

FACILITY AUDIT REPORT
BROWN HALL
#016

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Prepared by Richard D. Lighthiser, P.E.
Division of Resource Management
Department of Physical Facilities
The Ohio State University

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GENERAL BUILDING INFORMATION

BROWN HALL #016

BUILDING ADDRESS: 190 W. 17th Avenue

GROSS SQ. FT.: 74,902

NET ASSIGNABLE SQ. FT.: 42,574

MECHANICAL/CUSTODIAL AREA SQ. FT.: 2,996

YEAR OF CONSTRUCTION: 1903

YEAR OF LAST RENOVATION: 1910, (1921 north wing addition was built)

NUMBER OF STORIES/BASEMENT: Three stories with a full basement

AIR CONDITIONING (Percentage): 60 %

CURRENT USE: Offices of the School of Architecture, the Department of City and Regional Planning, studios and classrooms.

TYPE OF CONSTRUCTION: Masonry Load bearing walls with wood floor joists for the 1903 building and reinforced concrete for the 1921 addition.

ESTIMATED REPLACEMENT COST: \$ 9,619,000 *

BUILDING APPEARANCE: Old, Neglected, Major Renovation and Modernization needed.

HANDICAPPED ACCESSIBILITY: Through the north entrance off 18th Avenue to the elevator at the east end of the corridor.

OVERALL BUILDING CONDITION: Major Rehabilitation **

NUMBER OF EXIT STAIRWAYS: Two (2)

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

** Office of Campus Planning and Space Utilization C-1 Report Condition Code.

BUILDING SYSTEMS INFORMATION

BROWN HALL #016

HEATING: Source POWER PLANT

Type Heating System STEAM AND HOT WATER

Steam (Line size, valve location) 2" STEAM SUPPLY, ROOM 36M

Bldg Htg Water (line size, valve location) 2 1/2" HOT WATER SUPPLY, 36M

VENTILATION SYSTEM:

MULTI-ZONE UNIT RM 85,89, & 95; SINGLE-ZONE UNITS RM 61,05,161,171, & 181

COOLING:

Bldg % 60 % Chillers 3 WATER CHILLERS FOR A TOTAL OF 60 TONS

Window Units 93 Thru-the-wall N/A Direct exp. units 5 SYSTEMS

HVAC CONTROL SYSTEM: JC-80, JOHNSON CONTROLS

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

1. CIRCUITS PGN9/PGS3 500 13,200 / 208Y/120 36M

PLUMBING:

Water (size, valve location) 2 1/2" LINE, RM 36M

Gas (size, valve location) 2", RM 36M

Domestic Hot Water (size, valve location) LOCAL ELEC HOT WATER TANK, 24M

Compressed Air (size, location) 1/2" LINE, ROOM 06M

SEWERS: Storm N/A Sanitary N/A Combination 6" @ NW, 8" @ SE, 12" @ SW

METERS:

Gas (size, location) N/A

Water (size, location) LOCATED IN RM 024M

Electric (size, location) N/A

ALARM SYSTEMS:

Fire Alarm MANUAL Panel Location RM 36M

Fire Pump N/A Pump Location N/A

Sprinklers N/A Panel Location N/A

Other Alarms SMOKE ALARMS LOCATED IN AIR HANDLER SYSTEMS

ELEVATORS:

Number ONE Type (passenger, freight) PASSENGER

Manufacturer OTIS Size 2,500 LBS.; 100 FPM

EMERGENCY GENERATOR: Size N/A Location

KEY BOX LOCATION: BASEMENT ENTRANCE OFF 17TH AVENUE

ASBESTOS SURVEY (1986): ASBESTOS CONTAINING MATERIALS WERE IDENTIFIED IN RMS 24M, 36M, 75,78, & 89

BROWN HALL NARRATIVE

GENERAL

This Building Audit was conducted by Physical Facilities for the purpose of evaluating the present condition of those aspects of the building for which Physical Facilities has a budgetary responsibility. This audit describes the current physical condition of those aspects of the facility and identifies existing corrective maintenance repairs and building component system replacement requirements. It has been assumed that the program needs of the tenant departments are being met by the facility.

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

HISTORY

Brown Hall was constructed in two phases, 1903 and 1921. It was originally referred to as the "Engineering Building". In 1912 the first floor was remodeled to provide offices for the University Architect. In 1968-69 the east end of the basement was extensively remodeled to provide offices for the College of Humanities and the Placement Offices for the College of Arts and Science. The remaining parts of the building are occupied by the School of Architecture and the Department of City and Regional Planning. Facility use is approximately 38.8% laboratory, 6.5% mechanical/custodial, 46.1% office and related use, and 8.6% classroom.

Very little remodeling or modernization work has been completed in Brown Hall since the 1968-69 remodeling. A new Spanish Tile roof was installed in 1991 and the BUR roof is scheduled to be replaced in 1992. The interior of the building is in very poor condition. Brown Hall is on the long-range capital plan to be considered for a major renovation in year 2003. This building condition audit is primarily concerned with evaluating the building repairs that will be needed to keep this building usable and livable for the next 10 to 15 years until it is scheduled to be renovated.

