

FACILITY AUDIT REPORT

RESEARCH CENTER, Bldg 073  
and  
1314 KINNEAR ROAD BUILDING, Bldg 126

March 15, 1991

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

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GENERAL BUILDING INFORMATION

BUILDING NAME:

RESEARCH CENTER/1314 KINNEAR RD BLDG. BLDG NO. 073/126

BUILDING ADDRESS: 1314 KINNEAR RD

GROSS SQ. FT.: 136,312

NET ASSIGNABLE SQ. FT.: 90,883

MECHANICAL/CUSTODIAL AREA SQ. FT.: 3269

YEAR OF CONSTRUCTION: 1949

YEAR OF LAST RENOVATION: 1959 (CONTINUAL PARTIAL RENOVATIONS)

NUMBER OF STORIES/BASEMENT: BLDG 126 - 2 + BSMT, BLDG 073 - 1 ST

AIR CONDITIONING (Percentage): 65%

CURRENT USE: BLDG 073 - 56% OFFICE, 44% LABORATORY AND RELATED USE, BLDG 126 - 100% OFFICE.

TYPE OF CONSTRUCTION: STEEL FRAME WITH BRICK OR CONCRETE BLOCK EXTERIOR

ESTIMATED REPLACEMENT COST\*: 14,883,000

BUILDING ENVIRONMENT: ORIGINAL LATE 1940S OFFICE STYLE IN BLDG 126 MAIZE-LIKE COMPLEX OF OFFICES AND LAB IN A CONVERTED FACTORY WITH A VARIETY OF WALL, CEILING AND FLOOR TREATMENTS IN BLDG 073.

BUILDING APPEARANCE: SLIGHTLY DETERIORATED MANUFACTURING FACILITY WITH AN OFFICE BUILDING IN FRONT

HANDICAPPED ACCESSIBILITY: THROUGH EAST DOOR IN BLDG 126 TO BLDG 073. THERE IS NO ACCESS TO ANY OF BLDG 126 OTHER THAN THE NORTH PORTION AT THE SAME ELEVATION AS BLDG 073 (NO ELEVATOR).

INITIAL CONSTRUCTION QUALITY: FAIR

OVERALL BUILDING CONDITION: FAIR

\* REPLACEMENT COST AS REPORTED IN C1 REPORT, 1/15/91, FROM OFFICE OF CAMPUS PLANNING AND SPACE UTILIZATION

**BUILDING SYSTEMS INFORMATION**

**RESEARCH CENTER/1314 KINNEAR RD BLDG. #073 & 126**

**HEATING:**

Source BOILER HOUSE FOR RESEARCH COMPLEX  
Type Heating System STEAM - FORCED AIR, UNIT HEATERS & FIN TUBE  
Steam (Line size, valve location) 5", IN BOILER HOUSE  
Building Htg Water (line size, valve location) N/A

**VENTILATION SYSTEM:**

SINGLE ZONE, MULTI-ZONE AND THRU-WALL AIR

**COOLING**

Bldg % 65 Chillers 2 CENTRIFUGAL  
Window Units 3 Thru-the wall 4 Direct exp. units 28

**ELECTRIC:**

Source	Size(KVA)	Primary/Secondary	Switch&Main disc. (Rm)
<u>1.BUCKEYE</u>	<u>2@750</u>	<u>13.2KV/480 delta</u>	<u>NORTH OF RMS 1300 &amp;1820</u>
<u>2.BUCKEYE</u>	<u>225</u>	<u>13.2KV/208Y</u>	<u>NORTH OF ROOM 1820</u>

**PLUMBING:**

Water (size, valve location) 6" RM 1541  
Gas (size, valve location) 3" GAS HOUSE EAST SIDE OF BLDG  
Domestic Hot Water (size, valve location) STEAM CONVERTED IN BLDG 126 FOR COMPLEX  
Compressed Air (size, location) 165 PSI, RM 1819A; 165 PSI, RM 1529A

