventilation system causing a mess and restricting air flow. A screen needs to be installed on the exterior of the grille to stop this problem. The signage for the building is on the 17th avenue side only. The oval side of the building should have some form of identification.

PROPOSED MAINTENANCE PROJECTS
(R&R or CAPITAL FUNDED)

Hopkins Hall #149

A. Corrective Maintenance Projects:

- 1. Complete Phase II of ventilation modifications to comply with health & safety requirements.....\$300,000.00*
 - 2. Modernize and upgrade elevator equipment.....75,000.00*
 - 3. Remove and replace pitted and spalled concrete treads in metal stair pans at north entrances.....8,000.00*
 - 4. Remove and replace pitted and spalled limestone stair treads on the exterior of south entrance.....31,000.00*
 - 5. Replace built-up flat roof and sawtooth sloping roof (14,665 SF with gravel & 8,688 w/o gravel).....135,000.00
 - 6. Repair and replace brick and mortar in planters and screen walls located in courtyard and Oval side of building.....9,000.00*
 - 7. Repair concrete ramp from courtyard.....5,000.00
- Sub Total 563,000.00

B. Building Improvements/Addition Projects:

- 1. Add central air conditioning to the north wing (1959 construction) of the building.....500,000.00
 - 2. Paint walls and ceilings of corridors.....35,000.00
- Sub Total 535,000.00

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

- 1. Replace 150 ton chiller (installed in 1962).....350,000.00
 - 2. Cut out and remove the existing sealant around all masonry openings and reseal with new sealant.....280,000.00
 - 3. Replace plumbing fixtures and drain lines from laboratories.....242,500.00
- Sub Total 872,500.00

Total Cost for all Projects = \$1,970,500

* These projects are currently on our departmental project list as either proposed or funded projects.

MAINTENANCE PROJECTS
(Less than \$5,000)

Hopkins Hall #149

1. Wash glazed block walls in stairwells and restrooms.
2. Clean planter beds and trim shrubs on the Oval and courtyard sides of the building.
3. Clean all sediment traps and interceptors to establish a starting point to implement the preventive maintenance program outline by the Program Maintenance Shop.
4. Clean the coils of the air handler units and replace filters.
5. Clean light fixtures and ceiling registers.
6. Caulk ceiling crack in Room 354.

BUILDING EVALUATION SUMMARY

I. BUILDING INFORMATION

FAC # 149 FACILITY NAME: Hopkins Hall
 DATE: June 18, 1991 INSPECTOR: RDL
 YEAR CONSTRUCTED: 1959
 GROSS SQ FT: 106,856 NET SQ FT: 69,041
 REPLACEMENT COST \$ 12,337,000 *

II. COMPONENT RATING

COMPONENT	BUILDING COMPONENT PERCENTAGE OF TOTAL COST **	BUILDING COMPONENT REPLACEMENT COST	CONDITION VALUE MULTIPLIER FOR BLDG. COMPONENT	BUILDING COMPONENT CURRENT VALUE
Foundation	4.69	538,103	0.90	484,293
Columns and Beams	12.68	1,454,828	0.90	1,309,345
Exterior Walls	4.84	555,313	0.79	438,697
Windows & Doors	3.75	430,253	0.73	314,085
Roofing	2.42	277,657	0.37	102,733
Partitions & Drs.	7.86	901,810	0.76	685,376
Wall Finishes	2.40	275,362	0.50	137,681
Floor Finishes	4.55	522,040	0.73	381,089
Ceilings & Finish	6.47	742,330	0.57	423,128
Conveying	1.52	174,396	0.40	69,758
Plumbing	13.70	1,571,857	0.69	1,084,581
Heating	7.91	907,547	0.72	653,434
Cooling & Vent.	9.07	1,040,638	0.53	551,538
Elec. Ser. & Dist	1.56	178,985	0.77	137,818
Lighting & Power	10.54	1,209,297	0.64	773,950
Safety Standards	6.04	692,994	0.53	367,287
TOTALS	100.00	11,473,410		7,914,793

III. BUILDING RATING SUMMARY

Overall Building Rating = 69.0%

* Replacement Cost assigned January 1991 by The Office of Campus Planning and Space Utilization 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.

