

FACILITY AUDIT REPORT

CUNZ HALL  
#293

JANUARY 11, 1991

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

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GENERAL BUILDING INFORMATION

Cunz Hall #293

BUILDING ADDRESS: 1841 Millikin Road

GROSS SQ. FT.: 66,260

NET ASSIGNABLE SQ. FT.: 33,501

MECHANICAL/CUSTODIAL AREA SQ. FT.: 9,117

YEAR OF CONSTRUCTION: 1968

YEAR OF LAST RENOVATION: N/A

NUMBER OF STORIES/BASEMENT: 4 stories plus a penthouse, no basement.

AIR CONDITIONING (Percentage): 95%

CURRENT USE: Language Department (offices and classrooms).

TYPE OF CONSTRUCTION: Reinforced Concrete with pre-cast panels.

ESTIMATED REPLACEMENT COST: \$ 5,899,540 \*

BUILDING ENVIRONMENT: Concrete and metal walls do not provide a very warm feeling.

BUILDING APPEARANCE: Slightly deteriorated and dirty. In need of a good cleaning.

HANDICAPPED ACCESSIBILITY: Yes, through the south door which is directly across from the elevator that provides access to other floors. Handicapped accessible restrooms are on the 2nd floor next to the elevator.

INITIAL CONSTRUCTION QUALITY: Good.

OVERALL BUILDING CONDITION: Good.

\* Replacement Cost assigned 6/90 by The Office of Campus Planning and Space Utilization without the furnishings and fixed equipment allocation.

**CUNZ HALL NARRATIVE**  
GENERAL

This Building Audit was conducted by Physical Facilities for the purpose of evaluating the present condition of the building for which Physical Facilities has a budgetary responsibility. This audit describes the current physical condition of the facility and identifies existing corrective maintenance 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. In addition, this audit does not intend to assess the condition of this facility, which is the budgetary responsibility of the tenant departments.

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

#### HISTORY

Cunz Hall was constructed in 1968. No additions have been made to the original building in its 22 year life. It was originally built to house the language departments and is still used for that purpose. Currently one classroom is being remodeled into six (6) offices for new faculty members. The only major work completed in the building was in 1978/79 energy management program when the controls on the HVAC system were changed and some of the fixed windows were revised to add a swing-out casement panel to provide the outside rooms with some fresh air.

In an interview with Rosa Cormanick, building coordinator and occupant since 1972, it was learned that the major complaint was the temperature in the building. She commented, "the rooms are never the temperature desired. They are cold in the winter and hot in the summer." A review of the work orders indicates that there have been several calls annually with regards to incorrect temperature.

The building is functioning the way it was designed to function and has held up well over 22 years of service. Since little has been done in the way of major cleaning or redecorating, some housekeeping chores would be appropriate. Walls need to be cleaned and/or painted, draperies are dirty and stained, ceiling fixtures are yellow from accumulated dirt, some ceiling tiles require cleaning or replacement, and carpets in the offices cleaned and/or replaced.

#### PRIMARY SYSTEMS

The foundations, substructure, and superstructure all appear to be in excellent shape. There are no signs of settlement or movement in the building foundation. The exterior closure which consists of poured-in-place concrete on the first floor does have some vertical cracks (less than 1/8 inch in width) that should be repaired. The 2nd thru 4th floor have pre-cast concrete panels and single glazed windows. While there are no signs of any deterioration of these panels, water stains were observed on the interior walls and draperies. These stains appear to be caused by two different problems. The first being by condensate forming on the walls during the winter because of the lack of any wall insulation. The second being by moisture coming through the concrete panels during rain storms. There is currently a proposed project to re-seal the pre-cast panel joints and water seal the concrete panels. It is recommended that some consideration be

given to a project to insulate the building walls and to install insulated glass windows.

The roofing is the original roof that has been patched in different places about 20 times. No leaks were currently observed. There are some tunnel blisters, especially on the 5th floor penthouse roof area. It is felt that this roof can be patched and maintained for a few more years, but that a major repair/replacement will be needed in 5 to 10 years.

The parapet on the 4th floor is pre-cast concrete and there has been a deterioration in the caulking between panels and the bolting attachment cover. Water entering these areas could cause failure of the connectors between adjacent precast panels in the future.

