

FACILITY AUDIT REPORT
NEW CHEMISTRY BUILDING
Building #371

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GENERAL BUILDING INFORMATION

New Chemistry Building #371

BUILDING ADDRESS: 120 West Eighteenth Avenue

GROSS SQ. FT.: 113,433

NET ASSIGNABLE SQ. FT.: 52,274

MECHANICAL/CUSTODIAL AREA SQ. FT.: 20,767

YEAR OF CONSTRUCTION: 1986

YEAR OF LAST RENOVATION: N/A

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

AIR CONDITIONING (Percentage): 80 %

CURRENT USE: Laboratories for the Chemistry Department

TYPE OF CONSTRUCTION: Steel Frame, Masonry Skin

ESTIMATED REPLACEMENT COST: \$ 17,508,000 *

BUILDING APPEARANCE: Clean, New, Finishes in good condition, Functional
Laboratory Building

WHEELCHAIR ACCESSIBILITY: The front entrance on Eighteenth Avenue has an
automatic door opener and is at grade level. The entrance door at the
Northwest corner of the building also has an automatic opener.

OVERALL BUILDING CONDITION: Satisfactory **

NUMBER OF EXIT STAIRWAYS: Three (3)

* 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

New Chemistry Building #371

HEATING:

Source HOT WATER AND STEAM FROM THE POWER PLANT
Type Heating System HOT WATER FINNED TUBE RADIATION AND AIR HANDLERS
Steam (Line size, valve location) 6 INCH LINE, ROOM 01M, SW CORNER
Building Htg Water (line size, valve location) 8 INCH LINE, ROOM 01M

VENTILATION SYSTEM:

THREE VAV AIR HANDLING SYSTEMS, FOUR INDIVIDUAL AC UNITS FOR LASER LAB.

COOLING:

Bldg % 80 % Chillers TWO CENTRIFUGAL CHILLERS, 274 & 450 TONS
Window Units N/A Thru-the-wall N/A Direct exp. units N/A

HVAC CONTROL SYSTEM: PNEUMATIC, JC-80 SYSTEM, JOHNSON CONTROLS

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

1.	<u>PGN5/PGS5</u>	<u>2,000</u>	<u>13,800 / 480Y/277</u>	<u>LOCATED ON 5TH FLOOR NE</u>
2.	<u>PGN5/PGS5</u>	<u>750</u>	<u>13,800 / 208Y/120</u>	<u>LOCATED ON 5TH FLOOR NE</u>
3.	<u>PGN5/PGS5</u>	<u>500</u>	<u>13,800 / 208Y/120</u>	<u>LOCATED OUTSIDE ON EAST SIDE</u>
4.	<u>PGN5/PGS5</u>	<u>500</u>	<u>13,800 / 480Y/277</u>	<u>LOCATED OUTSIDE ON EAST SIDE</u>

PLUMBING:

Water (size, valve location) 8 INCH LINE, ROOM 10M
Gas (size, valve location) 3 INCH LINE, ROOM 10M
Domestic Hot Water (size, valve location) 4 INCH LINE, ROOM 01M
Compressed Air (size, location) FROM TUNNEL SOUTHSIDE OF BUILDING

SEWERS: Storm N/A Sanitary N/A Combination 1 @ 8"

METERS:

Gas (size, location) 3 INCH, LOCATED ON THE EAST SIDE OF THE BUILDING
Water (size, location) 8 INCH, LOCATED IN ROOM 10M
Electric (size, location) LOCATED NEXT TO TRANSFORMER ROOM 540M

ALARM SYSTEMS:

Fire Alarm YES Panel Location LOCATED IN ROOM 185
Fire Pump YES Pump Location ROOM 10M
Sprinklers PARTIAL Panel Location ROOM 185
Other Alarms SMOKE DETECTORS, HEAT DETECTORS, AND FIRE PUMP ALARM

ELEVATORS:

Number TWO Type (passenger, freight) PASSENGER
Manufacturer DOVER Size 4000 AND 4500 LBS.