PRIMARY SYSTEMS

The 1903 section of the building is load bearing masonry walls with wood floor joists and the 1921 section is cast-in-place reinforced concrete structure veneered with a brick and cut stone exterior. The foundation consists of poured concrete footers and walls. The floor of the basement is poured concrete. The slab does not appear to have moved in quite some time and is stable. The floor coverings in the basement range from concrete sealer to vinyl tile.

The structure of the 1921 section appears to be in good condition. The major structural elements, bearing walls and columns, of the 1903 section are also in good condition. The wood floor system does have some soft areas that indicate the flooring system will have to have some major repairs when the building is renovated. Overall alignment appeared to be good and no structural deflection was observed.

The exterior closure had a few vertical cracks. They were caulked when the exterior masonry was sealed in 1975. The exterior brick is dirty and could use a good cleaning; the mortar joints and caulking are in good condition. It will be necessary to reseal and recaulk the exterior of the building in 10 to 15 years.

The original wood and steel vertical sliding windows are all in place, for the most part. The steel frames are rusting with some deteriorating glazing and peeling paint. The wood frames in the 1903 section are in very poor condition. There is rotten wood, broken counter weights, and missing hardware. There is an inordinate amount of damage near the window air conditioning units. This is probably attributable to condensate dripping from the units, as well as, rain leaking around the window air conditioners. Window fit is very poor and air infiltration commonplace. We recommend replacement of the windows with modern double-pane insulating windows to improve energy efficiency, user comfort and reduce window maintenance expenses.

The 1903 roof structure is wood trusses supporting wood decking, covered with a Spanish tile. The 1921 roof structure is cast-in-place concrete with steel framed skylights and built-up-roofing. The roof trusses for the 1903 section were reinforced with steel angle iron when the new tile roof was installed in 1991. The built-up-roof and skylights leak on a regular basis, and both are scheduled to be replaced in 1992.

SECONDARY SYSTEMS

The interior partitions are mostly painted plastered walls. There are several areas where the plaster has come loose because of water leaks and needs to be repaired before any painting can be done. The classrooms were painted in Brown Hall last year, but the offices, corridors, and restrooms have not been painted for over 10 years.

The light fixtures and registers require cleaning. The fluorescent lighting fixtures vary in age and condition from floor to floor and room to room. The hallway lighting on the third floor consists of incandescent lights that have most of the globes missing. We are proposing a project to replace the incandescent light fixtures with fluorescent fixtures.

SERVICE SYSTEMS

The plumbing system does not appear to have been renovated since installation over 80 years ago. Most of the restroom fixtures have been replaced at one time or another. The number of continuing work orders, as well as the appearance of the restrooms, indicate that a complete restroom renovation is required throughout the building. The domestic hot water plumbing system in the west half of the building barely functions. The piping is corroding and the plumbing system should be completely replaced. The original building hot water heating system is functioning adequately at this time but sections of it are over 80 years old and have well exceeded the limits of its design life. Maintenance personnel assigned to this building commented that much of the heating system piping is corroded and will continue to require replacement of sections of piping and radiators.

The ventilation system has the original air handler that has steam coils for heat, but no cooling. The ducts of the original ventilation system are so full of dust and dirt that the occupants have closed off the supply registers in their space. The air conditioning in the building is supplied by a mixture of different small systems. Most of these A/C systems are over 20 years old and have exceeded their expected useful life. The DX systems that supply the computer laboratories are the newest systems and are about 10 years old. The 93 window air conditions are in very poor condition. A project to replace these units would be a big step toward making this building livable for the next 10 to

15 years.

The multi-zone system that supplies the School of Architecture Offices and the Arts & Science Placement Office has to be shut down and repaired about every three weeks during the cooling season. The Department of Physical Facilities proposed replacing this unit with chilled water from the new math building chiller. This did not happen so a project to replace this chiller and cooling tower is proposed.

The elevator was installed in 1975 and has been functioning adequately. The elevator does not possess an emergency phone and has a generally deteriorated interior. The door mechanism was leaking oil at the time of the inspection and was reported for repair.

ELECTRICITY

The building transformer has a primary voltage of 13,200 and secondary voltages of 208Y/120. Electrical service was not upgraded when the new transformers were installed during the PCB project. While inspecting the electrical service, we noticed a number of extension cords being used. Interviews with maintenance personnel indicate that the building has had several supplemental electric circuits added for air conditioners, computer laboratories, and electronic office equipment.

There is very limited panel space to add any more circuits. The building would benefit substantially from complete replacement of the interior electrical distribution system.

SAFETY STANDARDS

The building is equipped with a manual fire alarm system. There are fire hose cabinets on each floor. An exterior fire escape is located on the north side of the building. The fire escape appears to be structurally sound but requires rust treatment and painting. Handicapped access is through the north door off of 18th Avenue. The elevator is located just inside the north entrance, has wheelchair accessible controls, and provides access to the other floors in the building.

