

FACILITY AUDIT REPORT
FRY HALL
#059

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GENERAL BUILDING INFORMATION

FRY HALL # 059

BUILDING ADDRESS: 338 WEST 10TH AVENUE

GROSS SQ. FT.: 44,926

NET ASSIGNABLE SQ. FT.: 29,809

MECHANICAL/CUSTODIAL AREA SQ. FT.: 3,352

YEAR OF CONSTRUCTION: 1951, ADDITION IN 1960

YEAR OF LAST RENOVATION: 1957

NUMBER OF STORIES/BASEMENT: 3 STORIES PLUS A BASEMENT

AIR CONDITIONING (Percentage): 100 %

CURRENT USE: COLLEGE OF OPTOMETRY ADMINISTRATIVE OFFICES, CLINICS, LABORATORIES,
AND CLASSROOMS.

TYPE OF CONSTRUCTION: REINFORCED CONCRETE, MASONRY SKIN

ESTIMATED REPLACEMENT COST: \$ 5,760,000 *

BUILDING APPEARANCE: BRICK AND CUT STONE EXTERIOR, MASONRY FINISH AGING,
INTERIOR SPACIOUS, CLEAN, AND RECENTLY PAINTED.

HANDICAPPED ACCESSIBILITY: HANDICAPPED ACCESS IS AVAILABLE THROUGH THE CENTER
ENTRANCE OFF WEST 10TH AVENUE. THIS PROVIDES ACCESS TO THE CLINIC AND THE
ELEVATOR IN THE SOUTHWEST CORNER OF THE BUILDING.

OVERALL BUILDING CONDITION: SATISFACTORY **

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

FRY HALL #059

HEATING:

Source POWER PLANT

Type Heating System STEAM CONVERTED TO HOT WATER (RM 46M)

Steam (Line size, valve location) 2 1/2" SUPPLY, 1 1/4" CONDENSATE RETURN

Building Htg Water (line size, valve location) NONE

VENTILATION SYSTEM:

DDHV SYSTEM WITH MIXING BOXES AND ONE MULTI-ZONE DX SYSTEM (RM 012)

COOLING:

Bldg % 100 % Chillers 2-CARRIER 40 TON RECIPROCATING COMPRESSORS

Window Units NONE Thru-the-wall NONE Direct exp. units ONE (1)

HVAC CONTROL SYSTEM:

DDHV SYSTEM WITH CONSTANT VOLUME MIXING BOXES, PNEUMATIC CONTROLS

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

1. CIRCUIT #102/206 225 KVA 13,200 / 208Y/120 LOCATED OUTSIDE RM 60M

PLUMBING:

Water (size, valve location) 3" SUPPLY, RM 46M

Gas (size, valve location) 1" SUPPLY, IN TUNNEL UNDER RM #1

Domestic Hot Water (size, valve location) LOCAL CONVERTER, RM 46M

Compressed Air (size, location) 1 1/2" SUPPLY IN TUNNEL, COMPRESSOR IN 346M

SEWERS: Storm 6" STORM LINE Sanitary 6" SANITARY LINE

METERS:

Gas (size, location) NONE

Water (size, location) ROOM 346M, RECORDS WATER USAGE OF COOLING TOWER

Electric (size, location) LOCATED ON THE TRANSFORMER, RM 060M

ALARM SYSTEMS:

Fire Alarm YES Panel Location ROOM 46M

Fire Pump NONE Pump Location NONE

Sprinklers NONE Panel Location NONE

Other Alarms NONE

ELEVATORS:

Number ONE (1) Type (passenger, freight) PASSENGER

Manufacturer WESTINGHOUSE Size 2,000 LBS., 75 FPM

EMERGENCY GENERATOR: Size NONE Location

KEY BOX LOCATION: SOUTHEAST DOOR, SOUTH SIDE

ASBESTOS SURVEY (1986):

PEI ASSOCIATES ASSESSMENT PROGRAM IDENTIFIED ASBESTOS CONTAINING MATERIALS IN THE STEAM PIPE INSULATION AND THE HEAT EXCHANGER INSULATION.