COLUMNS AND BEAMS

FAC # 149 DATE 5-8-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Columns and Beams:

	N/A	Sat	Att
Concrete-in-place _____	[]	[X]	[]
Precast Concrete _____	[X]	[]	[]
Steel _____	[X]	[]	[]
Steel Fireproofing _____	[X]	[]	[]
Wood _____	[X]	[]	[]
Other _____	[X]	[]	[]

b. Floors:

Concrete Slab <u>ALL FLOORS</u> _____	[]	[X]	[]
Precast Slab _____	[X]	[]	[]
Metal Deck _____	[X]	[]	[]
Metal Deck w/concrete fill _____	[X]	[]	[]
Wood _____	[X]	[]	[]
Other _____	[X]	[]	[]

c. Roof System:

Flat _____	[]	[]	[X]
Pitched _____	[X]	[]	[]
Concrete <u>POURED IN PLACE 1959 SECTION, PRE-CAST</u> <u>1960 SECTION</u> _____	[]	[X]	[]
Steel _____	[X]	[]	[]
Wood _____	[X]	[]	[]
Other _____	[X]	[]	[]

B. COMMENTS:

1. ROOM 354 HAD A CRACK IN THE CEILING, THE FLOOR OF ROOM 458. PAINT HAD BEEN SPILLED IN 458 AND HAD FLOWED THROUGH THE CRACK TO THE ROOM BELOW.

C. COMPONENT RATING: (\$1,454,828) X (90 %) = \$1,309,345

Possible	Condition	Component
Value	Value Multiplier	Value

EXTERIOR WALLS

FAC # 149 DATE 5-8-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Walls:

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Concrete _____	[]	[X]	[]
Masonry <u>THE PROMINENT MATERIAL</u>	[]	[X]	[]
Metal Siding _____	[X]	[]	[]
Wood Siding _____	[X]	[]	[]
Other <u>SERPENTINE PANELS AND STONE PANELS</u>	[]	[X]	[]

b. Finishes:

Stucco _____	[X]	[]	[]
Paint _____	[X]	[]	[]
Other _____	[X]	[]	[]

B. COMMENTS:

1. SOME CRACKS AND SEPARATION.
2. MASONRY SHOULD BE CLEANED AND SEALED WITHIN THE NEXT FIVE YEARS.

C. COMPONENT RATING: (\$555,313) X (79 %) = \$ 438,697
 Possible Condition Component
 Value Value Multiplier Value

EXTERIOR WINDOWS & DOORS

FAC # 149 DATE 5-8-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Windows type & number:	N/A	Sat	Att
Wood _____	[X]	[]	[]
Steel _____	[X]	[]	[]
Alum <u>SINGLE HUNG</u>	[]	[X]	[]
Other _____	[X]	[]	[]
b. Window glazing:			
Single pane _____	[]	[X]	[]
Double pane _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Doors type & number:			
Wood _____	[X]	[]	[]
Steel <u>AT LOADING DOCK AT REAR OF BLDG.</u>	[]	[X]	[]
Alum <u>AT MAIN ENTRANCE DOOR.</u>	[]	[X]	[]
Other _____	[X]	[]	[]
d. Shading Devices:			
Types <u>VENETIAN BLINDS</u>	[]	[]	[X]

B. COMMENTS:

1. SEVERAL OF THE BLINDS ARE BENT OR DO NOT OPERATE CORRECTLY.
2. SCREENS HAVE BEEN REMOVED FROM MOST WINDOWS. SOME ARE STORED IN THE MECHANICAL ROOMS.
3. HARDWARE (LOCKS) ON NW ENTRANCE DOOR HAS BEEN A PROBLEM.