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 most pipe insulation located in Rooms 24M, 36M, 75, 78, and 89. The report recommends selective removal as soon as possible.

BUILDING PERIMETER

There are two buildings under construction on the north side of Brown Hall. The access to these construction projects are the west and east sides of Brown. The construction traffic, material storage, and construction equipment have destroyed most of the plantings, driveways, and sidewalks. It is assumed that the contractors will restore these areas when construction is completed.

CONCLUSION

Brown Hall is in very poor condition. There are faculty offices that do not have any heat or air conditioning. The occupants use electric space heaters in violation to campus rules. The student studios have limited electrical service. These areas also are difficult to heat because of the air infiltration around the windows and the aging hot water heating system.

The interior finishes have not been refurbished for several years. Several rooms have plaster damaged by water leaks that has never been repaired. While it is agreed that Brown Hall needs to be renovated, there is no certainty of this occurring. Immediate repairs are necessary to avert the continuing deterioration of this building.

New windows and air conditioning are required. The installation of new windows would not have an adverse effect on the renovation plans assuming that the building exterior will be maintained as was done in the Lazenby and Townshend Hall renovations. After new windows are installed and the BUR roof replaced, the interior should be refurbished with plaster repaired and new paint applied.

PROPOSED MAINTENANCE PROJECTS

BROWN HALL #016

A. Corrective Maintenance Projects:

1. Replace Built-up-Roof and cover skylights to stop leaks.....	\$70,000*
2. Replace building plumbing system and replace damaged fixtures.....	217,216
3. Replace building hot water heating system piping and radiators.....	239,686
4. Paint interior corridors, restrooms, and public areas.....	40,222
5. Install emergency lighting and exit lighting.....	18,726
6. Replace 50 ton chiller and cooling tower for Rm 005 & 105.....	42,800
	Sub Total \$628,650

B. Building Improvement/Addition Project:

1. Replace windows throughout with double-pane insulating type (269 windows).....	\$259,585
2. Upgrade/replace electrical wiring and distribution system throughout.....	187,255
3. Replace 93 window air conditioners with new more efficient units.....	46,500
4. Install suspended ceiling in Rooms 385 and 389 to cover skylights and damaged ceiling.....	9,768
5. Add insulation to attic floor to reduce heat loss (13,725 SF).....	9,882
	Sub Total \$512,990

C. Projected (over the next 10 yrs) Component Replacement Projects:

No projects identified, building to have complete renovation in 10 to 15 years.

Total cost for all projects = \$ 1,141,640

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

MAINTENANCE PROJECTS
(Less than \$5,000)

Brown Hall #016

1. Replace missing and damaged ceiling tile.
2. Repair plaster damage from previous roof leaks.
3. Replace 3rd floor corridor incandescent lights with fluorescent fixtures.
4. Replace damaged tile flooring on third floor.
5. Install telephone for emergency use in elevator.
6. Clean corridor light fixtures and relamp.

BUILDING EVALUATION SUMMARY

I. BUILDING INFORMATION

FAC # 016 FACILITY NAME: BROWN HALL
 DATE: 04-22-92 INSPECTOR: RDL
 YEAR CONSTRUCTED: 1903 WITH AN ADDITION IN 1921
 GROSS SQ FT: 74,902 NET SQ FT: 42,574
 REPLACEMENT COST \$ 9,619,000 X 90% = 8,657,100

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	4.4	380,912	0.70	266,638
Columns and Beams	12.9	1,116,766	0.70	781,736
Exterior Walls	9.3	805,110	0.78	627,986
Windows & Doors	4.6	398,227	0.17	67,699
Roofing	6.2	536,740	0.78	418,657
Partitions & Drs.	9.8	848,396	0.50	424,198
Wall Finishes	3.0	259,713	0.27	70,123
Floor Finishes	5.6	484,798	0.50	242,399
Ceilings & Finish	8.0	692,568	0.54	373,987
Conveying	1.9	164,485	0.82	134,878
Plumbing	2.4	207,770	0.27	56,098
Heating	9.8	848,396	0.27	229,067
Cooling & Vent.	7.6	657,940	0.33	217,120
Elec. Ser. & Dist	1.9	164,485	0.67	110,205
Lighting & Power	12.0	1,038,852	0.44	457,095
Safety Standards	0.6	51,943	0.33	17,141
TOTALS	100.00	8,657,100	0.52	4,495,027

III. BUILDING RATING SUMMARY

Overall Building Rating = 52.0 %

* Replacement Cost assigned September 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.

