

FACILITY AUDIT REPORT

EVANS LAB, #150

FEBRUARY 1996

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Department of Physical Facilities
Division of Resource Management

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**EXECUTIVE SUMMARY AND PROJECT
LIST FOR EVANS LAB**

William Lloyd Evans Laboratory was constructed in 1959 and occupied in 1960 with a gross area of 79,585 SF. It was originally built to expand the chemistry lab space of The McPherson Laboratory which stood on the site of the New Chemistry Building (Celest Chemistry Building) on the west side. In 1965 a building addition of 40,230 GSF was added on the north side to house research laboratories. At the same time the Van De Graff research facility a sub basement lab was added on the east side of Evans Lab. In 1984 a small addition to house air conditioning equipment was added on the west side along with a HVAC upgrade to the building. Prior to the addition of The Newman and Wolfrom Laboratory of Chemistry, Evans Laboratory had a total area of 121,994 GSF. Over the years, renovations to many of the labs have taken place to meet the changing demands of Evans Laboratory. In 1994 the latest construction project, recently named The Newman & Wolfrom Laboratory of Chemistry, included a new building which wrapped around Evans Laboratory on the south and west side.

The roof and the air conditioning are the main concerns with the building. The roof is original and is well past its expected life and will need to be replaced in the next few years. The original building was designed with limited air conditioning. An HVAC upgrade was completed in 1984, however, the 410 ton chiller installed at that time in room 036M has just failed and is being replaced. A project to remove the boiler and replace the absorption chiller in room 5080M has been requested. Plumbing waste pipe stoppages and pipe leaks are increasing in occurrences. It is recommended that all of the sanitary, storm and acid waste piping be cleaned to the manholes and damaged piping repaired. The elevator is in need of a car and control replacement to upgrade it to conform to present day requirements. The exterior of the building is in need of general maintenance to assure another 25 years of service. The building should only require those major maintenance items noted below over the next five years.

PROPOSED MAINTENANCE PROJECTS

A. Corrective Maintenance Projects:	Control No.
1. Remove dried caulking, and caulk all joints around all windows, louvers, doors, limestone and brick including the curtain wall. Pressure wash the exterior walls and seal the walls.	\$ 44,000 0571
2. Clean all sanitary, storm and acid waste main drain piping to the exterior manholes and repair all damaged fittings.	\$ 9,600 3052
3. Replace all the BUR roofs (app 22,000 SF) on the 2nd, 4th and 5th levels of the original building and north addition.	\$220,000 3053
4. Replace the floor tiles and base molding on the first floor.	\$ 25,000 0694
5. Replace the Hot Water Converter tube bundle in room 5080M.	\$ 10,000 2903
SUB-TOTAL	\$308,600
 B. Building Improvement/Addition Projects:	
1. Upgrade the elevator with a new car, power and controls.	\$140,000 3057
SUB-TOTAL	\$140,000
 C. Building Component Replacements expected within the next 5 to 10 years:	
1. Replace Chiller in room 5080M and remove boiler..	\$400,000 2293
2. Replace misc. exhaust fans and/or motors.....	\$ 20,000 3054
4. Replace ceiling tiles and grid in halls.	\$ 27,000 2825
5. Remove the floor tiles in the halls of the original building and replace with vinyl tile.	\$ 45,000 2826
6. Replace condensate piping as required.	\$ 45,000 3055
SUB-TOTAL	\$537,000
 Total Cost for all Projects	 \$985,600

GENERAL BUILDING INFORMATION

EVANS LAB #150

BUILDING ADDRESS: 88 WEST EIGHTEENTH AVENUE

GROSS SQ. FT.: 121,994

NET ASSIGNABLE SQ. FT.: 86,680

MECHANICAL/CUSTODIAL AREA SQ. FT.: 13,708

YEAR OF CONSTRUCTION: 1959, ADDITIONS IN 1965 and 1984 HVAC MODIFICATIONS

YEAR OF LAST RENOVATION: 1985 HVAC MODIFICATIONS

NUMBER OF STORIES/BASEMENT: GROUND FLOOR AND FOUR FLOORS WITH PENTHOUSE

AIR CONDITIONING (Percentage): 75%

CURRENT USE: GENERAL CHEMISTRY CLASSROOMS, RESEARCH LABS AND OFFICES

TYPE OF CONSTRUCTION: REINFORCED CONCRETE FRAME WITH MASONRY EXTERIOR

ESTIMATED REPLACEMENT COST: 20,449,000 *

WHEELCHAIR ACCESSIBILITY: ACCESS FROM THE SOUTH MAIN ENTRANCE THROUGH
NEWMAN/WOLFROM LAB TO ELEVATORS AND ALL FLOORS

OVERALL BUILDING CONDITION: SATISFACTORY **

NUMBER OF EXIT STAIRWAYS: THREE

AREA SHOP RESPONSIBILITY: NORTHEAST

* Replacement Cost assigned November 1994 by The Office of University Resource Planning & Institutional Analysis.

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

BUILDING SYSTEMS INFORMATION

EVANS LAB #150

HEATING:

Source HPS FROM STEAM LOOP AT TUNNEL TO ROOM 030M and HOT WATER FROM TUNNEL
Type Heating System HOT WATER FROM STEAM AND CAMPUS HOT WATER LOOP
Steam (Line size, valve location) ONE 4" HPS TO RM 030M AND 5080M
Building Htg Water (line size, valve location) 6" 030M, 4" 036M AND 6" 5080

VENTILATION SYSTEM:

100% OUTSIDE AIR ON ALL MAIN AIR HANDLING UNITS

COOLING:

Bldg % 75% Chillers TWO AT APPROXIMATELY 825 TONS
Window Units EIGHTEEN Thru-the-roof NONE Direct exp. units NINE

HVAC CONTROL SYSTEM:

VARIES PNEUMATIC, ELECTRIC AND DDC UPGRADE ON HEATING AND COOLING UNITS

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

1. McCracken PGN5/PGS5	750	13,200 / 208/120	3000 AMP	073M
2. McCracken PGN5/PGS5	1500	13,200 / 480/277	2000 AMP	S/E PIT
3. McCracken PGN5/PGS5	966	13,200 / 208/120	3000 AMP	S/E PIT

PLUMBING:

Water (size, valve location) 6" TUNNEL NORTHWEST END & 4" RM 030M
Gas (size, valve location) 4" NORTHWEST CORNER AND 3" RM 030M
Domestic Hot Water (size, valve location) 2" AND 2" FROM DHW CAMPUS LOOP
Compressed Air (size, location) 1" IN RM 5080M AND 1-1/2" IN RM 036M

SEWERS:

Storm ONE EACH 6", 8" AND 12" ON WEST SIDE Sanitary 8" N/W, 3-4" S/E

METERS:

Gas (size, location) 4" HP GAS RM 5080M AND 2" RM 030M
Water (size, location) NONE
Electric (size, location) ON EACH OF THE TRANSFORMER SWITCH PANELS

ALARM SYSTEMS:

Fire Alarm MANUAL Panel Location 030M
Fire Pump NO Pump Location N/A
Sprinklers NO Panel Location N/A
Other Alarms SECURITY SYSTEM, HVAC SYSTEM,

ELEVATORS:

Number ONE Type (passenger, freight) PASS/FREIGHT
Manufacturer OTIS Size 50x108 INCHES

EMERGENCY GENERATOR:

Size NONE Location

ASBESTOS SURVEY (1986):

PIPE AND EQUIPMENT INSULATION IN MECHANICAL ROOMS AND SOME LABS.