**SEWERS:** Storm 24 @ 6" Sanitary 6"

**METERS:**

Gas (location) GAS HOUSE AT THE NORTH WEST CORNER OF BLDG 073  
Water (location) BOILER HOUSE FOR RESEARCH COMPLEX  
Electric (location) 2 METERS RM 1100A, 1 METER BY RM 1513

**ALARM SYSTEMS:**

Fire Alarm YES Panel Location NEAR RM 104  
Fire Pump NO Pump Location N/A  
Sprinklers NO Panel Location N/A  
Other Alarms SMOKE DETECTOR IN DUCTWORK

**ELEVATORS:**

Number 0 Type (passenger, freight) N/A  
Manufacturer N/A Size N/A

**EMERGENCY GENERATOR:** Size NONE Location N/A

**KEY BOX LOCATION:** INSIDE CENTRAL DOOR NORTH SIDE OF BLDG 073

**ASBESTOS SURVEY (1986):**

ASBESTOS CONTAINING MATERIAL IN PIPE AND HEAT EXCHANGER INSULATION THROUGHOUT.

## RESEARCH CENTER/1314 KINNEAR RD BLDG NARRATIVE

### GENERAL

This Building Audit was conducted by Physical Facilities for the purpose of evaluating the present condition of those aspects of the building for which Physical Facilities has a budgetary responsibility. This audit describes the current physical condition of those aspects of the facility and identifies existing corrective maintenance repairs and building component system replacement requirements.

It has been assumed that the program needs of the tenant departments are being met by the facility. In addition, this audit does not intend to assess the condition of those aspects of this facility that are the budgetary responsibility of tenant departments.

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

### HISTORY

The Research Center, Bldg 073, and the 1314 Kinnear Road Building (formerly called the Research Foundation), Bldg 126, were constructed as a factory complex in 1949. Bldg 126 was the office building portion of the complex and Bldg 073 was the production area. A 'Power House' and a 'Paint House' were built to provide steam and to support production operations, also. The University acquired this complex in 1954 and converted it to a research facility. The office building (126) housed the Ohio State University Research Foundation until February 1991 and is currently vacant. The original plant building (073) provides a flexible-use environment for laboratory and office activities for a number of occupants. Bldg 126 is 100% office space and Bldg 073 use is approximately 56% office and 44% laboratory space, excluding maintenance, custodial and circulation areas.

### PRIMARY SYSTEMS

Both buildings have a steel structure with a brick-veneered concrete block exterior on all sides except the north side of Bldg 073 which is not veneered. Steel I-beam columns support open web steel joists for both the floors of Bldg 126 and the roofs throughout the two facilities. Partition walls in Bldg 073 are predominantly wooden stud with drywall, although pegboard has even been used in lieu of drywall in some sections of the Research Center. The 1314 Kinnear Road Building interior walls are plastered structural tile with some wooden stud partition walls also.

The foundation for both buildings consists of continuous concrete footings and concrete block. The steel columns are supported by individual footers. Original building drawings show a 4 inch drain tile around the perimeter of Bldg 126, which is connected to a sump pump in the basement.

Building 126 has a basement and two floors. Occupants and maintenance personnel reported that the basement of this building has a history of flooding. There is evidence of past floods on the block walls in the basement. Building occupants told us that the basement has flooded four times in the last five years. This flooding appears to result from run-off from the fields to the northwest of the site. Maintenance personnel commented that they had no problems with flooding this year because they cleared the storm drains to the northwest of the building several times this year.

There is a history of flooding in the parking lot to the north of building 073 according to maintenance personnel and building occupants. There is evidence of water damage to the masonry in this area of the exterior. This area of the parking lot is significantly lower than the surrounding terrain. A culvert was constructed under the hallway connecting the Research Center to the Animal House to the north to allow runoff to escape from this area of the parking lot.

The exterior closure has some old cracks from both building settlement and building expansion and contraction. The older cracks have been caulked and do not appear to have increased in severity. The caulk is beginning to dry out and needs to be cut-out and replaced. A number of hairline cracks are also evident in both the mortar joints and in some cases they run through the bricks. They do not appear to indicate any major structural problems but seem to suggest that there was never an adequate design for building expansion. They should be ground-out and caulked. The Department of Physical Facilities has a proposed project to cut out all deteriorated masonry joints, repoint and reseal all masonry joints.