FRY 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

Fry Hall consists of the original building constructed in 1951 and the addition built in 1960. It was initially referred to as the Optometry Building. The 1960 addition has been structurally designed to allow 3 more stories to be added. The College of Optometry has occupancy of the entire building. The optometry clinic provides professional vision services to the general public, which creates traffic in the building other than students and faculty. The building has been well maintained and the interior finishes refurbished on a regular basis.

In 1986, a new cooling tower and chiller were installed in the 1960 addition. The exterior of the building has not had any major repairs and is beginning to show its age. The masonry needs to be cleaned and sealed. The built-up roof cover has been repaired in several areas, but is due for replacement. The elevator has not been equipped with an emergency telephone or wheelchair accessible controls. The windows are single pane aluminum frame that are energy inefficient and should be replaced with an insulated window unit.

PRIMARY SYSTEMS

The 1951 section of the building is cast-in-place reinforced concrete structure veneered with 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. The structure of the 1951 section appears to be in good condition. Overall alignment is good and no structural deflection was observed.

The 1960 section of the building has reinforced concrete footings and piers with reinforced concrete beams and columns. The floor system is cast-in-place concrete. There are no signs of any structural movement of the building.

The exterior closure of the building has not been reconditioned. The mortar is beginning to crumble when touched and the brick and stone has accumulated dirt. We are proposing a project to clean and waterproof the exterior masonry.

The windows are the original single glazed aluminum frames that were installed when the building was constructed. The windows are in operable condition, but are energy inefficient. We have proposed a project to replace these windows with dual glazed insulated frame windows.

The roof structure for the 1951 building is steel trusses supporting a nailable concrete deck that is covered with lead coated copper batten roof cover. The copper cover appears to be in good condition. The gutters have had a few repairs to maintain their serviceable condition. The built-up roofing on the 1960 addition has been patched and still has several blisters and cracks. We are proposing a project to replace this BUR roof cover before it deteriorates to the point of causing internal damage. There is also a small area of built-up roof on the east end of the 1951 building where it is connected to Starling Loving Hall. This BUR roof cover is in need of replacement. The west end of the 1951 building had a small area with BUR roofing that was replaced in 1991 with a modified bitumen roof cover.

SECONDARY SYSTEMS

The interior partitions are primarily painted plaster walls. Some drywall and cemento-board were used to sub-divide rooms into offices or exam rooms. The interior finishes have been refurbished and are in good condition.

The 2' X 4' acoustical ceiling tiles have been replaced throughout the building the past couple of years. The suspended metal grid and ceiling registers are dirty and need to be cleaned. The optometry clinic is used by the general public it is important that this building be well maintained. The flooring is primarily vinyl tile that has been maintained. A few of the office areas and the clinic have had carpet installed. The flooring is in good condition.

SERVICE SYSTEMS

There are two HVAC systems. The 1951 building has a reciprocating DX unit that provides cooling and a steam coil that provides heating for the single air handler in this section of the building. The 1960 addition has two Carrier reciprocating chillers that provide cooling for constant volume dual duct system. This system also has constant volume mixing boxes in each room that have been difficult to control. If any problems occur with the heating or cooling source these mixing boxes continue to dump the wrong temperature air into the room. We are proposing a project to replace the mixing boxes with variable air volume boxes to improve occupant comfort and to improve energy efficiency.

The plumbing system does not appear to have any problems. The original fixtures are operating satisfactorily and we did not observe any leaks in the supply or drain lines. The laboratory uses in the building do not include chemicals that are corrosive to the plumbing. It is expected that the plumbing system will perform adequately for many more years.

The elevator was installed in 1960 when the addition was built. The elevator is not equipped with wheelchair accessible controls or an emergency telephone. We have proposed a project to update the elevator to include these items.