## SECONDARY SYSTEMS

The partitions, doors, walls, floors, and ceilings have held-up well for 22 years of use and are still in good functional condition. However, they are in need of a good cleaning. The first floor is almost all concrete or concrete block walls. Some of these have been painted recently, but others are in need of paint. The 2nd thru 4th floors are primarily metal partitions with baked enamel paint that could be cleaned with a good washing.

The light fixtures and registers are in need of a good cleaning along with the ceiling tile and grid system. This would help brighten up the interior and add a new freshness to the building.

The floors are primarily vinyl tile that has been maintained. Most of the office areas have carpet that is stained, dirty, and worn. Most of the carpet should be replaced, but this does not affect the functioning of the building.

## SERVICE SYSTEMS

The major service systems all appear to be functioning according to their intended purpose. The single elevator operated properly and the maintenance record did not indicate any particular problems. The building was built so that two (2) more elevators could be added if they were needed.

The plumbing system did not appear to have any problems. The rest rooms are stacked off of the south hallway of the building and all of the fixtures functioned properly. All the plumbing fixtures are in good condition and no replacements are needed.

The hot water heating system is the original installation. Convectors are located on the outside walls. The exterior walls are constructed of 9" to 11" of concrete and single glazed windows. Both of these systems have an R-value of approximately 1.0, which provides very little wall insulation. The comfort level of the exterior rooms would be improved if addition insulation was added to these exterior walls.

The cooling and ventilation system also appears to be undersized for the building demand. The interior classrooms and offices do become stuffy when the areas are fully occupied with people. Again, this is a condition the occupants indicated has existed since the building was built. On 8-27-90 when the outside temperature went over 90 degrees, we took a walk through the building and found the cooling system to be performing adequately. There were some offices with

their windows open to get fresh air and the people load on the building was at a minimum.

The chiller and cooling tower appear to be functioning correctly. There is some corrosion on the base of the chiller and also on the base of the cooling tower. The original cooling system is still operating as designed with very few modifications. The Trane absorption chiller has a name plate capacity of 224 tons. There is currently a project in the design stage to install a centrifugal chiller and a new cooling tower. The absorption chiller will be retained as a back-up system. This project appears to have been initiated as part of the overall campus program to replace absorption chillers. It would be expected that a major overhaul of the absorption chiller will be required in another 5 to 10 years. Some of the low pressure steam lines have corroded and will continue to need repaired.

It is our understanding that the controls have been somewhat of a maintenance problem and require continued adjustment. Cunz Hall is on the list of buildings to be switched over to digital controls, and this has just been funded as a project.

#### ELECTRICITY

The electrical system appears to have been oversized for the building use or in anticipation of expanding the building. The distribution panels in the penthouse have 700 to 800 amps available that are marked as spares. The building transformer is 13,800 Volts primary, 208Y / 120V secondary, voltage and 1000 KVA capacity.

While the building appears to have adequate electrical service, the offices and language labs could use more circuits. Extension cords and multiple wall plugs are used to operate coffee pots, microwaves, and electronic office equipment.

The majority of the building has fluorescent lighting fixtures that have been reduced from 4 bulbs to 2 bulbs. These fixtures are working properly, but could use a good cleaning. The stairways have incandescent can type fixtures that are very energy inefficient. Several of these fixtures have burned out bulbs and some of the fixtures have been removed. It was indicated by the occupants of the building that these bulbs are continuously burning out and are a maintenance problem. A program to replace these "architectural fixtures" with some form of fluorescent fixture would save energy and also reduce the maintenance time required in changing bulbs.

The design engineer for the new centrifugal chiller to be installed has done a load calculation that estimates the maximum demand with the new chiller to be 2,346 amps (@LRA). The current system is designed for 2,780 amps. Our engineering department estimates the connected load for Cunz after the chiller replacement to be 6,000 amps. This calculates to a diversity factor of 46%, a little lower than the 60% they would prefer to see.

#### SAFETY STANDARDS

The building is equipped with a manual fire alarm system, an exit lighting system and a emergency lighting system. There are fire hose boxes on each floor and a stand pipe in each stairwell. With this building being a concrete structure, these safety systems more than met the fire codes when it was constructed.