WILLIAM LLOYD EVANS LABORATORY NARRATIVE

HISTORY

William Lloyd Evans Laboratory was constructed in 1959 and occupied in 1960 with a gross area of 79,585 SF. It was originally built to expand the chemistry lab space of The McPherson Chemistry Building THAT stood on the west side. In 1965 a building addition of 40,230 SF was added on the north side to house more laboratories. At the same time the Van De Graff research facility, a sub basement lab was added to Evans Lab. In 1984 a small addition to house air conditioning equipment was added on the west side. Prior to the addition of The Newman & Wolfrom Laboratory, Evans Laboratory had a total area of 121,994 SF.

Over the years, renovations to many of the labs have taken place to meet the changing demands of the Research Chemistry Facility. Upgrades to the HVAC distribution system, lab hood exhaust system, air handling units, and a new chiller were completed in 1984. In 1994 the latest renovation project, recently named The Newman & Wolfrom Laboratory, included a new building which wrapped around Evans Laboratory on the south and west side.

In an interview with various occupants of the building, it was learned that the occupants are satisfied with the basic condition and performance of the building systems. Miscellaneous concerns of building appearances were expressed and noted in the report.

A review of the work orders indicated that there are an average number of routine maintenance and emergency calls. However, more than normal routine maintenance problems with Evans Laboratory are beginning to show up in the areas of roof leaks, plumbing blockages, HVAC cooling and/or control problems, elevator breakdowns and door hardware.

The building shell is functioning as designed, at this time, and has held up well over the 36 years since built. Several common areas have not been renovated since originally built and some interior building components have exceeded their life expectancy. Some exterior components have failed and will need to be repaired or replaced over the next five years.

These items when completed will protect the structural and exterior elements, enhance building performance and create a satisfying visual environment for students, faculty, staff and visitors.

Occupancy of Evans Lab as reported by The Office of University Resource Planning & Institutional Analysis in the C-1 Building Space Assignment Report dated June 30, 1996 for a Net Assignable Area of 86,680 SF is as follows; Research Labs 64.1%, Mechanical, Custodial and Toilets 19.3%, Staff and Administration 9.8%, Classrooms 6.8%.

PRIMARY SYSTEMS

This structure consists of reinforced concrete spread footers, walls, columns, beams and joist type floors THAT form the basic skeletal components of this five-story building. There were no signs of settlement or movement in the building foundation or structural columns and supports. The concrete floors, walls and beams appear to be in good condition.

A brick veneer was installed on concrete block to form the exterior walls above

the first floor roof on the east and from grade on other sides. Openings in the brick are provided for windows, doors and louvers. Openings along the buildings projection on the east side from the ground floor to the bottom of the first floor roof and between columns are for the aluminum window and marble panel curtain walls. Limestone panels on the south and east projected wall and at the columns between the curtain walls complete architectural elements which accent the lower two stories. The equipment room on the fifth floor of the original building has insulated steel siding and a metal deck with built up roof.

Overall the exterior brick veneer is in good condition. Some minor cracking due to settlement and/or expansion has occurred. Other small areas need to be cleaned, tuckpointed and sealed where water staining, loose mortar, cracking and/or settlement has occurred.

The limestone panels on the southeast corner at the front of the building have loose mortar joints or cracked panels due to settlement and/or lack of expansion joints. These panels need to be repaired and recaulked.

The glass and marble curtain wall in the front and on the east also contain aluminum frames and awning type windows. Aluminum double hung windows are installed in the original building. The windows in the 1965 addition are aluminum pivot type windows. All windows are of the single pane type.

Most roof areas are of the concrete deck type, with a Built-up-roof (BUR) consisting of felt layers with hot tar and pea gravel on top of insulation board. However, this is the original roof and it is well past its expected life and needs to be replaced within the next few years. Some miscellaneous flashing problems with the gravel stop/fascia were noted, which needs to be repaired at this time.

INTERIOR SYSTEMS

The reinforced concrete skeleton is enclosed with concrete block to form interior walls, stairwells, halls and rooms. The hall and restroom walls in the original building are ceramic tile and need to be cleaned. Interior block walls are in good condition, some have minor settlement cracks which is to be expected. Access panels to the pipe chases are fiberboard with a laminate finish. Most are in good condition but need to be cleaned, a few need to be repaired. Access to the pipe chases and storage in the 1965 addition is by hinged floor to ceiling panels held in place with magnets. The panels are in good condition but need to be cleaned.

The wood doors in this building are in good to fair condition, the doors to the second floor classrooms need to be refinished.

The floors are primarily asphalt tile that has been well maintained, however, some tiles continue to pop up and need to be repaired. The floor tiles and/or mastic may contain asbestos and will need to be replaced in the near future. The equipment rooms have exposed concrete floors that have been sealed.

All ceilings in classrooms, halls and common areas need to be replaced. Several tiles are missing, many are stained, sections of the grid are damaged and the system is well past its expected life. The age and condition of the ceiling tile would justify replacement rather than cleaning or spot replacement. It is also recommended that recessed lighting be installed in the new ceiling. Some of the light fixtures, registers, grills, and diffusers in these areas need cleaning.

The partitions, doors, hardware, walls, floors, and ceilings have held-up well after 35 years of use. Hardware repairs will increase as the building ages, and some doors will need to be adjusted and/or planed for doors to shut properly.

SERVICE SYSTEMS

The major service systems natural gas, domestic water, sanitary waste, acid waste, compressed air, vacuum, distilled water, oxygen (not in use) and LP steam systems all appeared to be functioning properly.

The plumbing drainage system did not appear to have any problems, however, maintenance records indicate that stoppages are occurring more frequently in main drains and a complete cleaning of all sanitary, storm and acid waste systems is recommended. There was good water pressure at faucets. Most of the piping appears to be copper and should hold up over the next ten years, however, the joints were soldered with 50/50 solder at that time and lead testing may be required.

The domestic Hot Water is supplied by the central Hot Water loop to the original building and the 1965 addition.

The restrooms fixtures were functioning properly and no replacements are needed, however, maintenance records indicate that sanitary waste pipe stoppages and domestic water faucet leaks are occurring more frequently. BECAUSE the faucets are 35 years old and almost to the end of their useful life, replacement should be planned for within the next five years.

The condensate pump in the pipe tunnel was leaking and water was leaking from the pipe sleeve above the condensate pump, both need to be repaired.

The vacuum pump in room 030M was leaking water from the aspirator and chemicals from labs was being expelled into the room. The aspirators need to be replaced, however, warranty questions with the defective/leaking units have been raised.

The elevator was operating properly, however, maintenance records indicated increasing problems and breakdowns. The elevator car, power and controls should be replaced to meet present day requirements.

The Central Hot Water Heating loop supplies convectors located on the outside walls under windows, fan coil units at entrances and some unit heaters.

The two 4" High Pressure Steam lines are tapped into the central steam loop located in the front of the building and entering the tunnel from the south. Medium Pressure Steam in room 030M and 5080M is piped to a Pressure Reducing Station and heat exchanger located in room 036M and 5080M. Hot water is heated and pumped through the heat exchanger to the hot deck heating and preheat coils in air handling units and reheat coils in lab areas. This system was in operation and appears to be operating properly. Although no problems were reported with the condensate return system it is recommended that some work be anticipated in this area based on similar systems in other buildings of this age.