Both buildings have their original steel casement windows. Many of these windows operate poorly, have deteriorating glazing compound and require painting. The windows are very large and are not energy efficient. Most of the windows extend above the ceilings that have been installed since the structure was built. They should be replaced with smaller double-pane insulating windows if the two buildings are renovated. Several of the exterior doors are wooden and most have deteriorated to the point that replacement is required. A number of the steel exterior doors have rusted through in locations and require replacement.

The roof structure of these buildings consists of a metal deck supported by open web steel joists. It is covered with one inch of insulation, built-up asphalt roofing and gravel. The roof has little to no slope judging by its appearance and the structural framing. We observed a number of ponds of water, bare patches of exposed felt, alligatoring and many tunnel blisters some of which exceeded six feet in length. There are a number of current and past reports of leaks in the workorder system. Ceiling tiles in buildings 073 and 126 are stained from roof leaks and steam pipe leaks. The roof of Bldg 073 appears to be nearly level and this condition results in excessive ponding which has contributed to roofing failure. We recommend installation of a layer of tapered insulation below any new roofing to improve drainage.

The stone coping on the parapets has been caulked a number of times but appears to be sealed. There are four sloping walls consisting of reinforced translucent glass that serve as skylights. The skylights appear to be in fairly good condition with very few signs of leakage. The roof houses several dilapidated sheds that have been used to conduct experiments. The roof also has an inordinate number of air conditioning condensers and cooling towers and probably sustains a high degree of foot traffic resulting from the maintenance of this equipment. We did not find any walking pads for rooftop foot traffic. Sheet metal flashing around the skylights requires repainting throughout. The entire roof covering and the insulation require replacement.

## SECONDARY SYSTEMS

### **1314 KINNEAR ROAD BUILDING (BLDG 126)**

The interior partitions are mostly plastered and painted structural tile walls in Bldg 126. The walls around the windows in Bldg 126 have peeling paint and some deteriorating plaster resulting in leaking windows. The entryway to this building

has the original plywood paneling. The paneling is outdated and should be covered. The walls in the one story north section of the building are glazed tile that has been painted. The ceilings have the original 12" x 12" tiles applied to wooden furring strips. The ceilings throughout are dirty, stained and missing a number of tiles. The ceiling requires complete replacement in this building. Floor finishes include terrazzo in the main entry which is pitted and has some cracks, original vinyl floor tile and carpeting in varying states of condition in many of the offices. The original floor tile is worn and requires replacement or covering.

#### **RESEARCH CENTER (BLDG 073)**

Partition walls in Bldg 073 are predominantly wooden studs and drywall. The walls are in varying conditions from freshly painted and spackled to dented and in need of paint. The majority of the walls could benefit from fresh paint. Hallway floors are sealed concrete. Offices have either vinyl tile or carpet floor coverings which also vary in condition but are predominantly in good condition. Most of the ceiling finishes are suspended 2'x4' mineral fiber tiles. We observed a number of stains in the ceiling caused by steam pipe leaks or roof leaks. Most ceiling air diffusers and lighting grids require cleaning throughout. The hallways are open to the underside of the roof, which is unsightly. Skylights in the roof augment light supplied by the suspended fluorescent fixtures in the hallways.

#### **SERVICE SYSTEMS**

Domestic water systems appear to be functioning acceptably. Maintenance personnel reported that there is an ample supply of domestic hot water available from a steam converter in the basement of Bldg 126. The converter was installed to accommodate the animal experiments that are no longer conducted in this complex. This converter is aging and should be replaced with a 100 gallon hot water tank according to Engineering and Maintenance personnel. A 52 gallon electric domestic hot water heater was installed to provide hot water in the summer when the animal experiments were moved out of the building and steam was not available to the converter. This tank will just barely supply hot water needs for restrooms and is insufficient for any special research operation needs. The restrooms have aging fixtures and would benefit from a complete renovation.