EMERGENCY GENERATOR: Size 41 KVA Location ROOM 550M

KEY BOX LOCATION: NORTHEAST ENTRANCE AT THE LOADING DOCK

ASBESTOS SURVEY (1986): CONSTRUCTION OF NEW CHEMISTRY BUILDING WAS AFTER THE ASBESTOS SURVEY WAS COMPLETED.

NEW CHEMISTRY BUILDING NARRATIVE

GENERAL

This Building Audit was conducted by Physical Facilities for the purpose of evaluating the present condition of the buildings for which Physical Facilities has a budgetary responsibility. This audit describes the current physical condition of the facility and identifies existing corrective maintenance and building component system replacement requirements. It has been assumed that the program needs of the tenant departments are being met by the facility. Audit objectives and methodology are described in greater detail in the "Building Audit Methodology" section of this report.

HISTORY

Construction was completed in 1986 for the New Chemistry Building. The building provides office and laboratory space for the Chemistry Department. The building has had very little remodeling since completion of construction in 1986. The current building use is as follows: Classrooms 4%, Laboratories 31%, Laboratory Service 21%, Offices 5%, and Mechanical 39%.

The Laser Laboratory located in the basement of the facility has an independent electrical service and HVAC system. The remaining areas of the building are laboratories used for general chemistry classes and organic chemistry classes. The building has had a few design problems that have resulted in extra maintenance expenses. The mounting brackets for the chemical waste sinks in the laboratories have failed several times resulting in the sinks dropping from the counter tops and breaking the drain lines. The Laser Laboratory was constructed with a ground fault interrupter installed at only the transformer. In 1989 additional ground fault interrupters were installed in the individual laboratory circuits, but operational problems have plagued the interrupters.

The large amount of equipment in the New Chemistry Building results in higher maintenance expenses. There are 59 exhaust fans, 41 pumps, and 2 chillers to maintain. There is a chemical waste neutralizing pit that has to be cleaned periodically. In April 1991 the building was relamped, all the light bulbs were replaced, in an effort to reduce the total operating cost. During the third year of operation, a main bearing in the chiller failed resulting in an unexpected \$11,000 expense.

PRIMARY SYSTEMS

The foundation, substructure, and superstructure appear to be in good condition.

The foundation consists of concrete piers in caissons and continuous footings around the exterior of the building. The basement floor is a 6" cast-in-place concrete slab. This slab has heaved in several areas of the basement causing a major crack in the corridor and a tripping edge at the cap of a few of the piers.

The exterior walls are brick pre-assembled panels with concrete window sills and aluminum windows. The exterior has several off-sets and caulking joints that will have to be replaced periodically, but all were observed to be in good condition.

The double glazed aluminum awning style windows are in good condition. The windows are not opened or used regularly since the building is air conditioned around the clock. There are three different types of exterior doors. The four

primary entrances have aluminum frames with full glass and are in good condition.

The northwest entrance door is sticking on the threshold. The post for the automatic door opener on the southside has been bent by a snow plow, but is operating. There is a solid metal door entrance off the loading dock and a metal roll-up door for deliveries at the loading dock.

The roof for the New Chemistry Building is a single-ply EPDM membrane that was installed in 1986. The roof cover has large stone ballasts that make it difficult to walk on the surface and to identify any surface damage. Walk pads have been installed around the cooling towers where most of the foot traffic occurs. No roof leaks were observed and the surface appears to be in good condition.

SECONDARY SYSTEMS

The partitions, doors, walls, floors, and ceilings are in good condition. The interior surfaces have worn well and are not abused by the building occupants. The suspended acoustical ceiling tiles, recessed light fixtures, and registers are showing signs of some dirt collecting, but are in good condition.