The cooling system consists of one 400 Ton chiller in room 036M cooled by a B.A.C. cooling tower and one 415 Ton absorption chiller in room 5080M cooled by Marley open type cooling tower.

Some condenser water piping and control valves to the cooling tower in room 5080M were installed over electrical switch gear panels. The north valve had leaked

onto the panel and floor then to the lab below. A pan needs to be installed on top of the electrical panel with a drain directed to a floor drain to protect the panel.

Chilled water cross-overs from the Chemistry Building create a redundant system. The chiller in room 036M was replaced in the spring of 1996 with a new 400 ton York screw type unit. Chilled water pumps supply chilled water to the various air handling units.

The eight major air handling units supply air to grills and diffusers throughout the building. Some units are variable air volume (VAV) units that have CAV Boxes with Hot Water Reheat coils that are controlled with the hood usage. Two units (1 and 3) contain a glycol reclaim coil along with the heating and cooling coils. Two units are multi-zone air handling units that supply a set amount of conditioned air to specific rooms. The rest of the units are constant air volume (CAV) units with conditioned air or with heating only in the air handling units supplying make up air to the lab hoods. Several rooms requiring special controls have single zone split system air conditioning units.

DDC control upgrades were completed in the late 1980s to all air conditioning air handling units, heat exchangers in room 5080M and the chiller in room 036M.

The cooling and ventilation system appeared to be operating properly. Outside air grills to all air handling units and supply air fans need to be cleaned.

Exhaust fans located throughout the building remove air from restrooms, common areas, classrooms and mechanical rooms. Specific fans for removing lab hood exhaust are located on the fifth floor. Before the air is exhausted to the outside from the exhaust fans in room 5042M, the air passes over three heat reclaim coils and booster exhaust fans. A glycol solution is pumped from these coils to the fresh air intake coil on AHU-1 & 3 in room 1026M that tempers the outside supply air coming in. Two exhaust fans remove air from the lab hoods in the 1965 addition. All these units appear to be in fairly good condition, operating properly and well maintained. However, due to their age, allocations should be made for repairs and replacement over the next five years. Some lab hood exhaust fans need the flexible joints replaced to minimize the possibility of discharging contaminated air into equipment room 5042M.

ELECTRICAL

The electrical power to the Evans Laboratory is provided by one 750 KVA 208/120 volt transformers fed from the McCracken substation circuits No. PGN5/PGS5. One 1500 KVA 480/277 volt and one 966 KVA 208/120 transformer in the southeast transformer pit supply power to both Evans Lab and The Newman/Wolfrom Labs. Primary and secondary switchgear are located in room 011M. Fused switches from the transformers feed lighting and power panels on each floor and the motor control panel (MCC) in room 1026M. The 750 KVA transformer and switchgear is located in room 072M in the subbasement off the utility tunnel. Fused switches from the transformer feed lighting and power panels on each floor and the motor control panel (MCC) in room 5080M. The MCC panels contain fused switches which distribute power to mechanical equipment in or near the room. Panel sizes vary throughout the building depending on the load. At about 15 watts per square foot the building appears to have an adequate power supply and an adequate number of convenience outlets.

The building has 40 watt fluorescent light fixtures throughout while incandescent

lighting is used for some accent lighting and in equipment rooms. Some areas have had the newer 32 watt fixtures installed during room renovation or normal replacement. A contract has been issued to replace all existing 40 watt lighting with the newer 32 watt energy efficient lighting in this building.

SAFETY STANDARDS

The building safety systems consist of a fire pump (located in Newman/Wolfrom) that supplies a standpipe located in each stair well for fire department use. Limited smoke detectors mostly in the duct work and manual pull stations at exits provide local fire annunciation from the panel in room 030M. Individual labs and several rooms are secured using local keying to limit access.

A battery emergency power source in room 036M supplies power to lighted exit signs and emergency lights in the hallways and stairwells. A few areas are covered with emergency lights that have internal battery backup. Automatic door openers have been installed at the east and main south entrance. The elevators provide access to all floors of the building.

BUILDING PERIMETER

The sidewalk on the east and north side of the building is in good condition. The south sidewalk of concrete, brick and asphalt is new. The concrete dock area on the west side is in fair condition, however, minor repairs and sealing are required at the ramp section of the dock. The steel and wood ramp to the east door needs to be repaired and painted. The lawn area on the east side has some bare spots and needs to be resealed. There is no mulch around the shrubbery. There is a drainage problem on the east side where low areas should be filled and graded to the existing drains. Entrances to the building are well lighted and the area street lighting appears to be distributed properly.

ASBESTOS

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report: Inventory of Friable Asbestos Containing Material in Buildings of the Ohio State University (Main and Branch Campuses) and the Recommendations for Corrective Action by PEI Associates, September 1986, identifies asbestos containing materials in rooms 030M, 036M, 034M, 5080M, 5042M, pipe chases tanks, equipment and heat exchanger insulation in the mechanical rooms. Asbestos not identified in the 1986 report has been removed from Evans Lab and includes hood siding, floor tiles, metal Galbestos siding and wall panels. Portions were removed during the 1984 HVAC renovation project and the 1994 building project. Smaller sections have been removed during repairs and room renovations, however, much of the original asbestos remains in the building materials and heating system piping and duct work insulation.

INTERIOR

1. Replace the screens on windows on east side.
Workorder #01-5064-218181-66
 2. Repair and/or replace loose or missing window locking hardware.
Workorder #01-5064-218176-61
 3. Repair crack in tile block wall in ground floor restroom.
Workorder #01-5064-218168-60
 4. Repair the leak in the condensate line at the north end of the access tunnel.
Workorder #01-5064-218182-66
 5. Repair and weld loose landing plates in the west stairwell of the north addition.
Workorder #01-5064-218177-61
 6. Replace 10 sets of lavatory faucets in Evans Lab.
Workorder #01-5064-218182-66
 7. Repair the steam leaks in room 030M.
Workorder #01-5064-218182-66
 8. Replace the Duriron fitting near room 073 in the access tunnel and repair several glass fittings in same.
Workorder #01-5064-218182-66
 9. Remove the old caulking from the expansion joints in the hall at room 2004 and replace with new caulking.
Workorder #01-5063-019114-51
 10. Chip the loose concrete from the beam and louver opening in room 011 and patch with grout.
Workorder #01-5063-019114-51
-
1. Paint and/or refinish interior doors and frames to classrooms in the original building.
 2. A pan needs to be installed on top of the electrical panel in room 5080M with a drain directed to a floor drain.
Control #3056