C. COMPONENT RATING: (\$430,253) X (73 %) = \$ 314,085

Possible	Condition	Component
Value	Value Multiplier	Value

WALL FINISHES

FAC # 149 DATE 5-13-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
a. Paint _____	[]	[]	[X]
b. Wall Coating _____	[X]	[]	[]
c. Wall Coverings _____	[X]	[]	[]
d. Paneling			
Prefinished <u>INDUSTRIAL DESIGN HALLS HAVE FORMICA & WOOD</u>	[]	[X]	[]
Plank _____	[X]	[]	[]
e. Cork _____	[X]	[]	[]
f. Wallpaper _____	[X]	[]	[]
g. Ceramic Tile <u>USE IN 4TH FLOOR RESTROOMS</u>	[]	[X]	[]
h. Trim & Wainscot _____	[X]	[]	[]
i. Decoration _____	[X]	[]	[]
j. Glass <u>USED FOR OBSERVATION OF POTTERY LAB</u>	[]	[X]	[]
k. Other _____	[X]	[]	[]

B. COMMENTS

1. SEVERAL WALLS IN BUILDING CORRIDORS NEED TO BE PAINTED.
2. GLAZED BLOCK GLASS WALL DIVIDERS IN STAIRWELLS ARE VERY DIRTY AND NEEDS TO BE WASHED

C. COMPONENT RATING: (\$ 275,362) x (50 %) = \$ 137,681
 Possible Condition Component
 Value Value Multiplier Value

FLOOR FINISHES

FAC # 149 DATE 5-13-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
a. Carpet:			
Rolled _____	[X]	[]	[]
Tile _____	[X]	[]	[]
b. Composition:			
Epoxy _____	[X]	[]	[]
Synthetic _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Concrete Topping:			
Clear Sealant <u>BASEMENT CORRIDORS AND LABS, AND STAIRS</u>	[]	[]	[X]
Abrasive _____	[X]	[]	[]
Epoxy _____	[X]	[]	[]
Aggregate _____	[X]	[]	[]
d. Resilient:			
Vinyl Tile <u>CORRIDORS AND STAIRWELLS ON NORTH SIDE</u>	[]	[X]	[]
Linoleum _____	[X]	[]	[]
Vinyl _____	[X]	[]	[]
Rubber _____	[X]	[]	[]
Cork _____	[X]	[]	[]
e. Ceramic Tile _____	[]	[]	[]
f. Masonry <u>1ST FLOOR AT ENTRANCE</u>	[]	[X]	[]
g. Terrazzo <u>1ST FLOOR CORRIDOR AND STAIRS AND RESTROOMS</u>	[]	[X]	[]
h. Wood _____	[X]	[]	[]
i. Metal _____	[X]	[]	[]

B. COMMENTS

1. BASEMENT FLOOR HAS SEVERAL CRACKS THAT NEED TO BE SEALED.
2. STAIR TREADS AT NE AND NW STAIRWELLS ARE SPALLED BETWEEN 1ST AND SECOND FLOORS. THEY NEED TO BE REPAIRED.

C. COMPONENT RATING: $(\$ 522,040) \times (73 \%) = \$ 381,089$

Possible	Condition	Component
Value	Value Multiplier	Value

CONVEYING

FAC # 149 DATE 5-6-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Elevators:

	N/A	Sat	Att
Number <u>ONE (OTIS)</u>	[]	[X]	[]
Type <u>PASSENGER (5 LANDINGS)</u>	[]	[]	[X]
Speed <u>50 FPM</u>	[]	[X]	[]
Capacity (lbs) <u>4000 LBS.</u>	[]	[X]	[]
Dimensions <u>5' X 10' FLOOR AREA</u>	[]	[X]	[]
Door Operation:			
Center _____	[X]	[]	[]
To Side <u>TWO DOORS (FRONT AND REAR)</u>	[]	[X]	[]

b. Lifts and Hoists:

Number _____	[X]	[]	[]
Type _____	[X]	[]	[]

c. Moving Stairs and Walks:

Number _____	[X]	[]	[]
Type _____	[X]	[]	[]

d. Conveyors:

Number _____	[X]	[]	[]
Type _____	[X]	[]	[]

e. Pneumatic Tubes:

Number _____	[X]	[]	[]
Type _____	[X]	[]	[]

B. COMMENTS:

1. INTERIOR OF CAB HAS BEEN PAINTED BY ART STUDENTS.
2. CONTROLS WORK OKAY, BUT THEY ARE DIRTY AND CLOGGED WITH PAINT.
3. ELEVATOR NEEDS TO BE MODERNIZED AND MAJOR COMPONENTS REPLACED.
4. REAR PANEL MISSING FROM CONTROL PANEL (VERY DIRTY - CLAY DUST).

C. COMPONENT RATING: (\$ 174,396) x (40 %) = \$ 69,758

Possible	Condition	Component
Value	Value Multiplier	Value

MECHANICAL/HEATING

FAC # 149

DATE: 5-15-91

INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Heat Source:

	N/A	Sat	Att
Central Plant Steam _____	[X]	[]	[]
Central Plant Hot Water <u>8 INCH LINE FROM POWER PLANT</u>	[]	[X]	[]
Boilers: Type _____	[X]	[]	[]
Size _____	[X]	[]	[]
Furnace: Type _____	[X]	[]	[]
Size _____	[X]	[]	[]
Heat Pump: Type _____	[X]	[]	[]
Size _____	[X]	[]	[]
Burners: gas _____	[X]	[]	[]
oil _____	[X]	[]	[]

b. System Type:

Steam _____	[X]	[]	[]
Hot Water <u>WALL CONVECTORS AND AIR HANDLER SYSTEM</u>	[]	[X]	[]
Air _____	[X]	[]	[]
Electric _____	[X]	[]	[]
Solar _____	[X]	[]	[]
Other _____	[X]	[]	[]

c. Space Equipment:

Radiators _____	[X]	[]	[]
Convectors <u>LOCATED ON EXTERIOR WALLS OF CLASSROOMS</u>	[]	[X]	[]
Finned Tube <u>LOCATED ON EXTERIOR WALLS OF LABORATORIES</u>	[]	[X]	[]
Baseboard _____	[X]	[]	[]
2-Pipe Fan Coil _____	[X]	[]	[]
Unit Ventilators <u>LOCATED IN STAIRWELLS</u>	[]	[]	[X]
Multizone _____	[X]	[]	[]
Double Duct <u>LOCATED IN SOUTH WING, 1962 ADDITION</u>	[]	[]	[X]
Terminal Reheat _____	[X]	[]	[]
Other _____	[X]	[]	[]

d. Control Type:

Pneu _____	[]	[X]	[]
Electric _____	[X]	[]	[]
Electronic _____	[X]	[]	[]
DDC _____	[X]	[]	[]
Manual Valves _____	[]	[X]	[]