## CONCLUSION

While this building is 22 years old it is basically in good condition. There are some housekeeping and decorating items that would improve the overall appearance of the building interior. Some energy conservation measures should be taken, but the primary systems are functioning effectively and are expected to continue to function for several years. The roof and cooling systems present the greatest concern as to longevity. Both of these systems are currently operating as expected, however breakdowns must be expected as they continue to age. Replacement of the roof and absorption chiller should be expected in the next 5 to 10 years.

There is currently a proposed project on the 1990/91 requested project list to replace the sealant at all joints in the pre-cast panels on the exterior of the building and to seal the panels to stop penetration of water into the building. While there are water stains on the interior walls of the building, our evaluation was that these stains were being caused as much by condensation as by leakage.

One of the most significant things learned in the inspection of Cunz Hall was that the building was designed to be seven stories in height, but was only built as a five story building. An additional 30,000 square feet of building area could be added to Cunz Hall if the need existed.

**REPAIR AND RENOVATION PROJECTS**

**Cunz Hall      #293**

**A. Corrective Maintenance Projects:**

1. Repair vertical cracks in 1st floor exterior walls.	\$ 3,500
2. Re-seal joints between precast parapet on 4th floor.	3,500
3. Replace seals in precast panel joints and treat exterior concrete panels with sealant.	25,000*
4. Clean all light fixtures, registers and ceiling tile.	8,000
5. Wash the metal partition walls on floors 2 thru 4.	<u>5,000</u>
<b>Sub Total</b>	<b>\$ 45,000</b>

**B. Building Improvement/Addition Projects:**

1. Replace incandescent light fixtures in stairwells.	\$ 16,000
2. Replace Carpet in office areas.	34,000
3. Replace windows with insulated glass.	160,000
4. Insulate exterior walls to an R-7 Rating.	<u>133,000</u>
<b>Sub Total</b>	<b>\$343,000</b>

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

1. Replace absorption chiller and cooling tower.	\$250,000*
2. Replace/Repair roof covering.	<u>45,000</u>
<b>Sub Total</b>	<b>\$295,000</b>

Total Cost for all Projects = **\$ 683,000**

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

**BUILDING EVALUATION SUMMARY**

**I. BUILDING INFORMATION**

FAC # 293 FACILITY NAME Cunz Hall  
 DATE 08-30-90 INSPECTOR RDL & JPH  
 YEAR CONST, ADDN 1969  
 GROSS SQ FT 66,260 NET SQ FT 33,501  
 REPLACEMENT COST \$ 5,899,540 \*

**II. COMPONENT RATING**

COMPONENT	BUILDING COMPONENT PERCENTAGE OF TOTAL COST **	BUILDING COMPONENT REPLACEMENT COST	CONDITION VALUE MULTIPLIER FOR BLDG. COMPONENT	BUILDING COMPONENT CURRENT VALUE
Foundations	2.8	165,187	1.00	165,187
Substructure	2.4	141,589	1.00	141,589
Superstructure	13.8	814,137	1.00	814,137
Exterior Closure	6.9	407,068	0.90	366,361
Roofing	2.7	159,288	0.50	79,644
Partitions & Drs.	8.7	513,260	1.00	513,260
Wall Finishes	2.6	153,388	1.00	153,388
Floor Finishes	4.7	277,278	0.90	249,550
Ceilings & Finish	7.1	418,867	1.00	418,867
Conveying	1.7	100,292	1.00	100,292
Plumbing	8.0	471,963	1.00	471,963
Heating	included in Cooling & Ventilation			
Cooling & Vent.	19.3	1,138,611	0.60	683,167
Elec. Ser. & Dist	1.7	100,292	1.00	100,292
Lighting & Power	11.1	654,849	0.80	523,879
Safety Standards	6.5	383,470	1.00	383,470
TOTALS	100.0	5,899,540		5,165,046

**III. BUILDING RATING SUMMARY**

**Overall Building Rating = 87.5**

\* Replacement Cost assigned 6/90 by The Office of Campus Planning and Space Utilization without the furnishings and fixed equipment allocation.

\*\* Building Component percentage is calculated from The Means Standard Construction Cost data for College Classroom Buildings.