EXTERIOR

1. Repair the steam vent roof flashing on the upper roof (5080M).
Workorder #01-5064-218165-73
 2. Repair the leaks in the canopy roof over the west double door.
Workorder #01-5064-218167-73
 3. Backfill around low areas on east side next to the building and grade to the area storm drains.
Workorder #01-5063-019113-51
 4. Paint exterior metal doors, apply etch, prime and paint.
Workorder #01-5064-218168-60
 5. Clean all roof drains app 10 drains, water is ponding around drains.
Workorder #01-5064-218167-73
 6. Clean the east storm drains to the manhole in 18th. Ave.
Workorder #01-5063-019113-51
 7. The transit siding needs to be cleaned and repainted on the west of the building.
Workorder #01-5064-218168-60
 8. Clean all intake and exhaust louvers.
Workorder #01-5064-218181-66
 9. Clean and paint the metal shed and fencing.
Workorder #01-5064-218168-60
 10. Repair gravel stop leaks onto brick walls at the roof level.
Workorder #01-5064-218167-73
 11. Repair the counter flashing on the roof above the pool classrooms.
Workorder #01-5064-218167-73
-
1. Repair the top of the concrete wall on the west area well.
 2. Repair the concrete around the top of the ramp to the building connector.
 3. Repair the wood boards on the ramp, the board anchor angle and paint all of the steel supports and hand rail.
Control #3056

BUILDING EVALUATION SUMMARY

I. BUILDING INFORMATION

FAC # 150 FACILITY NAME: EVANS LAB
 DATE: 02/30/96 INSPECTOR: JAO
 YEAR CONSTRUCTED: 1960, ADDITION IN 1967
 GROSS SQ FT: 121,993 NET SQ FT: 80,375
 REPLACEMENT COST \$ 20,449,000 *

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	11.93	2,439,566	0.84	2,049,235
Columns and Beams	10.68	2,183,953	0.84	1,834,521
Exterior Walls	6.24	1,276,018	0.75	957,014
Windows & Doors	3.05	623,695	0.67	417,876
Roofing	3.33	680,952	0.33	224,714
Partitions & Drs.	8.05	1,646,145	0.75	1,234,609
Wall Finishes	2.64	539,854	0.53	286,123
Floor Finishes	4.86	993,821	0.50	496,911
Ceilings & Finish	5.45	1,114,471	0.50	557,236
Conveying	1.73	353,768	0.60	212,261
Plumbing	16.65	3,404,759	0.63	2,144,998
Heating	6.66	1,361,903	0.70	953,332
Cooling & Vent.	6.24	1,276,018	0.61	778,371
Elec. Ser. & Dist	1.32	269,927	0.70	188,949
Lighting & Power	9.02	1,844,500	0.63	1,162,035
Safety Standards	2.15	439,654	0.57	250,603
TOTALS	100.00	20,449,000	0.67	13,748,788

III. BUILDING RATING SUMMARY

Overall Building Rating = 67%

* Replacement Cost assigned January 1994 by The Office of University Resource Planning & Institutional Analysis without the furnishings and fixed equipment allocation.

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

FOUNDATIONS

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Footings:	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Individual Footings & Piers <u>SPREAD FOOTERS</u>	[]	[X]	[]
Continuous Footings <u>SPREAD FOOTERS</u>	[]	[X]	[]
Grade Beams _____	[X]	[]	[]
Piles _____	[X]	[]	[]
Caissons _____	[X]	[]	[]
b. Foundation Wall Materials:			
Steel _____	[X]	[]	[]
Concrete Cast-in-place <u>PERIMETER AND TUNNEL</u>	[]	[X]	[]
Concrete Block _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Waterproofing and Underdrain:			
Coating <u>NOT VISIBLE</u>	[]	[X]	[]
Membrane _____	[]	[X]	[]
Board _____	[X]	[]	[]
Drain Tile _____	[]	[X]	[]
d. Slab on Grade (floor):			
Plain <u>GROUND FLOOR</u>	[]	[X]	[]
Reinforced _____	[X]	[]	[]
e. Special Substructures:			
<u>PARTIAL TUNNEL FOR SERVICE PIPING AND ELECTRIC DIST.</u>	[]	[X]	[]

B. COMMENTS:

1 THE BASIC STRUCTURAL COMPONENTS APPEAR TO BE IN GOOD CONDITION

C. COMPONENT RATING: (\$2,439,566) (84 %) = \$ 2,049,235
 Possible Condition Component
 Value Multiplier Value

EXTERIOR WALLS

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Walls:

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Concrete _____	[X]	[]	[]
Masonry <u>BRICK VENEER BACKED BY CONCRETE BLOCK</u>	[]	[X]	[]
Metal Siding <u>ON PENTHOUSE AND WEST WALL & 1965 ADDITION</u>	[]	[]	[X]
Wood Siding _____	[X]	[]	[]
Other <u>CURTAIN WALL WITH GLASS AND MARBLE PANELS</u>	[]	[]	[X]
Other <u>LIMESTONE LINTELS AND SILLS AROUND WINDOWS</u>	[]	[]	[X]
Other <u>LIMESTONE PANELS ON EAST WALLS</u>	[]	[]	[X]

b. Finishes:

Stucco _____	[X]	[]	[]
Paint <u>ON METAL SIDING WEST SIDE</u>	[]	[X]	[]
Other _____	[X]	[]	[]

B. COMMENTS:

- 1 STAINS AND SOFT MORTAR FROM GRAVEL STOP SEAM LEAKS OR ALUMINUM WINDOW SILL CAULKING FAILURE NEED TO BE CLEANED AND SOFT MORTAR REPLACED.
- 2 METAL SIDING PANELS NEED TO BE PAINTED ON THE WEST WALL AND EQUIPMENT ROOMS ON THE ROOF.
- 3 CONTROL AND/OR EXPANSION JOINTS ON THE 1965 ADDITION NEED TO BE TOUCHED UP WITH CAULKING.
- 4 LIMESTONE PANELS ON THE SOUTHEAST CORNER AT ROOM 17 HAS SETTLED, AND SHEARED, MORTAR JOINTS NEED TUCKPOINTED AND CRACKS SEALED.

C. COMPONENT RATING: (\$1,276,018) (75 %) = \$ 957,014

Possible	Condition	Component
Value	Value Multiplier	Value

EXTERIOR WINDOWS & DOORS

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Windows type & number:

	N/A	Sat	Att
Wood _____	[X]	[]	[]
Steel _____	[X]	[]	[]
Alum <u>46 IN CURTAIN WALL EAST SIDE AND NORTH CLASS ROOMS</u>	[]	[X]	[]
Alum <u>120 DOUBLE HUNG EAST AND WEST SIDE</u>	[]	[X]	[]
Alum <u>50 FIXED ON THE NORTH AND EAST SIDE OF 1965 ADDITION</u>	[]	[]	[X]
Other <u>FIXED WINDOWS IN CURTAIN WALL</u>	[]	[]	[X]

b. Window glazing:

Single pane <u>ON ALL WINDOWS</u>	[]	[X]	[]
Double pane _____	[X]	[]	[]
Other _____	[X]	[]	[]

c. Doors type & number:

Wood _____	[X]	[]	[]
Steel <u>1 STAIR EXIT, 2 TO WALKWAY, 9 MECHANICAL ROOM DOORS</u>	[]	[X]	[]
Alum <u>DOUBLE ENTRANCE DOOR ON THE WEST SIDE</u>	[]	[X]	[]
Other <u>4 RATED DOORS AT SOUTH ENTRANCE OFF NEW LOBBY</u>	[]	[X]	[]

d. Shading Devices:

Types <u>WINDOW BLINDS</u>	[]	[X]	[]
----------------------------	-----	-----	-----

B. COMMENTS:

- 1 REPAIR THE BROKEN GLASS IN EAST AND WEST WINDOWS.
- 2 MANY OF THE SCREENS TO THE EAST WINDOWS ARE LAYING ON THE ROOF OF THE SECOND FLOOR. THESE NEED TO BE REPLACED.
- 3 THE CAULKING AROUND THE CURTAIN WALL NEEDS TO BE REPLACED.
- 4 THE CAULKING AROUND THE DOUBLE HUNG WINDOWS NEEDS TO BE REPLACED, THE WINDOWS ON THE 1965 ADDITION NEED TO BE TOUCHED-UP.