Maintenance personnel reported that the steam piping often leaks. The piping is between 20 and 43 years and shows many signs of corrosion. The heating and air conditioning systems for both buildings are reported by most of the occupants interviewed to operate acceptably in almost every area surveyed.

Building 126 is heated and cooled with thru-wall units or forced air systems. The thru-wall units on the second floor are in very good condition. These units are easy to maintain and do not require replacement. The first floor and basement are heated and cooled by three different systems that are all aging, although functioning acceptably at this time.

Building 073 is heated and cooled with a number of HVAC systems that vary in design, size and age to fit the special needs of the many different zones within the Research Center. Most of these systems are over 20 years old and, while well maintained, are expected to require replacement over the next few years. Many of the ceiling-mounted air diffusers are very dirty. A number of the residents complained that the system often discharged soot from the overhead vents. The entire system would benefit from duct cleaning and increased filter replacement, as warranted.

We cannot discuss HVAC systems needs in Bldg 073 without examining the flexible

nature of space use within this facility. The heating and cooling requirements of different areas in this building vary over time and the current configuration of systems appear to meet this demand adequately. The disadvantage of this over-all system is a much higher level of maintenance requirements stemming from the multitude of systems. We recommend continuing to use multiple independent systems, if the building is expected to continue to house changing research laboratories. HVAC systems, in this case, should be replaced on a system-by-system basis.

#### ELECTRICITY

These buildings are serviced by three main transformers with primary voltage of 13.2 KV. Two of the transformers with capacities of 750 KVA each, produce 480 volts secondary current. The third main transformer supplies 225 KVA at 208Y/120 volts to the buildings. The peak demand reading on January 31, 1991 indicated that the 750 KVA transformer outside Rm 1513 was functioning at approximately 38% of capacity. The peak demand reading on January 31, 1991 indicated that the 750 KVA transformer outside Rm 1100 was functioning at approximately 30% of capacity. The peak demand reading on January 31, 1991 indicated that the 225 KVA transformer outside Rm 1100 was functioning at approximately 7% of capacity. There are also two additional transformers that convert 480 volt current from the main transformers to 208Y/120 volts supplying 300 KVA and 115 KVA respectively.

The electrical distribution system in Bldg 126 is original and has been added to using surface-mounted conduit. There were very few spare circuit breakers in the panelboards. Maintenance personnel commented that this building would benefit from rewiring.

The electric distribution system in Bldg 073 has been modified and expanded many times since the building was acquired. No problems were voiced during our interviews with occupants and maintenance personnel on the adequacy of electric services. The current distribution system in this building has little spare capacity in the existing panelboards.

#### SAFETY STANDARDS

The buildings are equipped with a manual fire alarm system, smoke detectors in the HVAC ductwork, an exit light system and an emergency lighting system. The fire suppression system currently consists of fire extinguishers and fire hoses. Handicapped access is restricted to the east door outside room 127 in Bldg 126. Most of building 126 is inaccessible to the handicapped because there is no elevator. Bldg 073, the Research Center is handicapped accessible.

As stated earlier, most of the partitions in Bldg 073 and some framing in Bldg 126 is wooden stud. This construction is no longer acceptable to fire codes. Any major renovation would require the complete demolition of the wooden partitions and reconstruction using metal studs or other acceptable partition framing.

#### ASBESTOS

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report: Inventory of Friable Asbestos-Containing Materials in Buildings of the Ohio State University (Main and Branch Campuses) and Recommendations for Corrective Action by PEI Associates, September 1986, identifies asbestos containing materials in most pipe and duct insulation throughout both buildings.

## CONCLUSION

The Research Center/Foundation is generally in sound structural shape and provides a suitable building envelope for users with time-varying space and utility needs. It does not provide optimum space utilization for office-only use but is serviceable towards this end if desired. A major renovation will result in the complete gutting of Bldg 073 to remove the interior walls that do not comply with current fire safety codes, as well as, the removal of asbestos containing insulation.