PRIMARY SYSTEMS - FOUNDATIONS

FAC # 293      DATE: 08/90      INSPECTOR: RDL and JPH

ESTIMATED VALUE (Replacement Cost X Rating) = \$165,187

**A. SYSTEM DESCRIPTION**

- (a) Footings:  
     Individual Footings & Piers: X    Continuous Footings:  
     Grade Beams:        Piles:        Caissons:
- (b) Foundation Wall Materials:  
     Steel:        Concrete Cast-in-place: X  
     Concrete Block:        Other:
- (c) Waterproofing and Underdrain  
     Coating:        Membrane: X    Board:

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. <u>X</u>	1. <u>N/A</u>
2. <u>   </u>	2. <u>   </u>	2. <u>   </u>
3. <u>   </u>	3. <u>   </u>	3. <u>   </u>
4. <u>   </u>	4. <u>   </u>	4. <u>   </u>
5. <u>   </u>	Total \$.	

**C. MAINTENANCE DEFICIENCY COMMENTS**

NONE OBSERVED

**D. COMPONENT RATING:**     $\frac{( 2.3 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{2.3}{\text{Rating}}$

PRIMARY SYSTEMS - SUBSTRUCTURE

FAC # 293 FACILITY NAME Cunz Hall  
DATE: 08/90 INSPECTOR: RDL and JPH

ESTIMATED VALUE (Replacement Cost X Rating) = \$ 141,589

A. SYSTEM DESCRIPTION

(a) Slab on Grade: Plain \_\_\_\_\_ Reinforced X

(b) Special Substructures N/A

B. COMPONENT EVALUATION

(a) Condition Rating

- 1. X
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_

(b) Deficiency Report

- 1. X
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

Total \$

(c) Priority

- 1. N/A
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

C. MAINTENANCE DEFICIENCY COMMENTS

None Observed

D. COMPONENT RATING:       $\frac{( 2.0 )}{\text{Possible Rating}}$  X  $\frac{( 1.0 )}{\text{Conditional Value Multiplier}}$  =  $\frac{2.0}{\text{Rating}}$

**PRIMARY - SUPERSTRUCTURE**

FAC # 293      DATE 08/90  
 INSPECTOR: RDL and JPH

ESTIMATED VALUE (Replacement Cost X Rating) = \$ 814,137

**A. SYSTEM DESCRIPTION**

- (a) Columns and Beams  
 Concrete-in-place   X   Precast Concrete  
 Steel 5th floor Steel Fireproofing  
 Wood                    Other
- (b) Floors  
 Concrete Slab   X   Precast Slab  
 Metal Deck                    Metal Deck w/concrete fill  
 Wood                    Other
- (c) Roof System  
 Flat   X   Pitched  
 Concrete                    Steel                    Wood  
 Other
- (d) Pre engineered
- (e) Other

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>  X  </u>	1. <u>  X  </u>	1. <u>N/A</u>
2. <u>          </u>	2. <u>          </u>	2. <u>          </u>
3. <u>          </u>	3. <u>          </u>	3. <u>          </u>
4. <u>          </u>	4. <u>          </u>	4. <u>          </u>
5. <u>          </u>	Total \$ <u>          </u>	

**C. MAINTENANCE DEFICIENCY COMMENTS**

None Observed

**D. COMPONENT RATING:**     $\frac{( 11.3 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{11.3}{\text{Rating}}$

**PRIMARY SYSTEMS - EXTERIOR CLOSURE**

FAC # 293      DATE 08/90  
 INSPECTOR: RDL and JPH  
 ESTIMATED VALUE (Replacement Cost X Rating) = \$ 407,068

**A. SYSTEM DESCRIPTION**

- (a) Walls  
     Concrete 1st Flr. Masonry \_\_\_\_\_ Metal Siding \_\_\_\_\_  
     Wood/siding \_\_\_\_\_ Other Pre-Cast Panels 2nd-4th Flrs.
- (b) Finishes  
     Stucco \_\_\_\_\_ Paint \_\_\_\_\_ Other Concrete
- (c) Windows (type: **fixed**, double hung, casement, etc.)  
     Wood \_\_\_\_\_ Steel \_\_\_\_\_ Alum X Other \_\_\_\_\_
- (d) Doors  
     Wood \_\_\_\_\_ Steel \_\_\_\_\_ Alum X Other \_\_\_\_\_
- (e) Shading Devices  
     Types Draperies

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. _____	1. _____	1. _____
2. <u>X</u>	2. <u>X</u>	2. _____
3. _____	3. _____	3. <u>X</u>
4. _____	4. _____	4. _____
5. _____	Total \$ _____	

**C. MAINTENANCE DEFICIENCY COMMENTS**

- (1) Cracks on exterior walls (1st Floor) should be ground-out and sealed with the proper exterior caulk.
- (2) Walls and windows provide a minimum amount of insulation. To improve occupant comfort and reduce energy consumption insulation should be added to the exterior walls.
- (3) Concrete precast panels should be sealed to protect against water penetration.