C. COMPONENT RATING: (\$ 623,695) (67 %) = \$ 417,876

Possible	Condition	Component
Value	Value Multiplier	Value

ROOFING

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Roof Covering:	N/A	Sat	Att
Built-up _____	[X]	[]	[]
Built-up w/gravel <u>HOT MOPPED BUILT UP PLY 1960, 1965</u>	[]	[]	[X]
Asphalt Shingle _____	[X]	[]	[]
Copper _____	[X]	[]	[]
Glass (Skylight) _____	[X]	[]	[]
Slate _____	[X]	[]	[]
Spanish Tile _____	[X]	[]	[]
Metal _____	[X]	[]	[]
Other <u>NEW ASPHALT ROLL UNDER NEW COOLER ON SOUTHWEST SIDE</u>	[]	[X]	[]
Other <u>EPDM WITH STONE BALLAST ABOVE ROOM 036M</u>	[]	[X]	[]
Other <u>ROLL EPDM WITH ALUMINUM PAINT UNDER COOLING TOWER</u>	[]	[X]	[]
c. Flashing:			
Base & Counter <u>AT WALLS ON THE LOWER ROOF & 65 ADDITION</u>	[]	[X]	[]
Cap _____	[X]	[]	[]
Through Wall _____	[X]	[]	[]
Valley & Ridge _____	[X]	[]	[]
Expansion Joint <u>BETWEEN EXISTING AND 1995 ADDITION</u>	[]	[X]	[]
d. Gravel Stop & Edge Strips:			
Type <u>AROUND THE PERIMETER</u>	[]	[]	[X]
e. Drainage:			
Gutters w/ Exterior Downspouts _____	[X]	[]	[]
Scuppers w/ Exterior Downspouts <u>ON CANOPY ROOFS</u>	[]	[X]	[]
Drains w/ Interior Storm Drains _____	[]	[]	[X]
f. Parapets:			
Concrete _____	[X]	[]	[]
Brick _____	[X]	[]	[]
Block _____	[X]	[]	[]
Precast _____	[X]	[]	[]
Other _____	[X]	[]	[]
g. Insulation:			
Type <u>ONE TO THREE INCHES DEPENDING ON YEAR BUILT</u>	[]	[]	[X]

B. COMMENTS

- 1 NOTED PONDING OVER MUCH OF THE FOURTH FLOOR ROOF AND THE FIFTH FLOOR EQUIPMENT ROOM ROOF OF THE ORIGINAL BUILDING. THIS ROOF IS 35 YEARS OLD AND NEEDS TO BE REPLACED. THE UPPER ROOF OVER THE ADDITION IS ALSO IN NEED OF REPLACEMENT WITHIN THE NEXT FIVE YEARS.
- 2 SEAL ALL OF THE JOINTS IN THE GRAVEL STOP TO PREVENT SEEPAGE ON THE BRICK BELOW.
- 3 CLEAN ALL ROOF DRAINS AND REMOVE DEBRIS FROM THE ROOF.
- 4 IT IS RECOMMENDED THAT ADDITIONAL INSULATION BE INSTALLED WHEN THE ROOF IS REPLACED TO BRING THIS BUILDING UP TO PRESENT DAY ENERGY CODES.

C. COMPONENT RATING: (\$ 680,952) (33 %) = \$ 183,857
 Possible Condition Component
 Value Value Multiplier Value

PARTITIONS & DOORS

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Partition Framing:

	N/A	Sat	Att
Concrete Block <u>PERIMETER BACKING AND INTERIOR WALLS</u>	[]	[X]	[]
Glazed Clay Block <u>IN HALLS, SOME LABS AND RESTROOMS</u>	[]	[]	[X]
Wood Stud _____	[X]	[]	[]
Metal Stud <u>IN ROOMS THAT WERE SPLIT AND FIRST FLOOR EAST</u>	[]	[X]	[]
Structural Tile _____	[X]	[]	[]
Rated _____	[X]	[]	[]
Other _____	[X]	[]	[]

b. Special partitions and Walls:

Toilet _____	[]	[X]	[]
Screen Walls _____	[X]	[]	[]
Gate _____	[]	[X]	[]
Other <u>FIBERBOARD WITH LAMINATED FINISH AT CHASE ACCESS</u>	[]	[]	[X]
Other <u>WOOD PANELS IN HALLS OF 1965 ADDITION</u>	[]	[X]	[]

c. Wall Material:

Plaster _____	[X]	[]	[]
Plaster Board <u>IN ROOMS THAT WERE SPLIT</u>	[]	[X]	[]
Glass _____	[X]	[]	[]
Plywood _____	[X]	[]	[]
Paneling _____	[X]	[]	[]
Trim & Wainscot _____	[X]	[]	[]
Tile/Glazed <u>IN HALLS OF THE ORIGINAL BUILDING</u>	[]	[X]	[]
Other <u>LAMINATED</u>	[]	[X]	[]

d. Interior Doors & Frames:

Met Door/Met Frame <u>AT EQUIPMENT ROOMS AND STAIRS</u>	[]	[X]	[]
Wood Door/Wood Frame _____	[X]	[]	[]
Wood Door/Metal Frame <u>TO LABS</u>	[]	[]	[X]
Glazing <u>LIGHTS IN DOORS</u>	[]	[X]	[]
Rollup _____	[X]	[]	[]
Sliding _____	[X]	[]	[]
Other <u>TWO 6'x 7' FOR EQUIPMENT ACCESS</u>	[]	[X]	[]

e. Hardware:

Door Closures _____	[]	[X]	[]
Lock Sets _____	[]	[X]	[]
Kick/Push Plates _____	[]	[X]	[]
Thresholds _____	[]	[X]	[]
Panic Devices _____	[]	[X]	[]
Security & Detection _____	[]	[X]	[]
Automatic Openers _____	[]	[X]	[]
Other _____	[X]	[]	[]

B. COMMENTS:

- 1 SOME DOORS AND/OR DOOR HARDWARE NEED TO BE ADJUSTED OR REPLACED TO CLOSE PROPERLY, MOST DOORS NOTED NEEDED TO BE REFINISHED.
- 2 NOTED THAT SOME GLAZED BLOCK WALLS HAVE SHEAR CRACKS IN THE GROUND FLOOR RESTROOM, THESE NEED TO BE REPAIRED.