EXTERIOR WINDOWS & DOORS

FAC # 016 DATE: 4-28-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Windows type & number:		<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Wood	<u>1903 BUILDING, VERTICAL SLIDING WINDOWS</u>	[]	[]	[X]
Steel	<u>1921 ADDITION, VERTICAL SLIDING WINDOWS</u>	[]	[]	[X]
Alum	_____	[X]	[]	[]
Other	_____	[X]	[]	[]
b. Window glazing				
Single pane	<u>BOTH SECTIONS HAVE SINGLE GLAZING</u>	[]	[]	[X]
Double pane	_____	[X]	[]	[]
Other	_____	[X]	[]	[]
c. Doors type & number:				
Wood	<u>1903 & 1921 ADDITION HAVE EXTERIOR WOOD DOORS</u>	[]	[]	[X]
Steel	_____	[X]	[]	[]
Alum	_____	[X]	[]	[]
Other	_____	[X]	[]	[]
d. Shading Devices:				
Types	<u>VENETIAN BLINDS</u>	[]	[]	[X]

B. COMMENTS:

1. WINDOWS IN BOTH SECTIONS OF THE BUILDING SHOULD BE REPLACED. THE ROPE AND CHAIN BALANCES ARE BROKEN IN SEVERAL WINDOWS. THE SINGLE GLAZING IS ENERGY INEFFICIENT AND THE SEALS ARE WORN ALLOWING AIR INFILTRATION.
2. THE ENTRANCE DOORS ARE ALSO WORN AND PROVIDE LIMITED CONTROL OF OUTSIDE AIR INFILTRATION.

C. COMPONENT RATING: (\$398,227) x (0.17) = \$67,699

Possible	Condition	Component
Value	Value Multiplier	Value

ROOFING

FAC # 016 DATE: 4-28-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Roof Covering:	N/A	Sat	Att
Built-up _____	[X]	[]	[]
Built-up w/gravel <u>5,670 SF, SCHEDULED TO BE REPLACED</u>	[]	[]	[X]
Asphalt Shingle _____	[X]	[]	[]
Copper _____	[X]	[]	[]
Glass (Skylight) <u>SAWTOOTH PORTION HAS GLASS SKYLIGHTS</u>	[]	[]	[X]
Slate _____	[X]	[]	[]
Spanish Tile <u>14,342 SF, SPANISH TILE WAS REPLACED 1991</u>	[]	[X]	[]
Metal _____	[X]	[]	[]
Other _____	[X]	[]	[]

b. Flashing:

Base & Counter <u>FELT / METAL FOR FLAT ROOF, NORTH WING</u>	[]	[]	[X]
Cap <u>STONE & METAL, NORTH WING</u>	[]	[X]	[]
Through Wall _____	[X]	[]	[]
Valley & Ridge _____	[X]	[]	[]

c. Gravel Stop & Edge Strips:

Type _____	[X]	[]	[]
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e. Drainage:

Gutters _____	[X]	[]	[]
Drains <u>INTERNAL TO COMBINATION SEWERS</u>	[]	[]	[X]
Scuppers <u>LOCATED ON ROOF OF THE ELEVATOR SHAFT</u>	[]	[X]	[]
Downspouts _____	[X]	[]	[]

f. Parapets:

Concrete _____	[X]	[]	[]
Brick <u>THE FLAT ROOF AREA OF THE NORTH WING</u>	[]	[X]	[]
Block _____	[X]	[]	[]
Precast _____	[X]	[]	[]
Other _____	[X]	[]	[]

g. Insulation:

Type _____	[X]	[]	[]
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B. COMMENTS

1. FLAT ROOF OF THE NORTH WING & SAWTOOTH PORTION NEED EXTENSIVE REPAIR.
2. PARAPETS SHOULD BE TUCK POINTED AND REPAIRED.
3. THE CURRENT ROOF REPAIR PROJECT FOR THE FLAT ROOF INCLUDES COVERING THE SKYLIGHTS.

C. COMPONENT RATING: $(\underline{\$536,740}) \times (\underline{0.78}) = \underline{\$418,657}$

Possible Condition Component

Value Value Multiplier Value

WALL FINISHES

FAC # 016 DATE: 4-28-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
a. Paint <u>PLASTER WALLS ARE IN NEED OF FRESH PAINT</u>	[]	[]	[X]
b. Wall Coating _____	[X]	[]	[]
c. Wall Coverings _____	[X]	[]	[]
d. Paneling			
Prefinished _____	[X]	[]	[]
Plank _____	[X]	[]	[]
e. Cork _____	[X]	[]	[]
f. Wallpaper _____	[X]	[]	[]
g. Ceramic Tile _____	[X]	[]	[]
h. Trim & Wainscot _____	[X]	[]	[]
i. Decoration _____	[X]	[]	[]
j. Glass _____	[X]	[]	[]
k. Other <u>THE RESTROOM HAS MARBLE TOILET PARTITIONS</u>	[]	[X]	[]