The floors are primarily resilient sheeting, polyflor XL, that has been maintained. Vinyl tile was used in the basement and has been damaged in a few areas where the floor has heaved, cracking the tile. The stairwells have rubber treads and tile that is in very good condition. The tile and resilient sheeting has been replaced in areas where chemicals were spilled.

SERVICE SYSTEMS

The major service systems all appear to be functioning adequately. The passenger elevators serve both freight and passenger traffic. The larger elevator has experienced some surface damage to the doors and cab from carts and maintenance equipment. Each elevator is equipped with an emergency telephone, however these telephones are the dial type that will need to be replaced in the future.

There are three different waste water systems, the storm water system, sanitary sewage system, and the chemical waste system. The storm water and sanitary systems have sump pumps in the basement that discharge into the combination sewer line in the street. The chemical waste system drains to a neutralizing tank at the southeast corner of the building that discharges into the combination sewer line in the street. The laboratory service sinks have a problem where the mounting bracket holding the sink to the counter top fails, allowing the sink to drop and sometimes breaking the drain line. This is a problem that is corrected as the sinks fail. The department does not have adequate funds available to repair all the sinks at one time.

There are two main chillers and 4 Liebert glycol-cooled air conditioning units located in New Chemistry. The two chillers provide cooling to the building except for the Laser Laboratory. There is a 274 ton and a 450 ton chiller. The smaller chiller had a major repair in 1991 when a bearing failed and was replaced. Both chillers have just under 7000 hours of operation time.

ELECTRICITY

The electric service for New Chemistry building is supplied by four transformers. There are two 500 KVA transformers that provide power to the Laser Laboratory in the basement. There are two transformers (750 and 2000 KVA) in the penthouse

that supply electric power to the remainder of the building. The main distribution panels are located in Rm 540M with the transformers. Each floor has individual circuit breaker panels for lights and receptacles. The circuit breaker panels inspected had blank space to add more circuit breakers. The demand meter reading indicated that the maximum kilowatt reading was about 45% of the electric capacity of the system.

The Laser Laboratory was originally constructed to have a ground fault interrupter at the transformer supplying the laboratory. This created some problems with the complete lab losing power when a ground fault would occur. In 1989, ground fault interrupters were installed in the individual circuits of the laboratory. The ground fault interrupters installed were manufactured by Westinghouse. Several operational problems continue to plague this equipment. The mechanical room in the basement that supplies the Laser Laboratory has not had an individual ground fault interrupter installed. A ground fault in this area would result in the power to the Laser Lab being interrupted.

There is an emergency generator in room 550M that provides emergency power to selected lights in the building and exit lights if there is a power outage.

SAFETY STANDARDS

New Chemistry Building is equipped with a manual fire alarm system, smoke detectors, fire hose cabinets, portable fire extinguishers, and a partial sprinkler system. The JC-80 monitoring system provides central monitoring of the fire alarm system. There have been an abnormal number of false alarms from smoke detectors accidentally activating. We recommend routine cleaning of the detectors as a preventative maintenance measure to reduce the number of false alarms.

The New Chemistry Building was constructed after asbestos had been eliminated from construction materials. The building has not been tested for asbestos containing materials.

BUILDING PERIMETER

The sidewalks on the south and west sides of the building are in good condition. The sidewalk on the north side along 19th Avenue has some uneven areas where the asphalt walk has settled. The driveway on the east side that provides access to the loading dock is constructed of concrete and is in very good condition.

The exterior lighting is provided by street lights along 19th and 18th Avenues. The sidewalk to the west has lamp posts that light the area between New Chemistry and McPherson Laboratory. The sign identifying the building and the address is located on 18th Avenue at the front entrance to the building. There is no identification of the building on the 19th Avenue side.

The lawn area in front on 18th has been taken over by weeds. The areas between the sidewalk and the building on the west and the north sides of the building have lost some of the original plantings. The slope from the building is fairly steep and has caused some erosion and puddling along the sidewalk. Some form of ground cover should be established in these areas to eliminate any further erosion problems. The shrubs and trees that have not been removed appear to be healthy.