C. COMPONENT RATING: (\$1,646,145) (75 %) = \$1,234,609

Possible	Condition	Component
Value	Value Multiplier	Value

WALL FINISHES

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
a. Paint <u>ON BLOCK</u>	[]	[X]	[]
b. Wall Coating _____	[X]	[]	[]
c. Wall Coverings _____	[X]	[]	[]
d. Paneling			
Prefinished WOOD PANELS	[]	[X]	[]
Plank	[X]	[]	[]
e. Cork _____	[X]	[]	[]
f. Wallpaper _____	[X]	[]	[]
g. Ceramic Tile <u>RESTROOMS</u>	[]	[X]	[]
h. Trim & Wainscot _____	[X]	[]	[]
i. Decoration _____	[X]	[]	[]
j. Glass _____	[]	[]	[]
k. Other <u>ASBESTOS PANELS ON THE GROUND FLOOR ROOM 041</u>	[]	[X]	[]

B. COMMENTS

NONE

C. COMPONENT RATING: (\$ 539,854) (53 %) = \$ 286,123
 Possible Condition Component
 Value Value Multiplier Value

FLOOR FINISHES

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. Carpet:			
Rolled _____	[]	[X]	[]
Tile _____	[X]	[]	[]
b. Composition:			
Epoxy _____	[X]	[]	[]
Synthetic _____	[X]	[]	[]
Other _____	[X]	[]	[]
c. Concrete Topping:			
Clear Sealant <u>ON GROUND FLOOR LABS AND MECHANICAL ROOMS</u>	[]	[X]	[]
Abrasive _____	[X]	[]	[]
Epoxy <u>IN MECHANICAL ROOM 3002M</u>	[]	[X]	[]
Aggregate _____	[X]	[]	[]
d. Resilient:			
Vinyl Tile <u>24x24 IN SOME HALLS</u>	[]	[]	[X]
Linoleum Tile <u>9x9 IN HALLS</u>	[]	[]	[X]
Vinyl _____	[X]	[]	[]
Rubber _____	[X]	[]	[]
Cork _____	[X]	[]	[]
e. Ceramic Tile _____	[]	[X]	[]
f. Masonry _____	[X]	[]	[]
g. Terrazzo <u>FRONT ENTRANCE, MAIN STAIRS AND LANDINGS</u>	[]	[X]	[]
h. Wood _____	[X]	[]	[]
i. Metal _____	[X]	[]	[]

B. COMMENTS

- 1 THE FLOOR TILE AT THE FIRST FLOOR WALKWAY ENTRANCE NEEDS TO BE REPLACED.
- 2 THE FLOOR TILE IN THE HALLS IS IN FAIR CONDITION AND SHOULD BE REPLACED WITHIN THE NEXT FIVE YEARS.

C. COMPONENT RATING: (\$ 993,821) (50 %) = \$ 496,911
 Possible Condition Component
 Value Value Multiplier Value

CEILING AND FINISHES

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. System Type:

	N/A	Sat	Att
Exposed <u>TO CONCRETE ABOVE</u>	[]	[X]	[]
Applied to Structure <u>PLASTER APPLIED TO CONCRETE JOISTS</u>	[]	[X]	[]
Suspended <u>DRYWALL, MINERAL FIBER AND PLASTER</u>	[]	[]	[X]

b. Materials:

Drywall _____	[X]	[]	[]
Plaster <u>IN SOME LABS AND RESTROOMS</u>	[]	[]	[X]
Mineral Fiber Board <u>IN HALLS</u>	[]	[]	[X]
Metal Pan _____	[X]	[]	[]
Luminous Panels _____	[X]	[]	[]
Other _____	[X]	[]	[]

c. Finishes:

Paint _____	[]	[X]	[]
Fabric _____	[X]	[]	[]
Prefinished _____	[]	[]	[X]
Other _____	[X]	[]	[]

d. Openings & Inserts:

Air Distribution _____	[]	[X]	[]
Lighting Fixtures _____	[]	[X]	[]
Access Panels _____	[]	[X]	[]
Skylights _____	[X]	[]	[]
Fire Protection _____	[X]	[]	[]
Other _____	[X]	[]	[]

B. COMMENTS:

1 THE HALL CEILING TILES HAVE BEEN DAMAGED FROM WATER LEAKS AND REPAIRS MADE ABOVE. ALL OF THE TILE AND GRID SHOULD BE REPLACED WITHIN THE NEXT FIVE YEARS.

C. COMPONENT RATING: (\$1,114,471) (50 %) = \$ 367,775
 Possible Condition Component
 Value Value Multiplier Value

CONVEYING

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Elevators:

	N/A	Sat	Att
Number <u>ONE</u>	[]	[X]	[]
Type <u>OTIS</u>	[]	[]	[X]
Speed <u>75</u>	[]	[X]	[]
Capacity (lbs) <u>4000</u>	[]	[X]	[]
Dimensions <u>50" x 108"</u>	[]	[]	[X]
Door Operation:			
Center _____	[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 THE OTIS ELEVATOR IN THE CENTER OF THE BUILDING IS OLD AND NEEDS TO HAVE THE CAR AND CONTROLS REPLACED WITHIN THE NEXT FIVE YEARS.

C. COMPONENT RATING: (\$ 353,768) (60 %) = \$ 212,261

Possible	Condition	Component
Value	Value Multiplier	Value

MECHANICAL/PLUMBING

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Services Available:

	N/A	Sat	Att
Cold Water 6" INTO N/W TUNNEL AND 4" TO ROOM 030M	[]	[X]	[]
Hot Water 3" AND 2" IN ROOM 5080M AND 036M	[]	[X]	[]
Acid Waste 6 & 8" TO TANKS EAST OF THE BUILDING	[]	[X]	[]
Oxygen NOT IN USE AT THIS TIME	[]	[X]	[]
Natural Gas 3" FROM TUNNEL, 4" HP GAS FROM NORTHWEST	[]	[X]	[]
Vacuum PUMPS LOCATED IN ROOM 030M	[]	[]	[X]
Distilled Water STILL IN 5042M AND TANKS IN 5042M	[]	[X]	[]
Compressed Air INSTRUMENT AIR LOCATED IN TUNNEL	[]	[X]	[]
Other LOW PRESSURE STEAM IN TUNNEL TO LAB CHASES	[]	[X]	[]

b. Piping & Fittings:

Cast Iron ON SANITARY AND STORM	[]	[X]	[]
Copper Piping ON VACUUM, LAB AIR, HOT & COLD WATER	[]	[X]	[]
Copper Tubing ON CONTROL AIR	[]	[X]	[]
Plastic ON DI WATER	[]	[X]	[]
Steel ON CHILLED, HEATING, GAS, FIRE AND STEAM SERVICES	[]	[X]	[]
Glass ON ACID WASTE	[]	[]	[X]
Other DURIRON ON ACID WASTE	[]	[X]	[]

c. Water Heaters:

Oil	[X]	[]	[]
Steam Converter	[X]	[]	[]
Other DOMESTIC HOT WATER FROM THE POWER PLANT	[]	[X]	[]

d. Drainage:

Storm Drains 6", 8", 12" FROM ROOF AREAS	[]	[X]	[]
Sanitary Drainage 6" & 4" TO EAST, 8" TO SOUTHWEST	[]	[X]	[]
Combined Storm/San. TO SOUTH, SOME SEPARATED	[]	[X]	[]
Floor Drains IN RESTROOMS, LABS AND EQUIPMENT ROOMS	[]	[X]	[]

e. Fixtures:

Water Closets <u>15</u>	[]	[X]	[]
Urinals <u>8</u>	[]	[X]	[]
Lavatories <u>10</u>	[]	[]	[X]
Showers <u>10 EMERGENCY</u>	[]	[X]	[]
Kitchen Sinks <u>1</u>	[]	[X]	[]
Service Sinks <u>5</u>	[]	[X]	[]
Drinking Fountains	[]	[X]	[]
Electric Water Coolers <u>5</u>	[]	[X]	[]

f. Sprinkler Systems:

Wet	[X]	[]	[]
Dry	[X]	[]	[]

g. Standpipe Systems:

Wet	[]	[X]	[]
Dry	[X]	[]	[]
Valves LOCATED IN STAIR WELLS	[]	[X]	[]
Hose Cabinets NEXT TO STAIR WELLS SOME HOSES REMOVED	[]	[X]	[]

B. COMMENTS:

- 1 LAV FAUCETS IN SEVERAL RESTROOMS AND FAUCETS IN SEVERAL LABS WERE LEAKING AND NEED REPAIRED.
- 2 THERE HAVE BEEN COMPLAINTS ABOUT NO RESTROOM FACILITIES AROUND THE MAIN CLASSROOM 1008.
- 3 THE VACUUM PUMP ASPIRATOR IN ROOM 030M IS LEAKING CAUSING ASPIRATED CHEMICALS TO BE RELEASED INTO THE ROOM.