ELECTRICITY

The primary building transformer is located in the 1960 addition and has a primary voltage of 13,200 volts. The original 1951 section of the building is supplied with electricity from Starling-Loving Hall. The peak demand for Fry Hall has been estimated by the Utility Division at about 70% of the transformer

capacity. This does not leave much capacity for growth in electrical consumption for Fry Hall. Interviews with the occupants and maintenance personnel indicate that the building has not had any recent problems with electric distribution.

SAFETY STANDARDS

The building is equipped with an IBM fire alarm system. There are portable fire extinguishers located in the corridors and the laboratories. These fire extinguishers have not been checked for 14 months and have exceeded the recommended inspection period. There are no smoke detectors or sprinklers located in Fry Hall. A fire line is located at the tunnel entrance to Fry Hall from Starling-Loving Hall.

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 the steam pipe insulation and the hot water heat exchanger insulation in RM 046M. Asbestos containing materials have also been identified in the original floor tile and the transite soffit used on the building exterior. Asbestos containing floor tile has been removed from RM 019B.

BUILDING PERIMETER

The construction of the new steam line on the west and south sides of Fry Hall have the area in a state of disarray. The construction traffic, material storage, and construction equipment have damaged some of the plantings, driveways, and sidewalks. It is assumed that the contractors will restore these areas when construction is completed.

The parking lot at the rear has been patched a few times, but is in fair condition. The entrance steps at the southwest entrance have been patched several times and will need to be replaced in the future. The brick planter walls on the south side are cracking and beginning to shift. These masonry walls will also have to be repaired or rebuilt in the future. The southeast walkway on West 10th Avenue is constructed with brick pavers that are uneven. This walkway will need to be replaced before it becomes a tripping problem.

CONCLUSION

Fry Hall has been well maintained on the interior. The finish surfaces are in good condition. The exterior of the building is aging and is in need of some repairs. The roof cover on the 1960 addition needs to be replaced and the masonry exterior needs cleaned and waterproofed. The 1960 addition HVAC system is a constant volume dual duct system that has been difficult for maintenance to control and is not the most energy efficient system. To convert this system to a VAV system and install a direct digital control system would be an improvement for the building occupants. An update of the windows in the building would also improve occupant comfort and reduce energy consumption of the building.

PROPOSED MAINTENANCE PROJECTS

FRY HALL #059

A. Corrective Maintenance Projects:

- 1. Install wheelchair accessible controls and an emergency telephone in elevator.....\$ 10,000
 - 2. Replace built-up roof cover on the 1960 addition (7,624 SF)..... 45,750
 - 3. Clean exterior masonry and replace sealant..... 49,000
 - 4. Install a 5-ton DX air conditioning unit to supplement the cooling of rooms 137 and 033..... 20,000
- Sub Total \$124,750**

B. Building Improvement/Addition Projects:

- 1. Replace windows in both sections of the building (84 windows).....\$ 67,200
 - 2. Install DDC controls and convert HVAC system from constant volume to VAV..... 67,700
- Sub Total \$134,900**

C. Projected (over the next 5 years) Component Replacement Projects:

No projects identified

Total cost for all estimated projects = \$ 259,650

BUILDING EVALUATION SUMMARY

I. BUILDING INFORMATION

FAC # 059 FACILITY NAME: FRY HALL
 DATE: 12-14-92 INSPECTOR: RDL
 YEAR CONSTRUCTED: 1951, ADDITION 1962
 GROSS SQ FT: 44,926 NET SQ FT: 29,809
 REPLACEMENT COST \$ 5,769,000 X 0.90 = 5,192,100