CONCLUSION

The New Chemistry Building is in very good condition. There have been a few operational problems with some of the building equipment, but considering the large amount of equipment in the building this is to be expected. The interior surfaces of the building are wearing well and are being well maintained. The exterior of building is in good condition without any signs of deterioration. The landscaping area around the building needs some maintenance. The steep slope away from the building creates some drainage problems that must be addressed when plantings are placed in this area.

PROPOSED MAINTENANCE PROJECTS
(R&R or CAPITAL FUNDED)

A. Corrective Maintenance Projects:

No projects identified.

B. Building Improvements/Addition Projects:

- 1. Install DDC controls for monitoring and controlling the HVAC system.....\$25,000
 - 2. Install ground fault interrupter to the supply circuit for mechanical room 10M.....\$ 6,000
- Sub-total 31,000

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

No projects identified.

Total cost for all estimated projects = \$31,000

MAINTENANCE PROJECTS
(Less than \$5,000)

New Chemistry Building **#371**

1. Adjust threshold at northwest entrance door to eliminate door from sticking closed.
2. Trim bottom of fire door in basement corridor that scrapes the floor because of concrete heaving.
3. Paint walls of stairwells and repair scratches in drywall.
4. Clean smoke detectors in building.
5. Replace plants or add ground cover at the southwest and northwest corners of the building to stop erosion of soil next to building.
6. Repair automatic door opener pedestal that has been knocked loose at the front entrance door on the south side.
7. Replace dial telephones in elevators with an automatic dialing style phone accessible to disabled passengers.
8. Repair roof counter flashing at the base of the elevator equipment room.

BUILDING EVALUATION SUMMARY

I. BUILDING INFORMATION

FAC # 371 FACILITY NAME: NEW CHEMISTRY BUILDING
 DATE: 4-13-92 INSPECTOR: RDL
 YEAR CONSTRUCTED: 1986
 GROSS SQ FT: 113,433 NET SQ FT: 73,167
 REPLACEMENT COST \$ 17,508,000 X 85% = 14,881,800

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	4.12	613,130	0.98	600,867
Columns and Beams	11.14	1,657,833	0.98	1,624,676
Exterior Walls	6.60	982,199	0.98	962,555
Windows & Doors	3.30	491,099	0.97	476,366
Roofing	2.13	316,982	0.94	297,963
Partitions & Drs.	8.49	1,263,465	0.97	1,225,561
Wall Finishes	4.28	636,941	0.87	554,139
Floor Finishes	4.79	712,838	0.97	691,453
Ceilings & Finish	5.69	846,774	0.95	804,435
Conveying	2.95	439,013	0.91	399,502
Plumbing	17.51	2,605,803	0.97	2,527,629
Heating	6.95	1,034,285	0.96	992,914
Cooling & Vent.	7.97	1,186,079	0.94	1,114,914
Elec. Ser. & Dist	0.81	120,543	0.96	115,721
Lighting & Power	7.96	1,184,591	0.95	1,125,361
Safety Standards	5.31	790,224	0.92	727,006
TOTALS	100.00	14,881,800	0.96	14,241,062

III. BUILDING RATING SUMMARY

Overall Building Rating = 96.0 %

* 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 # 371 DATE: 4-13-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Windows type & number:	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Wood _____	[X]	[]	[]
Steel _____	[X]	[]	[]
Alum <u>ALUMINUM FRAMES, AWNING STYLE WINDOWS</u>	[]	[X]	[]
Other _____	[X]	[]	[]
b. Window glazing			
Single pane _____	[X]	[]	[]
Double pane <u>DOUBLE GLAZING</u>	[]	[X]	[]
Other _____	[X]	[]	[]
c. Doors type & number:			
Wood _____	[X]	[]	[]
Steel <u>LOADING DOCK HAS METAL ROLL-UP AND ENTRANCE DOORS</u>	[]	[X]	[]
Alum <u>ENTRANCE DOORS WITH FULL GLAZING</u>	[]	[]	[X]
Other _____	[X]	[]	[]
d. Shading Devices:			
Types <u>WINDOW TINTING AND VENETIAN BLINDS</u>	[]	[X]	[]