C. COMPONENT RATING: (\$3,404,759) (63 %) = \$ 2,144,998

Possible	Condition	Component
Value	Value Multiplier	Value

MECHANICAL/HEATING

FAC # 150 DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

a. Heat Source:	N/A	Sat	Att
Central Plant Steam <u>4" AND 4" HPS LINE FROM SOUTH TUNNEL</u>	[]	[X]	[]
Central Plant Hot Water <u>6" SUPPLY AND RETURN SOUTH TUNNEL</u>	[]	[X]	[]
Boilers: Type <u>GAS FIRED (ABANDONED)</u>	[]	[X]	[]
Size <u>250 HP</u>	[]	[X]	[]
Furnace: Type _____	[X]	[]	[]
Size _____	[X]	[]	[]
Heat Pump: Type _____	[X]	[]	[]
Size _____	[X]	[]	[]

b. System Type:			
Steam HPS <u>REDUCED TO MPS IN ROOM 030M AND ROOM 5080M</u>	[]	[]	[X]
Hot Water <u>LPS TO HOT WATER CONVERTER IN ROOM 036M & 5080M</u>	[]	[X]	[]
Air _____	[]	[X]	[]
Multizone <u>IN ROOM 3002M</u>	[]	[X]	[]
Dual Duct _____	[X]	[]	[]
Terminal Reheat <u>ON CONSTANT VOLUME BOXES</u>	[]	[X]	[]
Variable Volume <u>TO CONSTANT VOLUME BOXES WITH REHEAT</u>	[]	[X]	[]
Other <u>MAKE UP AIR HANDLING UNITS FOR LAB EXHAUST</u>	[]	[X]	[]

c. Space Equipment:			
Radiators _____	[X]	[]	[]
Convectors <u>AT WINDOWS</u>	[]	[X]	[]
2-Pipe Fan Coil <u>AT MOST ENTRANCES</u>	[]	[X]	[]
Unit Heaters <u>STEAM AND HOT WATER</u>	[]	[X]	[]
Other _____	[X]	[]	[]

d. Control Type:			
Pneu _____	[]	[X]	[]
Electric _____	[]	[X]	[]
DDC <u>ON THE HEAT EXCHANGER IN ROOM 5080M</u>	[]	[X]	[]
Manual Valves _____	[X]	[]	[]

B. COMMENTS:

- 1 A 4" HP STEAM LINE SUPPLIES BOTH THE ORIGINAL BUILDING AND 1965 ADDITION.
- 2 THE CONDENSATE PUMPS IN THE NORTH TUNNEL ARE LEAKING AND NEED TO BE REPAIRED.
- 3 THE PRESSURE REDUCING STATIONS IN ROOM 030M IS LEAKING AND NEED TO BE REPAIRED.

C. COMPONENT RATING: (\$1,361,903) (70 %) = \$ 953,332

Possible	Condition	Component
Value	Value Multiplier	Value

COOLING & VENTILATING

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. System:			
Type <u>VAV, CAV, MZCV, MUAHU</u>	[]	[X]	[]
Capacity <u>830 TONS TOTAL</u>	[]	[X]	[]
b. Chillers:			
Centrifugal <u>400 TON IN 036M WAS REPLACED 6/15/96</u>	[]	[]	[X]
Reciprocating	[X]	[]	[]
Absorption <u>415 ROOM 5080M</u>	[]	[X]	[]
c. Cooling Towers:			
Type <u>ONE MARLEY AND ONE B.A.C. COOLING TOWER</u>	[]	[]	[X]
Capacity <u>AT 420 AND 415 TON</u>	[]	[X]	[]
d. Condensers:	[X]	[X]	[]
e. Space Equipment:			
Direct Expansion -			
Window units <u>EIGHTEEN</u>	[]	[X]	[]
Thru-the-wall	[X]	[]	[]
Single zone	[X]	[]	[]
Single zone con. vol. <u>IN VARIOUS ROOMS APP 32 TON</u>	[]	[X]	[]
Other	[X]	[]	[]
Air/Water -			
2-pipe fan coil	[]	[X]	[]
Unit ventilators <u>AHU'S RM 5042M, 1026M, 5042M & 3002M</u>	[]	[X]	[]
Terminal reheat <u>OF AHU'S TO MOST LABS</u>	[]	[X]	[]
Variable volume <u>ON AHU'S WITH ON/OFF CAV BOXES</u>	[]	[X]	[]
Constant volume <u>TO SOME LABS</u>	[]	[X]	[]
Dual Duct	[X]	[]	[]
Multizone <u>TO CLASSROOMS ON SECOND FLOOR</u>	[]	[X]	[]
f. Special Systems:			
Type <u>HEAT RECOVERY OF EXHAUST AIR TO AHU-1, 2 & 3</u>	[]	[X]	[]
Capacity <u>615 GPM GLYCOL SOLUTION</u>	[]	[X]	[]
Type	[X]	[]	[]
Capacity	[X]	[]	[]
g. Control Systems:			
Pneu	[]	[X]	[]
Electric	[]	[X]	[]
Electronic <u>ON A/C AHU'S AND CHILLER ROOM 036M</u>	[]	[X]	[]
h. Fans:			
Exhaust <u>LAB EXHAUST IN ROOM 5042M AND 5080M</u>	[]	[X]	[]
Recirculating	[X]	[]	[]

B. COMMENTS:

- 1 THE 415 ABSORPTION CHILLER WAS INSTALLED IN 1956, WHILE THE 400 TON SCREW CHILLER WAS INSTALLED IN THE SPRING OF 1996 IN ROOM 036M.
- 2 IN 1984 SEVERAL MODIFICATIONS TO THE HVAC SYSTEM WERE COMPLETED ON ALL FIVE FLOORS INCLUDING COIL REPLACEMENT, UNIT UPGRADES AND REPLACEMENT PIPING UPGRADES, DUCT MODIFICATIONS, HEAT RECLAIM SYSTEM AND TESTING AND BALANCING OF THE COMPLETE HVAC AND EXHAUST SYSTEMS.
- 3 THE CHILLED WATER IS CROSS CONNECTED TO THE UNITS IN THE CHEMISTRY BLDG.
- 4 ALL OUTSIDE AIR INTAKES WERE PARTIALLY PLUGGED AND NEEDS TO BE CLEANED.
- 5 CONDENSER PIPING OVER ELECTRICAL EQUIPMENT IN ROOM 5080M NEED TO BE MODIFIED.