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	4.2	218,068	0.88	191,900
Columns and Beams	11.7	607,476	0.88	534,579
Exterior Walls	4.3	223,260	0.80	178,608
Windows & Doors	3.9	202,492	0.63	127,570
Roofing	6.2	321,910	0.54	173,831
Partitions & Drs.	8.4	436,136	0.81	353,270
Wall Finishes	2.6	134,995	0.82	110,696
Floor Finishes	5.1	264,797	0.69	182,710
Ceilings & Finish	6.9	358,255	0.76	272,274
Conveying	1.3	67,497	0.75	50,623
Plumbing	8.0	415,368	0.70	290,758
Heating	8.4	436,136	0.76	331,463
Cooling & Vent.	9.7	503,634	0.70	352,544
Elec. Ser. & Dist	1.7	88,266	0.73	64,434
Lighting & Power	11.2	581,515	0.70	407,061
Safety Standards	6.4	332,294	0.63	209,345
TOTALS	100.00	5,192,100	0.74	3,831,666

III. BUILDING RATING SUMMARY

Overall Building Rating = 74.0 %

* 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.

FOUNDATIONS

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
a. Footings:			
Individual Footings & Piers <u>USED FOR INTERIOR COLUMNS</u>	[]	[X]	[]
Continuous Footings <u>USED FOR EXTERIOR WALLS</u>	[]	[X]	[]
Grade Beams _____	[X]	[]	[]
Piles _____	[X]	[]	[]
Caissons _____	[X]	[]	[]
b. Foundation Wall Materials:			
Steel _____	[X]	[]	[]
Concrete Cast-in-place <u>WITH REINFORCING BARS</u>	[]	[X]	[]
Concrete Block _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Waterproofing and Underdrain:			
Coating <u>MASTIC PAPER ON THE OUTSIDE OF FOUNDATION</u>	[]	[X]	[]
Membrane _____	[X]	[]	[]
Board _____	[X]	[]	[]
Drain Tile <u>6" CLAY TILE</u>	[]	[X]	[]
d. Slab on Grade (floor):			
Plain _____	[X]	[]	[]
Reinforced <u>CONCRETE SLAB WITH WIRE MESH</u>	[]	[X]	[]
e. Special Substructures:			
_____	[X]	[]	[]

B. COMMENTS:

1. THERE WERE NO SIGNS OF SETTLEMENT OR MOVEMENT IN THE FOUNDATION.

C. COMPONENT RATING: (\$218,068) X (0.88) = \$191,900
 Possible Condition Component
 Value Value Multiplier Value

EXTERIOR WINDOWS & DOORS

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. Windows type & number:			
Wood _____	[X]	[]	[]
Steel _____	[X]	[]	[]
Alum <u>DOUBLE HUNG WINDOWS</u>	[]	[X]	[]
Other <u>(33 IN THE 1960 & 51 IN THE 1951 BUILDING)</u>	[X]	[]	[]
 b. Window glazing			
Single pane <u>UN-INSULATED ALUMINUM FRAMES</u>	[]	[]	[X]
Double pane _____	[X]	[]	[]
Other _____	[X]	[]	[]
 c. Doors type & number:			
Wood _____	[X]	[]	[]
Steel <u>REAR DOOR FROM PARKING LOT</u>	[]	[X]	[]
Alum <u>WITH FULL GLASS ENTRANCE DOORS</u>	[]	[X]	[]
Other _____	[X]	[]	[]
 d. Shading Devices:			
Types _____	[X]	[]	[]

B. COMMENTS:

1. THE WINDOWS IN THE 1951 BUILDING HAVE HAD SEVERAL OF THE SCREENS DAMAGED.
2. THE DOUBLE HUNG WINDOWS ARE DIFFICULT TO OPEN. THE SPRING BALANCES ARE NOT ADJUSTABLE.
3. THE SINGLE PANE WINDOWS WITH UN-INSULATED ALUMINUM FRAMES ARE ENERGY INEFFICIENT.