B. COMMENTS

1. ENTIRE BUILDING NEEDS TO HAVE THE INTERIOR PAINTED.

C. COMPONENT RATING: (\$259,713) x (0.27) = \$70,123
 Possible Condition Component
 Value Value Multiplier Value

FLOOR FINISHES

FAC # 016 DATE: 4-28-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. Carpet:			
Rolled <u>SOME OF THE DEPARTMENTAL OFFICES</u>	[]	[X]	[]
Tile _____	[X]	[]	[]
b. Composition:			
Epoxy _____	[X]	[]	[]
Synthetic _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Concrete Topping:			
Clear Sealant _____	[]	[X]	[]
Abrasive _____	[X]	[]	[]
Epoxy _____	[X]	[]	[]
Aggregate _____	[X]	[]	[]
d. Resilient:			
Vinyl Tile <u>COMBINATION OF VINYL AND ASBESTOS FLOOR TILE</u>	[]	[]	[X]
Linoleum _____	[X]	[]	[]
Vinyl _____	[X]	[]	[]
Rubber _____	[X]	[]	[]
Cork _____	[X]	[]	[]
e. Ceramic Tile _____	[X]	[]	[]
f. Masonry _____	[X]	[]	[]
g. Terrazzo _____	[X]	[]	[]
h. Wood _____	[X]	[]	[]
i. Metal _____	[X]	[]	[]

B. COMMENTS

FLOOR TILE HAS BEEN REPLACED IN SEVERAL AREAS. THERE ARE CLASSROOMS AND OFFICES THAT HAVE OLD STYLE ASBESTOS TILE TO BE REPLACED. SEVERAL AREAS HAVE BEEN DAMAGED BY WATER LEAKS. THE WOOD FLOORS UNDER THE VINYL TILE ARE SOFT AND SPONGY IN SOME AREAS.

C. COMPONENT RATING: $(\underline{\$484,798}) \times (\underline{0.50}) = \underline{\$242,399}$

Possible	Condition	Component
Value	Value Multiplier	Value

CEILINGS AND FINISHES

FAC # 016 DATE: 4-28-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. System Type:	N/A	Sat	Att
Exposed <u>3RD FLOOR CLASSROOMS HAVE SKYLIGHTS, 1921 SECTION</u>	[]	[]	[X]
Applied to Structure <u>SEVERAL ROOMS HAVE PLASTERED CEILING</u>	[]	[]	[X]
Suspended <u>OFFICES HAVE SUSPENDED CEILING TILES</u>	[]	[]	[X]

b. Materials:

Drywall _____	[X]	[]	[]
Plaster <u>USED IN ORIGINAL ROOM DESIGN</u>	[]	[]	[X]
Mineral Fiber Board <u>SUSPENDED CEILING TILES</u>	[]	[]	[X]
Metal Pan _____	[X]	[]	[]
Luminous Panels _____	[X]	[]	[]
Other _____	[X]	[]	[]

c. Finishes:

Paint <u>APPLIED TO PLASTER</u>	[]	[]	[X]
Mineral Fiber <u>SUSPENDED CEILING TILES</u>	[]	[]	[X]
Fabric _____	[X]	[]	[]
Prefinished _____	[X]	[]	[]
Other _____	[X]	[]	[]

d. Openings & Inserts:

Air Distribution _____	[X]	[]	[]
Lighting Fixtures <u>ARE SUSPENDED FROM CEILINGS</u>	[]	[X]	[]
Access Panels _____	[X]	[]	[]
Skylights <u>LOCATED ON 3RD FLOOR OF 1921 ADDITION</u>	[]	[]	[X]
Fire Protection _____	[X]	[]	[]
Other _____	[X]	[]	[]

B. COMMENTS:

1. CEILINGS IN SEVERAL AREAS WERE DAMAGED FROM ROOF LEAKS PRIOR TO NEW ROOF BEING INSTALLED IN 1991. NEW CEILING TILES NEED TO BE INSTALLED AND PLASTER REPAIRED.
2. INSTALLATION OF A SUSPENDED CEILING IN ROOMS 385 AND 389 WOULD COVER DAMAGE CAUSED BY LEAKING SKYLIGHTS AND IMPROVE ACOUSTICS AND APPEARANCE OF THE CLASSROOMS.

C. COMPONENT RATING: (\$692,568) x (0.54) = \$373,987

Possible	Condition	Component
Value	Value Multiplier	Value

CONVEYING

FAC # 016 DATE: 04-23-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Elevators:

	N/A	Sat	Att
Number <u>ONE (1)</u>	[]	[X]	[]
Type <u>PASSENGER (OTIS)</u>	[]	[X]	[]
Speed <u>100 FPM</u>	[]	[X]	[]
Capacity (lbs) <u>2,500 LBS.</u>	[]	[X]	[]
Dimensions <u>4' X 7' FLOOR AREA</u>	[]	[X]	[]
Door Operation:			
Center <u>DOOR OPERATION</u>	[]	[X]	[]
To Side _____	[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. ELEVATOR HAS FIREFIGHTER'S SERVICE AND A SEPARATE OPERATOR PANEL FOR WHEELCHAIR ACCESS.
2. THE ELEVATOR DOOR MECHANISM IS LEAKING OIL.