C. COMPONENT RATING: (\$1,276,018) (61 %) = \$ 778,371

Possible	Condition	Component
Value	Value Multiplier	Value

ELECTRICAL/SERVICE & DISTRIBUTION

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

(a) Service:

Substation POWER HOUSE PGN5/PGS5 CIRCUITS

Primary Voltage 13,800 VOLTS

Transformer:

Manufacture	Type	KVA	Secondary Voltages
<u>GE</u>	<u>OIL</u>	<u>750</u>	<u>208/120 RM 072M</u>
<u>SQUARE D</u>	<u>OIL</u>	<u>1500</u>	<u>480/277 WELL S/E</u>
<u>SQUARE D</u>	<u>OIL</u>	<u>966</u>	<u>208/120 WELL S/E</u>

(b) Distribution System:

Panelboard (type) CIRCUIT BREAKER

Voltage 208/120

Amperage VARIES BETWEEN 200 AND 400 AMPS

Conduit STEEL

Conductor COPPER

Wire (type) VARIES

Armored Cable ON LIGHT DROPS

Other POWER SUPPLY IN ROOM 036M FOR EMERGENCY LIGHTING

(c) Emergency System:

General or (type & capacity) BATTERY IN ROOM 036M

B. COMMENTS:

- 1 ALL MECHANICAL EQUIPMENT IS OPERATED OFF 208 VOLT POWER.
- 2 THE NEW TRANSFORMERS IN THE S/E PIT SERVE BOTH THE ORIGINAL EVANS AND NEWMAN/WOLFROM.
- 3 SOME NEWER EQUIPMENT IN EVANS IS SERVED WITH 480 VOLT POWER.

C. COMPONENT RATING: (\$ 269,927) (70 %) = \$ 188,949

Possible	Condition	Component
Value	Value Multiplier	Value

SAFETY STANDARDS

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
(a) Exits:			
Stair Construction:			
concrete <u>BLOCK AND STEEL</u>	[]	[X]	[]
steel <u>WEST STAIRWELL</u>	[]	[]	[X]
wood _____	[X]	[]	[]
Number of exits <u>TWO TO THE EXTERIOR</u>	[]	[X]	[]
(b) Fire Rating:			
Construction Type: <u>I X</u> II ___ III ___ IV ___ V ___ VI			
Building Height: <u>70 FOOT</u> ft., <u>FIVE</u> stories			
(c) Extinguishing Systems:			
Portable <u>THROUGHOUT BUILDING</u>	[]	[X]	[]
Standpipe <u>IN STAIRWAYS</u>	[]	[X]	[]
Hose Cabinets <u>AT STAIRWAYS</u>	[]	[X]	[]
Sprinklers _____	[X]	[]	[]
Suppression _____	[X]	[]	[]
Other _____	[X]	[]	[]
(d) Detection & Alarm Systems:			
Manual Alarm <u>PULL STATIONS AT EXITS</u>	[]	[X]	[]
Annunciator <u>BELLS IN HALLWAYS</u>	[]	[X]	[]
Smoke Detectors <u>IN HVAC DUCTS</u>	[]	[X]	[]
(e) Lighting Systems:			
Exit Signs <u>ON EMERGENCY CIRCUIT</u>	[]	[X]	[]
Exit Lighting <u>ON EMERGENCY CIRCUIT</u>	[]	[X]	[]
Emergency Lighting <u>ON EMERGENCY CIRCUIT</u>	[]	[X]	[]
Emergency Generator _____	[X]	[]	[]

B. COMMENTS:

- 1 THE STEEL PLATE LANDINGS NEED TO BE REPAIRED (WELDED) ON SEVERAL LEVELS.
- 2 A FEW EMERGENCY LIGHTS ARE POWERED BY SELF CONTAINED BATTERIES.

C. COMPONENT RATING: (\$ 439,654) (57 %) = \$ 250,603
 Possible Condition Component
 Value Value Multiplier Value

BUILDING PERIMETER EVALUATION

FAC # 150

DATE 02/30/96

INSPECTOR: JAO

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
1. Building Access:			
Driveway <u>NORTH CONCRETE</u>	[]	[X]	[]
Loading Dock <u>ONE IN THE WALKWAY BETWEEN BUILDINGS</u>	[]	[X]	[]
Sidewalks			
Front <u>CONCRETE, BRICK AND ASPHALT</u>	[]	[X]	[]
Side <u>EAST CONCRETE</u>	[]	[X]	[]
Rear <u>NORTH ASPHALT</u>	[]	[]	[X]
Steps			
Front _____	[X]	[]	[]
Side _____	[X]	[]	[]
Rear <u>STEPS</u>	[]	[X]	[]
Handicap Ramp <u>WOOD AND STEEL RAMP ON THE WEST SIDE</u>	[]	[]	[X]
2. Lawn and Landscaping:			
Lawn <u>NORTH, EAST AND WEST</u>	[]	[]	[X]
Shrubs <u>SAME AS LAWN</u>	[]	[X]	[]
Trees <u>SAME AS LAWN</u>	[]	[X]	[]
Undesirable Insect _____	[X]	[]	[]
Bedding Material <u>NONE / REQUIRED</u>	[]	[X]	[]
Watering System <u>EXTERIOR HOSE BIBBS</u>	[]	[X]	[]
3. General Site Information:			
Signage _____	[]	[X]	[]
Address Identification _____	[]	[X]	[]
Security Lights <u>ON WALLS AND ROOF</u>	[]	[X]	[]
Street Lights <u>ON 18th AVE</u>	[]	[X]	[]
Drainage <u>FOUR STORM DRAINS ON THE EAST SIDE</u>	[]	[]	[X]
Storm Drains <u>AT DOCKS AND EAST SIDE</u>	[]	[X]	[]

B. COMMENTS:

- 1 THE ASPHALT WALK ON THE NORTH SIDE NEEDS TO BE RESEALED.
- 2 THE LAWN NEEDS TO BE RESEDED ON EAST SIDE.
- 3 THE RAMP ON THE NORTH SIDE NEEDS TO BE PAINTED AND CRACKED WOOD BOARDS REPLACED.
- 4 LOW AREAS ON THE EAST NEXT OF THE BUILDING NEED TO BE BACKFILLED AND GRADED TO THE EXISTING STORM DRAINS. THE STORM DRAINS NEED TO BE CLEANED.

The Ohio State University
Department of Physical Facilities
BUILDING AUDIT METHODOLOGY

1. BUILDING AUDIT PROGRAM OBJECTIVE

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

2. BUILDING AUDIT APPROACH

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

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

3. DATA ORGANIZATION

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

4. COST ESTIMATES

Costs are for budgeting purposes only and are based on The Means Standard Construction Cost data, auditor experience, industry sources and OSU project cost data. Costs are reported current to the year of the audit. The building component values assigned in the "Building Evaluation" forms are not cost estimates. These values are calculated from the replacement cost provided by The Office of University Resource Planning & Institutional Analysis 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. on going maintenance, replacement and renovation projects are not included.

(b) Includes exterior building walls and attached items.

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

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

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

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

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

ABBREVIATIONS

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

APPENDIX

Building Floor Plans

C-1 Building space Assignments