B. COMMENTS:

1. AUTOMATIC DOOR OPENER AT THE NORTHWEST ENTRANCE DOES NOT WORK CORRECTLY BECAUSE DOOR IS CATCHING ON THE THRESHOLD.
2. AUTOMATIC DOOR OPENER PEDESTAL TO FRONT ENTRANCE HAS BEEN HIT AND BENT.

C. COMPONENT RATING: (\$491,099) x (0.97) = \$476,366

Possible	Condition	Component
Value	Value Multiplier	Value

ROOFING

FAC # 371 DATE: 4-13-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Roof Covering:	N/A	Sat	Att
Built-up _____	[X]	[]	[]
Built-up w/gravel _____	[X]	[]	[]
Asphalt Shingle _____	[X]	[]	[]
Copper _____	[X]	[]	[]
Glass (Skylight) _____	[X]	[]	[]
Slate _____	[X]	[]	[]
Spanish Tile _____	[X]	[]	[]
Metal <u>STANDING SEAM METAL ROOF AT WINDOW SILLS 1ST FLOOR</u>	[]	[X]	[]
Other <u>SINGLE-PLY EPDM MEMBRANE, CARLISLE SYNTEC W/BALLAST</u>	[]	[X]	[]

b. Flashing:			
Base & Counter <u>BASE IS SINGLE-PLY MEMBRANE, COUNTER METAL</u>	[]	[]	[X]
Cap <u>ALUMINUM CAP</u>	[]	[X]	[]
Through Wall _____	[X]	[]	[]
Valley & Ridge _____	[X]	[]	[]

c. Gravel Stop & Edge Strips:			
Type <u>PENTHOUSE ROOF</u>	[]	[X]	[]

e. Drainage:			
Gutters _____	[X]	[]	[]
Drains <u>ROOF SLOPES TO DRAINS FOR EACH ROOF AREA</u>	[]	[X]	[]
Scuppers _____	[X]	[]	[]
Downspouts _____	[X]	[]	[]

f. Parapets:			
Concrete _____	[X]	[]	[]
Brick <u>PARAPET EXTERIOR IS BRICK VENEER</u>	[]	[X]	[]
Block _____	[X]	[]	[]
Precast _____	[X]	[]	[]
Other _____	[X]	[]	[]

g. Insulation:			
Type <u>EPS INSULATION BOARD (3" TO 7" THICKNESS)</u>	[]	[X]	[]

B. COMMENTS

1. COUNTER FLASHING AT THE BASE OF THE ELEVATOR EQUIPMENT ROOM HAS COME LOOSE.

C. COMPONENT RATING: $(\underline{\$316,982}) \times (\underline{0.94}) = \underline{\$297,963}$

Possible	Condition	Component
Value	Value Multiplier	Value

CONVEYING

FAC # 371 DATE: 4-13-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Elevators:

	N/A	Sat	Att
Number <u>TWO (2)</u>	[]	[X]	[]
Type <u>PASSENGER ELEVATORS, DOVER MANUFACTURING</u>	[]	[X]	[]
Speed <u>200 FPM</u>	[]	[X]	[]
Capacity (lbs) <u>4,000 AND 4,500 LBS.</u>	[]	[X]	[]
Dimensions <u>5' X 9' AND 6' X 8'</u>	[]	[X]	[]
Door Operation:			
Center <u>FOR BOTH ELEVATORS</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:

C. COMPONENT RATING: $\frac{(\$439,013)}{\text{Possible Value}} \times \frac{(0.91)}{\text{Condition Value Multiplier}} = \frac{\$399,502}{\text{Component Value}}$