C. COMPONENT RATING: $\frac{(\$164,485)}{\text{Possible Value}} \times \frac{(0.82)}{\text{Condition Value Multiplier}} = \frac{\$134,878}{\text{Component Value}}$

MECHANICAL/PLUMBING

FAC # 016 DATE: 05-08-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Services Available:	N/A	Sat	Att
Cold Water 3" LINE, RM 070M	[]	[X]	[]
Hot Water 2 1/2" LINE, RM 036M	[]	[X]	[]
Acid Waste	[X]	[]	[]
Oxygen	[X]	[]	[]
Natural Gas 1 1/2" LINE IN TUNNEL, RM 036M	[]	[X]	[]
Vacuum	[X]	[]	[]
Distilled Water	[X]	[]	[]
Compressed Air 1/2" LINE, RM 036M	[]	[X]	[]
b. Piping & Fittings:			
Cast Iron DRAIN LINES FROM ROOF AREA	[]	[]	[X]
Copper Tubing COMPRESSED AIR AND DOMESTIC WATER LINES	[]	[X]	[]
Plastic	[X]	[]	[]
Steel STEAM AND HOT WATER HEATING LINES	[]	[]	[X]
Glass	[X]	[]	[]
Other	[X]	[]	[]
c. Water Heaters:			
Electric 52 GALLON HEATER LOCATED IN RM 024M	[]	[]	[X]
Gas	[X]	[]	[]
Oil	[X]	[]	[]
Steam Converter	[X]	[]	[]
d. Drainage:			
Storm Drains	[X]	[]	[]
Sanitary Drainage	[X]	[]	[]
Combined Storm/San. 6" @ NW CORNER AND 8" @ SE CORNER	[]	[X]	[]
Floor Drains	[X]	[]	[]
e. Fixtures:			
Water Closets	[]	[]	[X]
Urinals	[X]	[]	[]
Lavatories	[]	[]	[X]
Showers	[X]	[]	[]
Kitchen Sinks	[X]	[]	[]
Service Sinks	[X]	[]	[]
Drinking Fountains	[X]	[]	[]
Electric Water Coolers	[X]	[]	[]
f. Sprinkler Systems:			
Wet NORTH WING HAS ONE SPRINKLER HEAD ON A 1 1/2" LINE	[]	[X]	[]
Dry	[X]	[]	[]
Water Storage/Supply	[X]	[]	[]
g. Standpipe Systems:			
Wet RM 070, INSIDE DOORWAY, 3" VALVE	[]	[X]	[]
Dry	[X]	[]	[]
Valves	[X]	[]	[]
Hose Cabinets CORRIDOR HAS FIRE HOSES AND CABINETS	[]	[X]	[]

B. COMMENTS:

1. RESTROOM #285T DOES NOT HAVE HOT WATER. ONE OF THREE WATER CLOSETS WAS REMOVED ABOUT 2 YEARS AGO AND HAS NOT BEEN REPLACED.
2. CAST IRON WASTE LINES AND GALVANIZED WATER LINES ARE CORRODED, RUSTED, AND BEYOND REPAIR IN SEVERAL AREAS. THE PLUMBING SYSTEM NEEDS TO BE REPLACED.

C. COMPONENT RATING: $(\$207,770) \times (0.27) = \$56,098$

Possible	Condition	Component
Value	Value Multiplier	Value

MECHANICAL/HEATING

FAC # 016 DATE: 05-11-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Heat Source:	N/A	Sat	Att
Central Plant Steam <u>2" STEAM SUPPLY, ROOM 36M</u>	[]	[X]	[]
Central Plant Hot Water <u>2 1/2" HOT WATER SUPPLY, ROOM 36M</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 <u>AIR HANDLER SYSTEMS HAVE STEAM HEAT COILS</u>	[]	[X]	[]
Hot Water <u>RADIATORS LOCATED ON PERIMETER WALLS</u>	[]	[]	[X]
Air _____	[X]	[]	[]
Electric <u>ELECTRIC SPACE HEATERS ARE USED IN SEVERAL AREAS</u>	[]	[]	[X]
Solar _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Space Equipment:			
Radiators <u>USED FOR HEATING PERIMETER ROOMS</u>	[]	[]	[X]
Convectors _____	[X]	[]	[]
Finned Tube _____	[X]	[]	[]
Baseboard _____	[X]	[]	[]
2-Pipe Fan Coil _____	[X]	[]	[]
Unit Ventilators _____	[X]	[]	[]
Multizone <u>AIR HANDLERS FOR SELECTIVE AREAS OF THE BLDG.</u>	[]	[]	[X]
Double Duct _____	[X]	[]	[]
Terminal Reheat _____	[X]	[]	[]
Other _____	[X]	[]	[]
d. Control Type:			
Pneu <u>JOHNSON AND HONEYWELL PNEUMATIC CONTROLS</u>	[]	[]	[X]
Electric _____	[X]	[]	[]
Electronic _____	[X]	[]	[]
DDC _____	[X]	[]	[]
Manual Valves <u>USED TO CONTROL FLOW TO RADIATORS</u>	[]	[X]	[]

B. COMMENTS:

SEVERAL FACULTY OFFICES DO NOT HAVE ANY HEAT OR AIR CONDITIONING. THE VENTILATION SYSTEM HAS BEEN SHUT OFF TO SEVERAL ROOMS BECAUSE OF THE DIRT AND DUST DISTRIBUTED BY THE SYSTEM.