C. COMPONENT RATING: (\$202,492) X (0.63) = \$127,570

Possible Condition Component

Value Value Multiplier Value

ROOFING

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Roof Covering:	N/A	Sat	Att
Built-up <u>EAST END:1951 SECT. REPLACED 1981 (1,600 SF)</u>	[]	[]	[X]
Built-up w/gravel <u>1960 ADDITION (6,124 SF)</u>	[]	[]	[X]
Asphalt Shingle _____	[X]	[]	[]
Copper <u>ORIGINAL BUILDING (8,064 SF), INSTALLED IN 1950</u>	[]	[X]	[]
Glass (Skylight) _____	[X]	[]	[]
Slate _____	[X]	[]	[]
Spanish Tile _____	[X]	[]	[]
Metal _____	[X]	[]	[]
Other <u>MODIFIED BITUMEN (WEST END 1951 BLDG)(1040 SF)-1991</u>	[]	[X]	[]

b. Flashing:

Base & Counter <u>COPPER COUNTER FLASHING WITH FELT BASE</u>	[]	[X]	[]
Cap <u>COPPER & STONE</u>	[]	[X]	[]
Through Wall _____	[X]	[]	[]
Valley & Ridge _____	[X]	[]	[]

c. Gravel Stop & Edge Strips:

Type <u>1960 BLDG., BUR W/GR HAS STAINLESS STEEL STOP</u>	[]	[X]	[]
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e. Drainage:

Gutters <u>1951 HAS BUILT-UP FELT GUTTERS (REPLACED - 1981)</u>	[]	[]	[X]
Drains <u>1960 ADDITION HAS INTERNAL DRAINS FROM THE ROOF</u>	[]	[X]	[]
Scuppers _____	[X]	[]	[]
Downspouts <u>COPPER ON EXTERIOR OF 1951 BLDG.</u>	[]	[X]	[]

f. Parapets:

Concrete _____	[X]	[]	[]
Brick <u>ORIGINAL BUILDING (1951 SECTION)</u>	[]	[]	[X]
Block _____	[X]	[]	[]
Precast _____	[X]	[]	[]
Other _____	[X]	[]	[]

g. Insulation:

Type <u>1" TO 2" RIGID INSULATION</u>	[]	[]	[X]
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B. COMMENTS

1. THE BUR ROOF COVER ON THE 1960 ADDITION AND THE EAST END OF THE 1951 BUILDING ARE IN NEED OF REPLACEMENT.
2. THE PARAPET AROUND THE COPPER ROOF AREA HAS SOME MORTAR CRACKS THAT SHOULD BE REPAIRED. THE PARAPET SHOULD BE CLEANED AND SEALED WITH THE ENTIRE EXTERIOR MASONRY OF THE BUILDING.

C. COMPONENT RATING: (\$321,910) x (0.54) = \$173,831
 Possible Condition Component
 Value Value Multiplier Value

WALL FINISHES

FAC # 059 DATE: 12-13-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
a. Paint <u>APPLIED TO GLAZED & CONCRETE BLOCK IN CORRIDORS</u>	[]	[X]	[]
b. Wall Coating <u>USED IN SOME CLASSROOMS & OFFICES</u>	[]	[X]	[]
c. Wall Coverings <u>USED IN SOME DEPARTMENTAL AREAS</u>	[]	[X]	[]
d. Paneling			
Prefinished _____	[X]	[]	[]
Plank _____	[X]	[]	[]
e. Cork _____	[X]	[]	[]
f. Wallpaper _____	[X]	[]	[]
g. Ceramic Tile <u>USED IN RESTROOMS</u>	[]	[X]	[]
h. Trim & Wainscot _____	[X]	[]	[]
i. Decoration _____	[X]	[]	[]
j. Glass _____	[X]	[]	[]
k. Other _____	[X]	[]	[]

B. COMMENTS

1. THE WALL FINISHES ARE IN GOOD CONDITION.

C. COMPONENT RATING: (\$134,995) x (0.82) = \$110,696
 Possible Condition Component
 Value Value Multiplier Value

FLOOR FINISHES

FAC # 059 DATE: 12-13-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. Carpet:			
Rolled <u>LOCATED IN CLINIC AREA AND SOME 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>12" X 12" TILES, CORRIDORS, CLASSROOMS & LABS.</u>	[]	[X]	[]
Linoleum _____	[X]	[]	[]
Vinyl <u>9" X 9" FLOOR TILES ARE REMAINING IN SOME LABS</u>	[]	[]	[X]
Rubber _____	[X]	[]	[]
Cork _____	[X]	[]	[]
e. Ceramic Tile _____	[X]	[]	[]
f. Masonry _____	[X]	[]	[]
g. Terrazzo _____	[X]	[]	[]
h. Wood _____	[X]	[]	[]
i. Metal _____	[X]	[]	[]