There is a history of flooding in the area where these facilities are located. The basement of Bldg 126 has flooded several times over the life of the building and may not be suitable for permanent occupancy until the flooding problem is resolved. The problem seems to result from an inadequate drainage system in this area.

The exterior of the facilities require masonry work and painting. The exterior windows are not energy efficient, do not open and close smoothly and require paint. They should be replaced with smaller insulating windows. The exterior doors, both wooden and steel, require replacement. The roof of both buildings require replacement.

The 1314 Kinnear Road Building, Bldg 126, requires new ceilings, lights and floor finishes throughout. The walls require updating in the entryway and painting and repair throughout also. The electrical wiring system in this building should be modernized in conjunction with these projects. The steam-to-domestic hot water converter in the basement requires replacement. The chiller servicing this building is still functioning adequately but is over 25 years old and will probably require replacement in the near future.

The Research Center, Bldg 073, varies in condition from area to area but generally requires renovation throughout. The HVAC systems have exceeded their design lives for the most part and should be replaced in the near future. The building ventilation system is dirty and requires cleaning. The steam piping system, including fin tube radiators requires replacement. Lighting throughout requires updating. The hallways are open to the underside of the roof and should have ceilings. Hallway floors are sealed concrete that still exhibit the marks of original factory equipment.

PROPOSED MAINTENANCE PROJECTS

RESEARCH CENTER/FOUNDATION

#073/126

A. Corrective Maintenance Projects:

1. Replace approx 104,000 sf roofing & add tapered insulation	\$705,600**
2. Masonry repairs	\$142,000*
3. Exterior painting	\$ 30,000*
4. Renovate restrooms bldgs 073 & 126	\$ 66,400
5. Replace ceilings in Bldg 126	\$ 50,500
6. Replace lighting and upgrade electric distribution in Bldg 126	\$150,600
7. Replace/upgrade hallway lighting - Bldg 073	\$50,800
8. Paint walls throughout Bldgs 073 & 126	\$124,400
9. Replace 9 exterior doors	\$ 3,200
10. Clean HVAC ducts throughout both bldgs	\$ 17,900
11. Replace hot water converter with 100 gal electric hot water tank in Bldg 126	\$ 4,300
<b>Sub Total</b>	<b>\$1,345,700</b>

B. Building Improvement/Addition Project:

1. Install elevator in bldg 126	\$ 85,000*
2. Reduce openings by 50% and replace with thermopane windows 4312 sf windows-Bldg 073	\$114,000
3. Replace 1648 sf of windows with thermopane windows-Bldg 126	\$ 58,000
3. Install ceilings in hallways in Bldg 073	\$ 41,000
4. Install vinyl floor tile in hallways - Bldg 073	\$ 23,300
5. Install new vinyl floor tile in hallways Bldg 126	\$ 2,800
6. Asbestos abatement for complex	\$115,500
<b>Sub Total</b>	<b>\$439,600</b>

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

1. Replace steam piping throughout bldg 073 and bldg 126	\$360,000
2. Replace A/C chillers and condensers for Bldgs 073	\$380,000
3. Replace A/C condensers and chillers for Bldg 126	\$ 42,000
Sub Total	\$782,000

Total cost for all projects      \$2,568,000

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

\*\* This project is on our departmental project list at a smaller scope and cost.

**BUILDING EVALUATION SUMMARY**

**I. BUILDING INFORMATION**

FAC # 073,126 FACILITY NAME: RESEARCH CENTER/FOUNDATION  
 DATE: 1/28/91 INSPECTOR: JPH  
 YEAR CONSTRUCTED: 1949, ACQUIRED : 1954, REMODELED 1955  
 GROSS SQ FT: 136,312 NET SQ FT: 96,609  
 REPLACEMENT COST \* \$14,004,000