MECHANICAL/PLUMBING

FAC # 371 DATE: 4-14-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Services Available:	N/A	Sat	Att
Cold Water <u>8" DOMESTIC WATER SUPPLY, ROOM 10M</u>	[]	[X]	[]
Hot Water <u>4" DOMESTIC HOT WATER SUPPLY, SOUTH TUNNEL</u>	[]	[X]	[]
Acid Waste <u>GLASS DRAIN LINES TO NEUTRALIZING PIT</u>	[]	[X]	[]
Oxygen	[X]	[]	[]
Natural Gas <u>3" SUPPLY LINE, ROOM 10M</u>	[]	[X]	[]
Vacuum	[X]	[]	[]
Distilled Water	[X]	[]	[]
Compressed Air <u>SUPPLIED FROM TUNNEL ON SOUTH SIDE</u>	[]	[X]	[]
Other <u>REVERSE OSMOSIS WATER TREATMENT SYSTEM</u>	[]	[X]	[]
b. Piping & Fittings:			
Cast Iron <u>STORM DRAINS & SANITARY DRAINAGE</u>	[]	[X]	[]
Copper Tubing <u>USED FOR NITROGEN PIPING SYSTEM</u>	[]	[X]	[]
Plastic	[X]	[]	[]
Steel <u>GAS LINES ARE BLACK STEEL</u>	[]	[X]	[]
Glass <u>KIMAX GLASS SYSTEM FOR CHEMICAL WASTE</u>	[]	[X]	[]
Other <u>PEERLESS DUPLEX SUMP FOR STORM WATER & SEWAGE</u>	[]	[X]	[]
c. Water Heaters:			
Electric <u>ISE HOT WATER DISPENSER (UNDER SINK)</u>	[]	[X]	[]
Gas	[X]	[]	[]
Oil	[X]	[]	[]
d. Drainage:			
Storm Drains <u>CAST IRON PIPING FROM ROOF</u>	[]	[X]	[]
Sanitary Drainage <u>CAST IRON PIPING FROM RESTROOMS</u>	[]	[X]	[]
Combined Storm/San. <u>OUTSIDE BUILDING TO MAIN SEWER</u>	[]	[X]	[]
Floor Drains <u>DURIRON FLOOR DRAINS IN BASEMENT</u>	[]	[X]	[]
e. Fixtures:			
Water Closets <u>12 FIXTURES IN 8 DIFFERENT LOCATION</u>	[]	[]	[X]
Urinals <u>8 FIXTURES LOCATED IN 8 DIFFERENT ROOMS</u>	[]	[X]	[]
Lavatories <u>16 LOCATED IN 8 DIFFERENT ROOMS</u>	[]	[X]	[]
Showers <u>BRADLEY STAINLESS STEEL DRENCH SHOWERS</u>	[]	[X]	[]
Kitchen Sinks <u>ELKAY STAINLESS STEEL ONE COMPARTMENT SINKS</u>	[]	[X]	[]
Service Sinks <u>DURIRON SINKS IN LABORATORIES</u>	[]	[]	[X]
Electric Water Coolers <u>LOCATED ON EACH FLOOR IN CORRIDORS</u>	[]	[X]	[]
f. Sprinkler Systems:			
Wet <u>LOCATED IN THE BASEMENT AND IN STORAGE ROOMS</u>	[]	[X]	[]
Dry	[X]	[]	[]
Water Storage/Supply <u>PRESSURIZED STANDPIPE SYSTEM</u>	[]	[X]	[]
g. Standpipe Systems:			
Wet <u>FIRE PUMP IS LOCATED IN ROOM 10M</u>	[]	[X]	[]
Dry	[X]	[]	[]
Valves <u>STANDPIPES ARE LOCATED IN STAIRWELLS</u>	[]	[X]	[]
Hose Cabinets <u>LOCATED AT THE ENTRANCE TO STAIRWELLS</u>	[]	[X]	[]