C. COMPONENT RATING: (\$848,396) x (0.27) = \$229,067

Possible Condition Component
Value Value Multiplier Value

COOLING & VENTILATING

FAC # 016 DATE: 05-11-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. System:			
Type <u>MULTI-ZONE SYSTEMS, SINGLE ZONE, AND WINDOW UNITS</u>	[]	[]	[X]
Capacity <u>80 TONS PLUS 59 WINDOW UNITS</u>	[]	[]	[X]
b. Chillers:			
Centrifugal _____	[X]	[]	[]
Reciprocating <u>3 DIFFERENT WATER CHILLER SYSTEMS</u>	[]	[]	[X]
Absorption _____	[X]	[]	[]
c. Cooling Towers:			
Type <u>BALTIMORE AIRCOIL, SERIES 68-9384</u>	[]	[]	[X]
Capacity _____	[X]	[]	[]
d. Condensers: <u>FIVE DIFFERENT DX TYPE SYSTEMS</u>	[]	[X]	[]
e. Space Equipment:			
Direct Expansion -			
Window units <u>93 WINDOW UNIT INSTALLATIONS</u>	[]	[]	[X]
Thru-the-wall _____	[X]	[]	[]
Single zone _____	[X]	[]	[]
Other _____	[X]	[]	[]
Air/Water -			
2-pipe fan coil _____	[X]	[]	[]
Unit ventilators _____	[X]	[]	[]
Terminal Reheat _____	[X]	[]	[]
Variable volume _____	[X]	[]	[]
Dual Duct _____	[X]	[]	[]
<u>Mult-zone AIR HANDLERS FOR OFFICE AREAS</u>	[]	[]	[X]
f. Special Systems:			
Type _____	[X]	[]	[]
Capacity _____	[X]	[]	[]
g. Control Systems:			
Pneu <u>JOHNSON AND HONEYWELL CONTROL SYSTEMS</u>	[]	[]	[X]
Electric _____	[X]	[]	[]
Electronic _____	[X]	[]	[]
h. Fans:			
Exhaust <u>SIX (6) EXHAUST FANS</u>	[]	[X]	[]
Recirculating <u>EIGHT (8) CIRCULATING FANS</u>	[]	[X]	[]

B. COMMENTS:

1. WINDOW AIR CONDITIONERS ARE VERY OLD, MISSING FRONT PANELS, MISSING FILTERS, AND DO NOT OPERATE EFFECTIVELY.
2. MAINTENANCE REPORTS THAT THE CHILLER THAT SUPPLIES CHILLED WATER TO ROOMS 005 AND 105 IS IN VERY POOR CONDITION.

C. COMPONENT RATING: $(\$657,940) \times (0.33) = \$217,120$

Possible	Condition	Component
Value	Value Multiplier	Value

ELECTRICAL/LIGHTING & POWER

FAC # 016 DATE: 05/11/92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Lighting (lamp type):	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Fluor <u>CLASSROOMS, OFFICES, AND CORRIDORS</u>	[]	[X]	[]
Incand <u>THIRD FLOOR CORRIDORS HAVE SPOT LIGHTS</u>	[]	[]	[X]
HID _____	[X]	[]	[]
Other _____	[X]	[]	[]

b. Receptacles & Switches

Type & Capacity MIXTURE OF OLD TWO PRONG & NEWER CIRCUITS [] [] [X]

c. Special:

Baseboard Heat _____	[X]	[]	[]
Lightning Protection _____	[X]	[]	[]
Communication & Alarm _____	[X]	[]	[]
Data Systems _____	[X]	[]	[]

B. COMMENTS:

1. OFFICES AND CLASSROOMS HAVE VERY FEW ELECTRICAL CIRCUITS FOR COMPUTERS AND OFFICE EQUIPMENT. EXTENSION CORDS ARE USED EXTENSIVELY.
2. THE CORRIDORS HAVE SOME INCANDESCENT LIGHT FIXTURES THAT ARE MISSING GLOBES. THEY SHOULD BE REPLACED WITH FLUORESCENT FIXTURES.