**II. COMPONENT RATING**

COMPONENT	PERCENT OF TOTAL REPLACEMENT COST **	BUILDING COMPONENT REPLACEMENT COST	CONDITION VALUE MULTIPLIER FOR BLDG. COMPONENT	BUILDING COMPONENT CURRENT VALUE
1. Foundation	8.8	1,232,000	1.00	1,232,000
2. Superstructure	11.2	1,568,000	1.00	1,568,000
3. Exterior Walls	7.6	1,064,000	.8	851,400
4. Windows & Doors	3.2	448,100	.35	156,800
5. Roofing	4.3	602,200	.1	60,200
6. Partitions & Doors	8.8	1,232,000	.5	616,200
7. Wall Finishes	4.0	560,100	.75	420,100
8. Floor Finishes	7.2	1,008,000	.75	756,000
9. Ceilings & Finishes	7.6	1,064,000	.5	532,100
10. Conveying	.6	84,000	0	0
11. Plumbing	4.4	616,200	.8	429,900
12. Heating	Combined with Cooling & Ventilation			
13. Cooling & Ventilation	18.5	2,591,000	.66	1,710,000
14. Electric Ser. & Dist.	1.6	224,100	.9	201,600
15. Lighting & Power	10.8	1,512,000	.6	904,200
16. Safety Standards	1.4	196,000	.5	98,000
TOTALS	100	14,002,000	N/A	10,198,000

**III. BUILDING RATING SUMMARY**

Overall Building Rating = .68

\* Replacement Cost assigned January 1991 by The Office of Campus Planning and Space Utilization (Furnishings and moveable equipment deleted).

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

**FOUNDATIONS**

FAC #073/126      DATE 1/29/91      INSPECTOR: JPH

**A. SYSTEM DESCRIPTION**

**(a)Footings:**

Individual Footings & Piers YES  
Continuous Footings YES  
Grade Beams NO  
Piles NO  
Caissons NO

**(b)Foundation Wall Materials:**

Steel NO  
Concrete Cast-in-place NO  
Concrete Block YES  
Other NO

**(c)Waterproofing and Underdrain:**

Coating UNKNOWN  
Membrane NO  
Board NO  
Drain Tile 4" PERIMETER PER DRAWINGS

**(d)Slab on Grade (floor):**

Plain NO  
Reinforced YES

**(e)Special Substructures:**

NONE

**B. COMMENTS:**

BLDG 073 IS SLAB ON GRADE. BLDG 126 HAS A BASEMENT. WATER DAMAGE ON NORTH SIDE OF 073 FOUNDATION CAUSED BY DRAINAGE PROBLEMS DURING DOWNPOURS. BASEMENT OF 126 REPORTED BY OCCUPANTS TO HAVE FLOODED 4 TIMES IN THE LAST 5 YEARS AGAIN DURING DOWNPOURS. WATER ENTERS ALONG THE WEST SIDE OF THE BASEMENT. FOUNDATION AND FLOOR APPEARS TO BE IN GOOD STRUCTURAL CONDITION.

**C. COMPONENT RATING:**     $\frac{( \quad 8.8 \quad )}{\text{Possible Rating}} \times \frac{( \quad 1.00 \quad )}{\text{Condition Value Multiplier}} = \frac{8.8}{\text{Component Rating}}$

**SUPERSTRUCTURE**

FAC #073/126

DATE 1/29/91

INSPECTOR: JPH

**A. SYSTEM DESCRIPTION**

**(a) Columns and Beams:**

Concrete-in-place NO  
Precast Concrete NO  
Steel I-BEAM COLUMNS, BAR JOISTS  
Steel Fireproofing IN THE 2000 AREA OF BLDG 073  
Wood NO  
Other NO

**(b) Floors:**

Concrete Slab YES  
Precast Slab NO  
Metal Deck NO  
Metal Deck w/concrete fill NO  
Wood NO  
Other NO

**(c) Roof System:**

Flat YES  
Pitched NO  
Concrete NO  
Steel BAR JOISTS AND METAL DECKING  
Wood NO  
Other NO

**B. COMMENTS:**

NO PROBLEMS OBSERVED. COLUMNS ARE NOT FIREPROOFED. UNDERSIDE OF ROOF IN RM 2000 ARE SPRAYED WITH SOME SORT OF MATERIAL - APPEARS TO BE FIREPROOFING