D. COMPONENT RATING:       $\frac{( 5.7 )}{\text{Possible Rating}} \times \frac{( 0.90 )}{\text{Condition Value Multiplier}} = \frac{5.1}{\text{Rating}}$



**SECONDARY SYSTEMS - PARTITIONS & DOORS**

FAC # 293      DATE: 08/90  
 INSPECTOR: RDL and JPH  
 ESTIMATED VALUE (Replacement Cost X Rating) = \$ 513,260

**A. SYSTEM DESCRIPTION**

**(a) Partition Classification**

Rigid 1st Flr Load Bearing      Movable 2nd thru 4th Flr.

**(b) Partition Framing**

Concrete Block      Wood Stud      Metal Stud 1st Flr.  
 Structural Tile      Rated      Other

**(c) Movable Walls**

Folding Ptn      Operable Walls      Relocatable Ptn X

**(d) Special partitions and Walls**

Toilet      Screen Walls      Gate      Other

**(e) Wall Material**

Plaster      Plaster Board 1st Flr.      Glass  
 Plywood      Paneling      Trim & Wainscot  
 Tile/Glazed      Other

**(f) Interior Doors & Frames**

Met Door/Met Frame X      Wood Door/Wood Frame X  
 Glazing      Rollup      Sliding      Other

**(g) Hardware**

Door Closers X      Lock Sets X      Hinges X  
 Kick/Push Plates      Thresholds  
 Sliding Door Equip      Panic Devices  
 Security & Detection      Automatic Openers  
 Other

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. _____	1.
2. _____	2. <u>X</u>	2.
3. _____	3. _____	3. <u>X</u>
4. _____	4. _____	4.
5. _____	Total \$ _____	

**C. MAINTENANCE DEFICIENCY COMMENTS**

(1) Walls are dirty. They should be painted or washed. Metal partitions could be cleaned by washing.

**D. COMPONENT RATING:**       $\frac{( 7.1 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{7.1}{\text{Rating}}$

**SECONDARY SYSTEMS - WALLS AND FINISHES**

FAC # 293                      DATE 08/90  
 INSPECTOR: RDL and JPH  
 ESTIMATED VALUE (Replacement Cost X Rating) = \$ 153,388

**A. SYSTEM DESCRIPTION**

- (a) Paint X (classrooms)
- (b) Wall Coating
- (c) Wall Coverings
- (d) Paneling
- Prefinished \_\_\_\_\_ Plank
- (e) Cork
- (f) Wallpaper
- (g) Ceramic Tile X (restrooms)
- (h) Trim & Wainscot
- (i) Decoration
- (j) Glass

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. _____	1.
2. _____	2. _____	2.
3. _____	3. <u>X</u>	3. <u>X</u>
4. _____	4. _____	4.
5. _____	Total \$ _____	

**C. MAINTENANCE DEFICIENCY COMMENTS**

(1) Some of the classrooms need to be painted.

**D. COMPONENT RATING:**     $\frac{( 2.2 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{2.2}{\text{Rating}}$

**SECONDARY SYSTEMS - FLOORS AND FINISHES**

FAC # 293      DATE 08/90  
 INSPECTOR: RDL and JPH  
 ESTIMATED VALUE (Replacement Cost X Rating) = \$ 277,278

**A. SYSTEM DESCRIPTION**

- (a) **Carpet**  
 Tile \_\_\_\_\_ Tufted \_\_\_\_\_ Material X (some offices)
- (b) **Composition**  
 Epoxy \_\_\_\_\_ Synthetic X type \_\_\_\_\_ Other \_\_\_\_\_
- (c) **Concrete Topping**  
 Granolithic \_\_\_\_\_ Abrasive \_\_\_\_\_  
 Epoxy \_\_\_\_\_ Aggregate \_\_\_\_\_
- (d) **Resilient**  
 Linoleum \_\_\_\_\_ Vinyl X  
 Rubber \_\_\_\_\_ Cork \_\_\_\_\_
- (e) **Ceramic Tile** X (restrooms)
- (f) **Masonry**
- (g) **Terrazzo**
- (h) **Wood**
- (i) **Metal**

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. _____	1. _____	1. _____
2. <u>X</u>	2. _____	2. _____
3. _____	3. <u>X</u>	3. _____
4. _____	4. _____	4. <u>X</u>
5. _____	Total \$ _____	

**C. MAINTENANCE DEFICIENCY COMMENTS**

(1) Carpet needs to be replaced in some of the office areas.