C. COMPONENT RATING: $(\underline{\$1,038,852}) \times (\underline{0.44}) = \underline{\$457,095}$

Possible	Condition	Component
Value	Value Multiplier	Value

SAFETY STANDARDS

FAC # 016 DATE: 5-08-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

(a) Exits:

Stair Construction:	N/A	Sat	Att
concrete _____	[X]	[]	[]
steel <u>1921 ADDITION, NORTH WING</u>	[]	[X]	[]
wood <u>1903 BUILDING, ORIGINAL BUILDING</u>	[]	[X]	[]
Number of exits <u>TWO (2)</u>			

(b) Fire Rating:

Construction Type: I ___ II ___ III ___ IV X V ___ VI ___
 Building Height: 50 FEET, THREE (3) STORIES

(c) Extinguishing Systems:

Portable _____	[X]	[]	[]
Standpipe <u>LOCATED IN NORTH WING, 1921 ADDITION</u>	[]	[]	[X]
Hose Cabinets <u>LOCATED IN CORRIDOR</u>	[]	[X]	[]
Sprinklers _____	[X]	[]	[]
Suppression _____	[X]	[]	[]
Other _____	[X]	[]	[]

(d) Detection & Alarm Systems:

Manual Alarm <u>LOCATED AT CORRIDOR ENTRANCES</u>	[]	[X]	[]
Annunciator <u>OUTSIDE RM 36M, IN CORRIDOR</u>	[]	[X]	[]
Smoke Detectors <u>LOCATED IN AIR HANDLERS</u>	[]	[X]	[]

(e) Lighting Systems:

Exit Signs _____	[X]	[]	[]
Exit Lighting _____	[X]	[]	[]
Emergency Lighting _____	[X]	[]	[]
Emergency Generator _____	[X]	[]	[]

B. COMMENTS:

C. COMPONENT RATING: (\$51,943) x (0.33) = \$17,141
 Possible Condition Component
 Value Value Multiplier Value

BUILDING PERIMETER EVALUATION

FAC # 016 DATE: 05-11-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
1. Structural Access:			
Driveway <u>CONSTRUCTION TRAFFIC HAS DRIVEWAYS BLOCKED</u>	[]	[]	[X]
Loading Dock _____	[X]	[]	[]
Sidewalks			
Front <u>17TH AVENUE, SOUTHSIDE</u>	[]	[X]	[]
Side <u>EASTSIDE & WESTSIDE, UNDER CONSTRUCTION MESS</u>	[]	[]	[X]
Rear <u>18TH AVENUE, UNDER CONSTRUCTION</u>	[]	[]	[X]
Steps			
Front <u>LIMESTONE, HAVE BEEN RECENTLY RESET & CAULKED</u>	[]	[X]	[]
Side _____	[X]	[]	[]
Rear _____	[X]	[]	[]
Handicap Ramp <u>GRADE LEVEL ACCESS FROM 18TH AT NORTH ENT.</u>	[]	[X]	[]
2. Lawn and Landscaping:			
Lawn <u>FRONT OF BUILDING, 17TH AVENUE</u>	[]	[]	[X]
Shrubs <u>" " " " "</u>	[]	[]	[X]
Trees <u>" " " " "</u>	[]	[X]	[]
Undesirable Insect _____	[X]	[]	[]
Bedding Material _____	[X]	[]	[]
Watering System _____	[X]	[]	[]
3. General Site Information:			
Signage <u>LOCATED AT THE FRONT ENTRANCE, 17TH AVENUE</u>	[]	[X]	[]
Address Identification <u>LOCATED ON THE SIGN</u>	[]	[X]	[]
Security Lights <u>DIFFICULT TO EVALUATE WITH CONSTRUCTION</u>	[]	[]	[X]
Street Lights <u>LOCATED ON 17TH AND 18TH AVENUE</u>	[]	[X]	[]
Drainage _____	[X]	[]	[]
Storm Drains _____	[X]	[]	[]

B. COMMENTS:

1. CONSTRUCTION OF THE ADDITION TO THE MATH BUILDING AND THE NEW SCIENCE-ENGINEERING LIBRARY HAVE MADE THE NORTH & WEST SIDE OF THE BUILDING A CONSTRUCTION AREA.

**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 OSU buildings that the Department of Physical Facilities has budgetary responsibility. These audits will be used to establish corrective maintenance projects and budget cost estimates.

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, engineer's 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.

5. 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 entrance steps up at all entries. Ramps outside the buildings are included. Plantings around the building exterior are included.

(d) Movable furniture is 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

ATT.....ATTENTION
BLDG.....BUILDING
BUR.....BUILT UP ROOF
COND.....CONDENSATE WATER
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
HPS.....HIGH PRESSURE STEAM (125 PSI)
HVAC.....HEATING, VENTILATING AND AIR CONDITIONING SYSTEM
KV.....KILOVOLTS
KVA.....KILOVOLTS AMPS
KW.....KILOWATTS
LC.....LIQUID COOLED
LPS.....LOW PRESSURE STEAM (15 PSI)
MPS.....MEDIUM PRESSURE STEAM (50 PSI)
MZ.....MULTIZONE AIR HANDLING SYSTEM
N/A.....NOT APPLICABLE
PSI.....POUNDS PER SQUARE INCH
RM.....ROOM
SAT.....SATISFACTORY
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