**C. COMPONENT RATING:** ( 11.2 ) X ( 1.00 ) = 11.2  
Possible Condition Component  
Rating Value Multiplier Rating

**EXTERIOR WALLS**

FAC #073/126                      DATE 1/28/91                      INSPECTOR:     JPH

**A. SYSTEM DESCRIPTION**

**(a)Walls:**

Concrete NO  
Masonry BROWN BRICK AND CONCRETE BLOCK  
Metal Siding NO  
Wood Siding NO  
Other METAL WALL COVERING ON ROOF PROJECTIONS

**(b)Finishes:**

Stucco NO  
Paint ON CONCRETE BLOCK AND ROOF PROJECTIONS  
Other NO

**B. COMMENTS:**

MANY HAIRLINE CRACKS IN BRICK AND MORTAR JOINTS. OLD CRACKS HAVE BEEN CAULKED.  
THERE DO NOT APPEAR TO BE ANY EXPANSION JOINTS IN THE EXTERIOR SKIN AND THIS MAY  
ACCOUNT FOR CRACKS. STRUCTURAL PROBLEMS ARE NOT INDICATED.

**C. COMPONENT RATING:**      $( \underline{7.6} ) \times ( \underline{.8} ) = \underline{6.1}$   
   Possible                      Condition                      Component  
   Rating                      Value Multiplier                      Rating

EXTERIOR WINDOWS & DOORS

FAC #073/126

DATE 1/28-29/91

INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a) Windows type & number:

Wood NO
Steel 152+ CASEMENT UNITS
Alum 1 FIXED-126,
Other 4 GLASS BLOCK WINDOWS ON 126

(b) Doors type & number:

Wood 2 DOUBLE AND 4 SINGLE, 1 GARAGE-TYPE DOOR
Steel 5 SINGLE, 1 DOUBLE AND 3 ROLL-UP
Alum 1 DOUBLE WITH GLAZING (FRONT OF 126)
Other NO

(c) Shading Devices:

Types NO

B. COMMENTS:

MOST OF THE WOODEN DOORS ARE IN POOR CONDITION. A NUMBER OF THE STEEL DOORS HAVE RUSTED THROUGH. WINDOWS ARE RUSTING AND REQUIRE PAINTING. MANY WINDOWS DID NOT OPEN SMOOTHLY WHEN SPOT-CHECKED.

C. COMPONENT RATING: ( 3.2 ) X ( .35 ) = 1.1
Possible Condition Component
Rating Value Multiplier Rating

ROOFING

FAC #073/126

DATE 1/28/91

INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a)Roof Covering:

Built-up 3 PLY WITH GRAVEL

Single Ply Membrane NO

Metal NO

Preformed Met ON 3 SHEDS CONSTRUCTED FOR RESEARCH

Shingle or tile NO

Other NO

(b)Flashing:

Base & Counter ASPHALT BASE & METAL COUNTER

Cap NO

Through Wall YES

Valley & Ridge NO

Vent YES

Chimney YES

(c)Gravel Stop & Edge Strips:

Type PAINTED STEEL & ALUMINUM

(d)Drainage:

Gutters YES

Drains YES

Scuppers X

Downspouts YES

(e)Projections:

Pipes YES

Stacks YES

Bracing YES

Skylights YES

Other NO

(f)Parapets:

Concrete NO

Brick YES

Block YES

Precast NO

Other NO

B. COMMENTS

ROOFS HAVE MANY PATCHES, TUNNEL BLISTERS EXCEEDING 6 FT IN LENGTH, BARE AREAS WITH ALLIGATORING AND EXPOSED PLY. METAL EXHAUST HOODS AND FLASHING REQUIRE PAINT. EVIDENCE OF NUMEROUS LEAKS ON CEILINGS. MANY ROOF LEAKS REPORTED BY OCCUPANTS.