**D. COMPONENT RATING:**     $\frac{( 3.8 )}{\text{Possible Rating}} \times \frac{( 0.9 )}{\text{Condition Value Multiplier}} = \frac{3.4}{\text{Rating}}$

SECONDARY SYSTEMS - CEILINGS AND FINISHES

FAC # 293 DATE 08/90

INSPECTOR: RDL and JPH

ESTIMATED VALUE (Replacement Cost X Rating) = \$ 418,867

A. SYSTEM DESCRIPTION

(a) System Type

Exposed 10% Applied to Structure \_\_\_\_\_ Suspended 90%

(b) Materials

Drywall \_\_\_\_\_ Plaster \_\_\_\_\_ Mineral

Metal Pan \_\_\_\_\_ Tiles X Board

Luminous Panels \_\_\_\_\_ Other

(c) Finishes

Paint \_\_\_\_\_ Mineral Fiber X Fabric

Prefinished \_\_\_\_\_ Other

(d) Openings & Inserts

Air Distribution X Lighting Fixtures

Access Panels \_\_\_\_\_ Skylights \_\_\_\_\_ Fire Protection

Other

B. COMPONENT EVALUATION

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. X	1. _____	1.
2. _____	2. X	2.
3. _____	3. _____	3. X
4. _____	4. _____	4.
5. _____	Total \$ _____	

C. MAINTENANCE DEFICIENCY COMMENTS

(1) Some ceiling tiles need replaced (less than 10%) the others need cleaned.

D. COMPONENT RATING:  $\frac{( 5.8 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{5.8}{\text{Rating}}$

**SERVICE SYSTEMS - CONVEYING**

FAC # 293                      DATE 08/90  
INSPECTOR: RDL and JPH  
ESTIMATED VALUE (Replacement Cost X Rating) = \$ 100,292

**A. SYSTEM DESCRIPTION**

**(a) Elevators**

Number One                      Type(s) Otis, Electric  
Speed 200 fpm                      Capacity (lbs) 3200  
Control Type(s) Electric relays

**(b) Lifts and Hoists**

Number None                      Type

**(c) Moving Stairs and Walks**

Number None                      Type

**(d) Conveyors**

Number None                      Type

**(e) Pneumatic Tubes**

Number None                      Type

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. <u>X</u>	1.
2. _____	2. _____	2. <u>N/A</u>
3. _____	3. _____	3.
4. _____	4. _____	4.
5. _____	Total \$ _____	

**C. MAINTENANCE DEFICIENCY COMMENTS**

(1) This building was designed to add two (2) more elevators. The elevator that is installed was designed to add three (3) more stops.

**D. COMPONENT RATING:**     $\frac{( 1.3 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{1.3}{\text{Rating}}$

**SERVICE SYSTEMS - MECHANICAL/PLUMBING**

FAC # 293      DATE: 08/90  
 INSPECTOR: RDL and JPH  
 ESTIMATED VALUE (Replacement Cost X Rating) = \$ 471,963

**A. SYSTEM DESCRIPTION**

**(a) Services Available**

Cold Water X-6" Hot Water X Acid \_\_\_\_\_ Waste  
 Oxygen \_\_\_\_\_ Natural Gas \_\_\_\_\_ Vacuum  
 Distilled Water \_\_\_\_\_ Compressed Air  
 Other \_\_\_\_\_

**(b) Piping & Fittings**

Cast Iron \_\_\_\_\_ Copper Tubing water Plastic  
 Steel \_\_\_\_\_ Glass \_\_\_\_\_ Other \_\_\_\_\_