B. COMMENTS

1. THE ORIGINAL 9" X 9" FLOOR TILES REMAINING IN SOME AREAS CONTAIN ASBESTOS.

C. COMPONENT RATING: (\$264,797) x (0.69) = \$182,710
Possible Condition Component
Value Value Multiplier Value

CEILING AND FINISHES

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. System Type:	N/A	Sat	Att
Exposed <u>MECHANICAL ROOMS, JANITORIAL ROOMS, STAIRWELLS</u>	[]	[X]	[]
Applied to Structure _____	[X]	[]	[]
Suspended <u>2'X 4' ACOUSTIC TILE (EXCEPT CUSTODIAL, MECH.)</u>	[]	[X]	[]

b. Materials:			
Drywall _____	[X]	[]	[]
Plaster _____	[X]	[]	[]
Mineral Fiber Board <u>USED FOR ACOUSTICAL TILE</u>	[]	[X]	[]
Metal Pan _____	[X]	[]	[]
Luminous Panels _____	[X]	[]	[]
Other _____	[X]	[]	[]

c. Finishes:			
Paint _____	[X]	[]	[]
Mineral Fiber _____	[X]	[]	[]
Fabric _____	[X]	[]	[]
Prefinished <u>ACOUSTICAL TILE</u>	[]	[X]	[]
Other _____	[X]	[]	[]

d. Openings & Inserts:			
Air Distribution <u>REGISTERS LOCATED IN CEILING</u>	[]	[]	[X]
Lighting Fixtures <u>SUSPENDED FROM CEILING</u>	[]	[X]	[]
Access Panels _____	[X]	[]	[]
Skylights _____	[X]	[]	[]
Fire Protection _____	[X]	[]	[]
Other <u>METAL GRIDS ARE DISCOLORED AND NEED CLEANED</u>	[]	[]	[X]

B. COMMENTS:

1. THE CEILING TILES HAVE BEEN CHANGED AND ARE IN GOOD CONDITION.
2. REGISTERS & SUSPENDED METAL GRID ARE DIRTY AND ARE IN NEED OF CLEANING.

C. COMPONENT RATING: (\$358,255) x (0.76) = \$272,274

Possible	Condition	Component
Value	Value	Multiplier Value

MECHANICAL/HEATING

FAC # 059 DATE: 12-14-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Heat Source:	N/A	Sat	Att
Central Plant Steam <u>2 1/2" STEAM SUPPLY</u>	[]	[X]	[]
Central Plant Hot Water <u>3" HOT WATER SUPPLY IN TUNNEL</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>LOCAL STEAM CONVERTER IN RM 346M</u>	[]	[X]	[]
Air _____	[X]	[]	[]
Electric _____	[X]	[]	[]
Solar _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Space Equipment:			
Radiators _____	[X]	[]	[]
Convectors <u>LOCATED IN THE LOBBY & STAIRWELLS</u>	[]	[X]	[]
Finned Tube _____	[X]	[]	[]
Baseboard _____	[X]	[]	[]
2-Pipe Fan Coil _____	[X]	[]	[]
Unit Ventilators <u>LOCATED IN STAIRWELLS</u>	[]	[X]	[]
Multizone _____	[X]	[]	[]
Double Duct <u>HIGH VELOCITY, CONSTANT VOLUME (1960 BLDG)</u>	[]	[]	[X]
Terminal Reheat _____	[X]	[]	[]
Other _____	[X]	[]	[]
d. Control Type:			
Pneu <u>USED EXCLUSIVELY (LOCAL COMPRESSOR)</u>	[]	[]	[X]
Electric _____	[X]	[]	[]
Electronic _____	[X]	[]	[]
DDC _____	[X]	[]	[]
Manual Valves _____	[X]	[]	[]

B. COMMENTS:

1. THE DDHV CONSTANT VOLUME SYSTEM IN THE 1960 BUILDING IS DIFFICULT TO CONTROL. THIS SYSTEM SHOULD BE CONVERTED TO A VAV SYSTEM.