B. COMMENTS:

1. COMMODES HAVE EXPERIENCED AN ABNORMAL NUMBER OF BACK-UPS. EITHER THE FIXTURES OR THE INSTALLATION HAVE A DESIGN FEATURE THAT HAVE RESULTED IN MORE THAN NORMAL WORK ORDERS TO UNCLOG COMMODES.
2. LABORATORY SERVICE SINKS HAVE AN INFERIOR MOUNTING BRACKET THAT FAILS AND ALLOWS SINKS TO DROP AND BREAK DRAIN LINE. SINKS ARE REPAIRED AS THEY FAIL. THEY WILL ALL EVENTUALLY NEED TO BE REPLACED.

C. COMPONENT RATING: $(\$2,605,803) \times (0.97) = \$399,502$

Possible Condition Component
Value Value Multiplier Value

ELECTRICAL/LIGHTING & POWER

FAC # 371 DATE: 4-15-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Lighting (lamp type):

	N/A	Sat	Att
Fluor <u>PRIMARY LIGHTING THROUGHOUT THE BUILDING</u>	[]	[X]	[]
Incand _____	[X]	[]	[]
HID _____	[X]	[]	[]
Other _____	[X]	[]	[]

b. Receptacles & Switches

Type & Capacity <u>GROUNDING SYSTEM</u>	[]	[]	[X]
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c. Special:

Baseboard Heat _____	[X]	[]	[]
Lightning Protection <u>COPPER CONDUCTOR, 10 GROUNDS</u>	[]	[X]	[]
Communication & Alarm <u>RAULAND INTERCOM SYSTEM</u>	[]	[X]	[]
Data Systems _____	[X]	[]	[]

B. COMMENTS:

1. NEW GROUND FAULT INTERRUPTER SYSTEM FOR THE LASER LABORATORY HAS BEEN INSTALLED, BUT OPERATIONAL PROBLEMS HAVE PLAGUED THE EQUIPMENT.

C. COMPONENT RATING: $\frac{(\$1,184,591)}{\text{Possible Value}} \times \left(\frac{0.95}{\text{Condition Value Multiplier}} \right) = \frac{\$1,125,361}{\text{Component Value}}$

SAFETY STANDARDS

FAC # 371 DATE: 4-15-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

(a) Exits:

Stair Construction:	N/A	Sat	Att
concrete _____	[X]	[]	[]
steel <u>FRAMES WITH RUBBER TREADS</u>	[]	[X]	[]
wood _____	[X]	[]	[]
Number of exits <u>THREE (3)</u>			

(b) Fire Rating:

Construction Type: I ___ II ___ III ___ IV ___ V ___ VI ___
 Building Height: 67 FEET ; FIVE STORIES

(c) Extinguishing Systems:

Portable <u>LOCATED IN HOSE CABINETS</u>	[]	[X]	[]
Standpipe <u>LOCATED IN STAIRWELLS</u>	[]	[X]	[]
Hose Cabinets <u>LOCATED AT ENTRANCES TO STAIRWELLS</u>	[]	[X]	[]
Sprinklers <u>LOCATED IN BASEMENT AND STORE ROOMS</u>	[]	[X]	[]
Suppression <u>WET STANDPIPE & HOSE SYSTEM</u>	[]	[X]	[]
Other _____	[X]	[]	[]

(d) Detection & Alarm Systems:

Manual Alarm <u>LOCATED AT ENTRANCE TO STAIRWELLS</u>	[]	[X]	[]
Annunciator <u>LOCATED AT LOADING DOCK & PENTHOUSE</u>	[]	[X]	[]
Smoke Detectors <u>LOCATED THROUGHOUT THE BUILDING</u>	[]	[]	[X]

(e) Lighting Systems:

Exit Signs <u>AT EACH EXIT DOOR AND STAIRWELL</u>	[]	[X]	[]
Exit Lighting <u>SELECTIVE LIGHTS ARE ON GENERATOR</u>	[]	[X]	[]
Emergency Lighting <u>SELECTIVE LIGHTS</u>	[]	[X]	[]
Emergency Generator <u>KOHLER WITH FORD ENGINE, 33KW</u>	[]	[X]	[]

B. COMMENTS:

1. SEVERAL FALSE ALARMS HAVE OCCURRED BECAUSE OF SMOKE DETECTORS ACCIDENTALLY ACTIVATING. A PREVENTIVE MAINTENANCE PROGRAM TO CLEAN THE DETECTORS ON A REGULAR BASIS SHOULD BE INSTITUTED.

C. COMPONENT RATING:
$$\frac{(\$790,224)}{\text{Possible Value}} \times \frac{(0.92)}{\text{Condition Value Multiplier}} = \frac{\$727,006}{\text{Component Value}}$$

BUILDING PERIMETER EVALUATION

FAC # 371 DATE: 4-15-92 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
1. Structural Access:			
Driveway <u>CONCRETE DRIVE TO LOADING DOCK OFF 19TH AVENUE</u>	[]	[X]	[]
Loading Dock <u>CONCRETE LOCATED AT NE CORNER</u>	[]	[X]	[]
Sidewalks			
Front <u>CONCRETE WALKS AND ENTRANCE</u>	[]	[X]	[]
Side <u>CONCRETE WALKS AND BRICK PAVERS</u>	[]	[X]	[]
Rear <u>ASPHALT OVER BRICK PAVERS</u>	[]	[]	[X]
Steps			
Front _____	[X]	[]	[]
Side <u>STEPS TO SOUTHWEST ENTRANCE</u>	[]	[X]	[]
Rear <u>STEPS TO LOADING DOCK</u>	[]	[X]	[]
Wheelchair Ramp <u>THE FRONT DOOR IS AT GRADE LEVEL</u>	[]	[X]	[]
2. Lawn and Landscaping:			
Lawn <u>18TH STREET, FRONT LAWN IS FULL OF WEEDS, NO GRASS</u>	[]	[]	[X]
Shrubs <u>HAVE BEEN TRIMMED</u>	[]	[X]	[]
Trees <u>HAVE BEEN TRIMMED</u>	[]	[X]	[]
Undesirable Insect <u>NONE OBSERVED</u>	[X]	[]	[]
Bedding Material <u>HAS DISAPPEARED, NEED TO BE REPLACED</u>	[]	[]	[X]
Watering System _____	[X]	[]	[]
3. General Site Information:			
Signage <u>LOCATED ON 18TH AVENUE</u>	[]	[X]	[]
Address Identification <u>LOCATED ON 18TH AVENUE SIGN</u>	[]	[X]	[]
Security Lights _____	[X]	[]	[]
Street Lights <u>LOCATED IN FRONT & REAR (18TH & 19TH AVE.)</u>	[]	[X]	[]
Drainage <u>NW CORNER PONDS WATER AT SIDEWALK, NO YARD DRAIN</u>	[]	[]	[X]
Storm Drains <u>LOCATED IN STREETS ON EACH SIDE OF BUILDING</u>	[]	[X]	[]

B. COMMENTS:

1. THE SW AND NW CORNERS OF THE BUILDING HAVE A STEEP GRADE FROM THE BUILDING WALL TO THE SIDEWALK. THE PLANTS IN THESE AREAS HAVE BEEN MOVED LEAVING BARE SOIL THAT WASHES ON TO THE SIDEWALK WHEN IT RAINS.
2. LOW AREA NEXT TO SIDEWALK ON 19TH AT THE NW CORNER OF THE BUILDING NEEDS TO BE FILLED AND SEEDED TO ELIMINATE PONDING OF WATER.

**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 is 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 first step up at all entries. Ramps outside the buildings are included.

(d) 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

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

APPENDIX

Building Floor Plans
C-1 Building Space Assignments