**(c) Water Heaters** (low pressure steam converted to DHW)

Electric \_\_\_\_\_ Gas \_\_\_\_\_ Oil \_\_\_\_\_ Other \_\_\_\_\_

**(d) Drainage**

Storm Drains X Sanitary Drainage X  
 Floor Drains \_\_\_\_\_

**(e) Fixtures**

Water Closets X Urinals X Lavatories X  
 Showers \_\_\_\_\_ Kitchen Sinks \_\_\_\_\_ Slop Sinks  
 Drinking Fountains X Electric Water Coolers \_\_\_\_\_

**(f) Sprinkler Systems**

Wet 1 Trash Rm \_\_\_\_\_ Dry \_\_\_\_\_ Water Storage/Supply

**(g) Standpipe Systems**

Wet \_\_\_\_\_ Dry X  
 Valves X Hose Cabinets X

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. _____	1.
2. _____	2. <u>X</u>	2.
3. _____	3. _____	3. <u>X</u>
4. _____	4. _____	4.
5. _____	Total \$ _____	

**C. MAINTENANCE DEFICIENCY COMMENTS**

(1) Low pressure steam line is corroded and will need sections replaced.

**D. COMPONENT RATING:**     $\frac{( 6.7 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{6.7}{\text{Rating}}$

**SERVICE SYSTEMS - MECHANICAL/HEATING**

FAC # 293

DATE: 08/90

INSPECTOR: RDL and JPH

ESTIMATED VALUE (Replacement Cost X Rating) = \$ N/A.

**A. SYSTEM DESCRIPTION**

**(a) Heat Source:**

Central Plant Steam X Central Plant Hot Water

Boilers: Type \_\_\_\_\_ Size

Furnace: Type \_\_\_\_\_ Size

Heat Pump: Type \_\_\_\_\_ Size

Burners: gas \_\_\_\_\_ oil

**(b) System Type:**

Steam converted Hot Water X Air

Electric \_\_\_\_\_ Solar \_\_\_\_\_ Other

System Capacity

**(c) Space Equipment:**

Radiators \_\_\_\_\_ Convectors X Finned Tube

Baseboard \_\_\_\_\_ 2-Pipe Fan Coil \_\_\_\_\_ 4-Pipe Fan Coil

Unit Ventilators X Multizone \_\_\_\_\_ Radiant Panels

Double Duct X Terminal Reheat

Other

**(d) Control Type:**

Pneu X Electric \_\_\_\_\_ Electronic \_\_\_\_\_ DDC

Thermostats (#) (each room has a mixing box)

**(e) Piping:**

Strainers \_\_\_\_\_ Basket Type \_\_\_\_\_ Y-type

**(f) Traps (steam):**

Inverted Bucket \_\_\_\_\_ F&T

Differential Condensate

Controlled Disc \_\_\_\_\_ Radiator

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. _____	1. _____	1.
2. <u>X</u>	2. _____	2.
3. _____	3. <u>X</u>	3. <u>X</u>
4. _____	4. _____	4.
5. _____	Total \$.	

**C. MAINTENANCE DEFICIENCY COMMENTS**

**D. COMPONENT RATING: (Combined with cooling & ventilation)**

( \_\_\_\_\_ ) X ( \_\_\_\_\_ ) =  
 Possible Condition Rating  
 Rating Value Multiplier



**SERVICE SYSTEMS - ELECTRICAL/SERVICE & DISTRIBUTION**

FAC # 293      DATE: 08/90      INSPECTOR: RDL and JPH

ESTIMATED VALUE (Replacement Cost X Rating) = \$ 100,292 .

**A. SYSTEM DESCRIPTION**

**(a) Service:**

Voltage 13.2      Amperage 1000 KVA  
 Switchgear (type and capacity) G.E. (Breakmaster 0209A2403)  
 Substation (type and capacity) None  
 Transformers (type and capacity) in penthouse  
 Panel (# and capacity)

**(b) Distribution System:**

Voltage 120/208      Amperage  
 Panelboard (type and capacity)  
 Conduit X      Conductor (copper)  
 Wire (type)  
 Armored Cable \_\_\_\_\_ Other

**(c) Emergency System:**

General or (type & capacity)

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. _____	1.
2. _____	2. <u>X</u>	2. <u>N/A</u>
3. _____	3. _____	3.
4. _____	4. _____	4.
5. _____	Total \$.	_____

**C. MAINTENANCE DEFICIENCY COMMENTS**

**D. COMPONENT RATING:**     $\frac{( 1.4 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{1.4}{\text{Rating}}$



**SAFETY STANDARDS**

FAC # 293      DATE: 08/90      INSPECTOR: RDL and JPH  
ESTIMATED VALUE (Replacement Cost X Rating) = \$ 383,470