C. COMPONENT RATING: (\$436,136) X (0.76) = \$331,463
 Possible Condition Component
 Value Value Multiplier Value

COOLING & VENTILATING

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. System:			
Type <u>DUAL DUCT HIGH VELOCITY SYSTEM</u>	[]	[]	[X]
Capacity <u>80 TONS</u>	[]	[X]	[]
b. Chillers:			
Centrifugal _____	[X]	[]	[]
Reciprocating <u>2- CARRIER RECIPROCATING (INSTALLED IN 1986)</u>	[]	[X]	[]
Absorption _____	[X]	[]	[]
c. Cooling Towers:			
Type <u>PERMA PIPE COOLING TOWER (INSTALLED 1986)</u>	[]	[X]	[]
Capacity <u>MODEL # FT-80 (80 TONS)</u>	[]	[X]	[]
d. Condensers: _____	[X]	[]	[]
e. Space Equipment:			
Direct Expansion -			
Window units _____	[X]	[]	[]
Thru-the-wall _____	[X]	[]	[]
Single zone _____	[X]	[]	[]
Other <u>MULTI-ZONE DX SYSTEM FOR ORIGINAL BLDG.</u>	[]	[X]	[]
Air/Water -			
2-pipe fan coil _____	[X]	[]	[]
Unit ventilators _____	[X]	[]	[]
Terminal Reheat _____	[X]	[]	[]
Variable volume _____	[X]	[]	[]
Dual Duct <u>HIGH VELOCITY SYSTEM, CONSTANT VOLUME</u>	[]	[X]	[]
Mult-zone _____	[X]	[]	[]
f. Special Systems:			
Type _____	[X]	[]	[]
Capacity _____	[X]	[]	[]
g. Control Systems:			
Pneu <u>POWERS, CENTRAL CONSOLE SYSTEM</u>	[]	[]	[X]
Electric _____	[X]	[]	[]
Electronic _____	[X]	[]	[]
h. Fans:			
Exhaust <u>2 EXHAUST FANS</u>	[]	[X]	[]
Recirculating <u>4 RECIRCULATING FANS</u>	[]	[X]	[]

B. COMMENTS:

1. CHILLERS & COOLING TOWER WERE INSTALLED IN 1986. SPRING ISOLATORS WERE INSTALLED IN 1991 TO REDUCE VIBRATION NOISE FROM THE COMPRESSORS.
2. THE REPLACEMENT OF THE CONSTANT VOLUME MIXING BOXES WITH A VARIABLE VOLUME SYSTEM AND A DIGITAL CONTROL SYSTEM WOULD IMPROVE PERFORMANCE AND ENERGY CONSUMPTION.

C. COMPONENT RATING: $\frac{(\$503,634)}{\text{Possible Value}} \times \frac{(0.70)}{\text{Condition Value Multiplier}} = \frac{\$352,544}{\text{Component Value}}$

ELECTRICAL/SERVICE & DISTRIBUTION

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

(a) Service:

Substation CIRCUIT #102/206

Primary Voltage 13,200

Transformer:

Manufacture	Type	KVA	Secondary Voltages
<u>GE P498879TRD</u>	<u>SILICONE</u>	<u>225</u>	<u>208Y/120</u>

(b) Distribution System:

Panelboard (type) CIRCUIT BREAKERS

Voltage 208Y/120 VOLTS

Amperage 400 AMPS

Conduit ALUMINUM & STEEL

Conductor COPPER

Wire (type) VARIABLES

Armored Cable NONE

Other N/A

(c) Emergency System:

General or (type & capacity) NONE

B. COMMENTS:

C. COMPONENT RATING: $\left(\frac{\$88,266}{\text{Possible Value}} \right) \times \left(\frac{0.73}{\text{Condition Value Multiplier}} \right) = \frac{\$64,434}{\text{Component Value}}$

ELECTRICAL/LIGHTING & POWER

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Lighting (lamp type):

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Fluor <u>LOCATED IN CORRIDORS, LABORATORIES, & CLINICS</u>	[]	[X]	[]
Incand <u>LOCATED IN STAIRWELLS, MECHANICAL RMS, STORAGE</u>	[]	[]	[X]
HID _____	[X]	[]	[]
Other _____	[X]	[]	[]

b. Receptacles & Switches

Type & Capacity <u>GROUNDING, 3-PRONG RECEPTACLES</u>	[]	[X]	[]
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c. Special:

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

B. COMMENTS:

1. THE INCANDESCENT LAMPS ARE PRIMARILY LOCATED IN THE NON-PUBLIC AREAS. REPLACEMENT OF THE FIXTURES WOULD IMPROVE THE LIGHTING & REDUCE THE ELECTRICITY USAGE.

C. COMPONENT RATING: $\frac{(\$581,515)}{\text{Possible Value}} \times \frac{(0.70)}{\text{Condition Value Multiplier}} = \frac{\$407,061}{\text{Component Value}}$

BUILDING PERIMETER EVALUATION

FAC # 059 DATE: 12-10-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
1. Structural Access:			
Driveway <u>REAR OF BUILDING TO PARKING AREAS (ASPHALT)</u>	[]	[X]	[]
Loading Dock <u>NONE, REAR DOOR IS USED FOR DELIVERIES</u>	[]	[X]	[]
Sidewalks			
Front <u>SOUTHSIDE ALONG W 10TH AVE (CONCRETE & BRICK)</u>	[]	[]	[X]
Side <u>WEST NEXT TO LIBRARY (CONCRETE)</u>	[]	[X]	[]
Rear <u>PARKING LOT (ASPHALT)</u>	[]	[X]	[]
Steps			
Front <u>SW ENTRANCE HAS SEVERAL REPAIRED AREAS</u>	[]	[]	[X]
Side _____	[X]	[]	[]
Rear _____	[X]	[]	[]
Handicap Ramp <u>GRADE LEVEL ENTRANCE AT SE CORNER OF BLDG.</u>	[]	[X]	[]
2. Lawn and Landscaping:			
Lawn <u>NONE</u>	[X]	[]	[]
Shrubs <u>SOUTHSIDE, OVERGROWN</u>	[]	[]	[X]
Trees <u>NONE</u>	[X]	[]	[]
Undesirable Insect <u>NONE</u>	[X]	[]	[]
Bedding Material <u>MULCH</u>	[]	[X]	[]
Watering System _____	[X]	[]	[]
3. General Site Information:			
Signage <u>LOCATED ON W 10TH AVENUE</u>	[]	[X]	[]
Address Identification <u>LOCATED ON THE SIGN</u>	[]	[X]	[]
Security Lights <u>LOCATED ON THE ROOF DIRECTED TO SIDEWALKS</u>	[]	[X]	[]
Street Lights <u>LOCATED ALONG W. 10TH AVENUE</u>	[]	[X]	[]
Drainage <u>TO STREET & PARKING LOT</u>	[]	[X]	[]
Storm Drains <u>LOCATED IN STREETS & PARKING AREAS</u>	[]	[X]	[]

B. COMMENTS:

1. BRICK PAVERS WERE USED FOR A SMALL SECTION OF SIDEWALK ON THE SOUTH SIDE THAT ARE UNEVEN AND NEED REPAIRED.
2. FRONT STEPS HAVE BEEN PATCHED SEVERAL TIMES.

**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 DUCT 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