B. COMMENTS:

1. SYSTEM IS DIRTY - DUCTS AND COILS ARE COVERED WITH DUST FROM CLAY ROOM AND WOOD WORKING SHOP.

2. CONVECTORS ARE DIRTY FROM DUST, EFFECTING EFFICIENCY OF COILS.

C. COMPONENT RATING: (\$ 907,547) x (72 %) = \$ 653,434
 Possible Condition Component
 Value Value Multiplier Value

COOLING & VENTILATING

FAC # 149 DATE: 5-10-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. System:			
Type <u>DUAL DUCT SYSTEM IN SOUTH WING</u>	[]	[]	[X]
Capacity <u>150 TONS</u>	[]	[X]	[]
b. Chillers:			
Centrifugal <u>AMERICAN STANDARD, 150 TON CHILLER (REBUILT 1991).</u>	[]	[X]	[]
Reciprocating _____	[X]	[]	[]
Absorption _____	[X]	[]	[]
c. Cooling Towers:			
Type <u>MARLEY AQUATIRES (2 UNITS ADJACENT TO EACH OTHER).</u>	[]	[X]	[]
Capacity <u>150 TONS</u>	[]	[X]	[]
d. Condensers: <u>2 CARRIER UNITS AND 1 LIEBERT UNIT</u>	[]	[X]	[]
e. Space Equipment:			
Direct Expansion -			
Window units <u>NINE WINDOW AIR CONDITIONERS</u>	[]	[X]	[]
Thru-the-wall <u>NONE</u>	[X]	[]	[]
Single zone _____	[X]	[]	[]
Single zone con. vol. <u>2 CARRIER SYSTEMS AND 1 LIEBERT</u>	[]	[X]	[]
Other _____	[X]	[]	[]
Air/Water -			
2-pipe fan coil _____	[X]	[]	[]
Unit ventilators _____	[X]	[]	[]
Terminal reheat _____	[X]	[]	[]
Variable air volume _____	[X]	[]	[]
Dual Duct <u>MODIFIED TO VAV IN 1962 SECTION</u>	[]	[]	[X]
f. Special Systems:			
Type <u>2 VACUUM SYSTEMS TO COLLECT DUST</u>	[]	[X]	[]
Capacity _____	[X]	[]	[]
g. Control Systems:			
Pneu <u>YES, JC-80 SYSTEM</u>	[]	[X]	[]
Electric _____	[X]	[]	[]
Electronic _____	[X]	[]	[]
h. Fans:			
Exhaust <u>22 EXHAUST FANS</u>	[]	[]	[X]
Recirculating <u>20 RECIRCULATING FANS</u>	[]	[]	[X]

B. COMMENTS:

1. VENTILATION SYSTEM IS VERY DIRTY (DUCTS AND COILS) FROM CLAY, DUST AND WOOD WORKING SAWDUST.
2. BUILDING VENTILATION SYSTEM IS BEING REVISED TO IMPROVE AIR QUALITY
3. ONLY HALF OF THE BUILDING IS AIR CONDITIONED (SOUTH WING).

C. COMPONENT RATING: (\$ 1,040,638) x (53 %) = \$ 551,538

Possible	Condition	Component
Value	Value Multiplier	Value

ELECTRICAL/SERVICE & DISTRIBUTION

FAC # 149 DATE: 5-9-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

(a) Service:

Substation BUCKEYE, CIRCUITS PGN9/PGS3

Primary Voltage 13,200 VOLTS

Transformer:

Manufacture	Type	KVA	Secondary Voltages
<u>VONTRAN</u>	<u>MINERAL</u>	<u>750</u>	<u>208Y/120</u>

(b) Distribution System:

Panelboard (type) BREAKERS

Voltage 220 VOLTS

Amperage 800 AMPS PANELS

Conduit ALUMINUM 5 GALVANIZED

Conductor N/A

Wire (type) N/A

Armored Cable N/A

Other N/A

(c) Emergency System:

General or (type & capacity) NONE (BATTERIES ON EXIT SIGN)

B. COMMENTS:

- ADEQUATE ELECTRIC SERVICE IS AVAILABLE FOR CURRENT NEEDS.