**A. SYSTEM DESCRIPTION**

**(a) Exits**

Stair Construction: concrete X steel \_\_\_\_\_ wood \_\_\_\_\_  
Stair Enclosure Rating: none \_\_\_\_\_ 1-hr X 2-hr \_\_\_\_\_  
travel distances 120' number of exits 4

**(b) Fire Rating**

Construction Type: I X II \_\_\_\_\_ III \_\_\_\_\_ IV \_\_\_\_\_ V \_\_\_\_\_ VI \_\_\_\_\_  
Building Height: 50 ft., 5 stories

**(c) Extinguishing Systems:**

Portable \_\_\_\_\_ Standpipe X Hose Cabinets X  
Sprinklers Trash room Suppression \_\_\_\_\_ Other \_\_\_\_\_

**(d) Detection & Alarm Systems:**

Manual Alarm X Annunciator \_\_\_\_\_ Smoke Detectors \_\_\_\_\_

**(e) Lighting Systems:**

Exit Signs X Exit Lighting X Emergency Lighting X  
Emergency Generator \_\_\_\_\_ Other Power \_\_\_\_\_

**B. COMPONENT EVALUATION**

(a) Condition Rating	(b) Deficiency Report	(c) Priority Rating
1. <u>X</u>	1. <u>X</u>	1.
2. _____	2. _____	2. <u>N/A</u>
3. _____	3. _____	3.
4. _____	4. _____	4.
5. _____	Total \$.	_____

**C. MAINTENANCE DEFICIENCY COMMENTS**

**D. COMPONENT RATING:**  $\frac{( 5.2 )}{\text{Possible Rating}} \times \frac{( 1.0 )}{\text{Condition Value Multiplier}} = \frac{5.2}{\text{Rating}}$

**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 budgetarily responsible. These audits will be used to establish repair and renovation projects, budget cost estimates for these projects, and overall levels of required maintenance funding.

2. BUILDING AUDIT APPROACH

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

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

3. DATA ORGANIZATION

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

4. COST ESTIMATES

Costs are for budgeting purposes only and are based on The Means Standard Construction Cost data, auditor experience, industry sources and OSU project cost data. Costs are reported current to the year of the audit. The building component values assigned in the "Building Evaluation" forms are not cost estimates. These values are calculated from the replacement cost provided by The Office of Campus Planning and Space Utilization for each OSU building. This building replacement cost is allocated to each building component to provide an estimated value for each component. Project cost estimates will exceed the building component values in most situations because of tear-out, handling and site limitations that occur in building component replacement projects.

5. DATA USAGE

**Repair and Renovation Projects:** provided to assist in the budgeting process for the Department of Physical Facilities.

**Building Evaluation:** provided to give a numerical rating for each building on campus quantifying its percentage of deficiency.

6. LIMITATIONS

(1) All inspections are visual and do not include physical tests, instrumentation or metering measurements, sampling, or monitoring.

(2) Only random typical offices or laboratories are entered. Typical spaces are deemed to be representative of average conditions throughout each building.

(3) The scope of the analysis does not include complete OSHA, energy, or physical impaired access study. Buildings and components are inspected for condition and general safety requirements rather than specialized code conformance.

(4) It is assumed that the buildings inspected were approved by the State of Ohio Division of Factory and Building Inspection at the time of construction. The recommendations listed in the reports are not an attempt to bring these existing buildings up to present day code standards. Rather, the intent is to eliminate obvious problems and to upgrade the buildings in a reasonable manner in regard to occupant safety.

(5) Cost estimates are in current year dollars and include contractor mark-ups, construction administration costs, and architectural/engineering costs where applicable. Escalation factors must be applied for future work. Combining of projects should serve to decrease costs. These estimates are strictly for purposes of budgeting, and final pricing will be required when the specific scope of work for the project is defined.

(6) The building inspections are defined to include the following:

(a) Includes general repainting and redecorating, wholesale replacement of building and system components. Ongoing maintenance, replacement and renovation projects are not included.

(b) Includes exterior building walls and attached items.

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

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

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

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

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

**APPENDIX**

**Reduced Building Floor Plans  
C-1 Building Space Assignments**