C. COMPONENT RATING: $\frac{(\$ 178,985)}{\text{Possible Value}} \times \left(\frac{77 \%}{\text{Condition Value Multiplier}} \right) = \frac{\$ 137,818}{\text{Component Value}}$

BUILDING PERIMETER EVALUATION

FAC # _____ DATE: _____ INSPECTOR: _____

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
1. Structural Access:			
Driveway _____	[]	[X]	[]
Loading Dock <u>LIGHTS MISSING, CONCRETE NEEDS REPAIRED</u>	[]	[]	[X]
Sidewalks			
Front _____	[]	[X]	[]
Side <u>WEST - BRICK PAVERS, 3 TREES</u>	[]	[X]	[]
Rear <u>COURTYARD SECTION AT TREES CRACKED</u>	[]	[X]	[]
Steps			
Front <u>NEED REPAIRED FROM SPALLING BY ICE MELT</u>	[]	[]	[X]
Side _____	[X]	[]	[]
Rear <u>NEXT TO LOADING DOCK NEEDS CONCRETE PATCHED</u>	[]	[]	[X]
Handicap Ramp <u>HAS SPALLED, RE-BAR EXPOSED & RUSTED</u>	[]	[]	[X]
2. Lawn and Landscaping:			
Lawn <u>SPOTS ARE BARE</u>	[]	[X]	[]
Shrubs <u>NEED TRIMMED</u>	[]	[]	[X]
Trees <u>OK</u>	[]	[X]	[]
Undesirable Insect _____	[X]	[]	[]
Bedding Material <u>NONE</u>	[]	[]	[X]
Watering System <u>NONE</u>	[X]	[]	[]
3. General Site Information:			
Signage <u>SIGNAGE ON 17TH AVE NOT OVAL SIDE</u>	[]	[X]	[]
Address Identification _____	[]	[X]	[]
Security Lights _____	[]	[X]	[]
Street Lights _____	[X]	[]	[]
Drainage _____	[]	[X]	[]
Storm Drains <u>NEED CLEANED IN WINDOW WELLS</u>	[]	[]	[X]

B. COMMENTS:

1. FRONT STEPS ARE IN NEED OF REPAIR FROM DAMAGE CAUSED BY APPLICATION OF ICE MELT IN THE WINTER.
2. VINES GROWING ON THE EAST SIDE OF THE BUILDING WILL NEED TO BE REMOVED TO SEAL MASONRY.
3. BIRDS HAVE MADE NESTS IN THE AIR INLET GRILLE FOR BUILDING AIR HANDLERS. A SCREEN SHOULD BE INSTALLED IN THE OUTSIDE TO STOP THE NESTING.
4. SIGNAGE FOR IDENTIFICATION OF HOPKINS HALL IS LOCATED ON 17TH AVE THE OVAL SIDE OF BUILDING DOES NOT HAVE ANY IDENTIFICATION.

**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 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 buildings inspected were approved by the State of Ohio Division of Factory and Building Inspection at the time of construction. 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. Ongoing 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

BLDG.....	BUILDING
BUR.....	BUILT UP ROOF
DD.....	DUAL DUCK AIR HANDLING SYSTEM
DDHV.....	DUAL DUCT HIGH VELOCITY
DHWR.....	DOMESTIC HOT WATER RETURN
DHWS.....	DOMESTIC HOT WATER SUPPLY
DX.....	DIRECT EXPANSION AIR CONDITIONER
FPM.....	FEET PER MINUTE
HID.....	HIGH INTENSITY DISCHARGE LIGHT
HVAC.....	HEATING, VENTILATING AND AIR CONDITIONING SYSTEM
KV.....	KILOVOLTS
KVA.....	KILOVOLTS AMPS
KW.....	KILOWATTS
LC.....	LIQUID COOLED
MZ.....	MULTIZONE AIR HANDLING SYSTEM
N/A.....	NOT APPLICABLE
PSI.....	POUNDS PER SQUARE INCH
RM.....	ROOM
SR.....	STEAM RETURN LINE
SS.....	STEAM SUPPLY LINE
TR.....	TERMINAL REHEAT AIR HANDLING SYSTEM
V.....	VOLTS
VAV.....	VARIABLE AIR VOLUME SYSTEM

APPENDIX

Building Floor Plans
C-1 Building Space Assignments