C. COMPONENT RATING: ( 3.9 ) X ( .10 ) = .4
Possible Condition Component
Rating Value Multiplier Rating

PARTITIONS & DOORS

FAC #073/126

DATE 1/29/91

INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a) Partition Framing:

- Concrete Block YES
- Glazed Block YES
- Wood Stud YES
- Metal Stud NO
- Structural Tile YES
- Rated NO
- Other METAL PANELS

(b) Special partitions and Walls:

- Toilet YES
- Screen Walls NO
- Gate NO
- Other NO

(c) Wall Material:

- Plaster YES
- Plaster Board YES
- Glass YES
- Plywood YES
- Paneling YES
- Trim & Wainscot YES
- Tile/Glazed YES
- Other PEG BOARD

(d) Interior Doors & Frames:

- Met Door/Met Frame YES
- Wood Door/Wood Frame YES
- Wood Door/Metal Frame YES
- Glazing YES
- Rollup YES
- Sliding NO
- Other LOUVERS

(e) Hardware:

- Door Closers YES
- Lock Sets YES
- Kick/Push Plates YES
- Thresholds YES
- Panic Devices YES
- Security & Detection UNKNOWN
- Automatic Openers NO
- Other NO

B. COMMENTS:

THE MAJORITY OF THE PARTITION FRAMING IN BUILDING 073 IS WOODEN STUDS WITH DRYWALL. WALLS DO NOT EXTEND TO THE ROOF, CREATING MEZZANINES FOR HVAC EQUIPMENT ABOVE THE ROOMS. MOST PARTITION FRAMING WILL NOT MEET CURRENT FIRE CODES.

C. COMPONENT RATING:  $\frac{( 8.8 )}{\text{Possible Rating}} \times \frac{( .5 )}{\text{Condition Value Multiplier}} = \frac{4.4}{\text{Component Rating}}$

**WALL FINISHES**

FAC #073/126

DATE 1/29/91

INSPECTOR: JPH

**A. SYSTEM DESCRIPTION**

- (a)Paint YES
- (b)Wall Coating NO
- (c)Wall Coverings NO
- (d)Paneling
  - Prefinished YES (MOSTLY BLDG 126 ENTRYWAY)
  - Plank NO
- (e)Cork NO
- (f)Wallpaper NO
- (g)Ceramic Tile YES
- (h)Trim & Wainscot YES
- (i)Decoration YES
- (j)Glass NO
- (k)Other PEGBOARD

**B. COMMENTS**

PANELING AND WOOD TRIM IN BLDG 126 ARE AGING. WALLS IN BLDG 126 NEED PAINT AND EXHIBIT MOISTURE DAMAGE TO PLASTER AND PAINT AROUND WINDOWS. WALL FINISHES IN BLDG 073 VARY FROM VERY GOOD TO POOR.

**C. COMPONENT RATING:** 
$$\left( \frac{4.0}{\text{Possible Rating}} \right) \times \left( \frac{.75}{\text{Condition Value Multiplier}} \right) = \frac{3.0}{\text{Component Rating}}$$

FLOOR FINISHES

FAC #073/126 DATE 1/29/91 INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a) Carpet:

Rolled YES
Tile NO

(b) Composition:

Epoxy NO
Synthetic NO
Other NO

(c) Concrete Topping:

Abrasive NO
Epoxy NO
Sealer YES BARE CONCRETE IN HALLWAYS IN BLDG 073

(d) Resilient:

Vinyl Tile YES BLDGS 073 AND 126
Linoleum NO
Vinyl NO
Rubber NO
Cork NO

(e) Ceramic Tile YES SOME RESTROOMS

(f) Masonry NO

(g) Terrazzo BLDG 126 ENTRYWAY

(h) Wood NO

(i) Metal NO

B. COMMENTS

MOST OF VINYL TILE IN BLDG 126 IS ORIGINAL AND VERY WORN (MAY BE VINYL ASBESTOS). MOST FLOOR COVERINGS IN BOTH BUILDINGS ARE IN GOOD CONDITION WITH THE EXCEPTION OF SOME CARPETING IN BLDG 126. THE CONCRETE IN THE HALLWAYS HAS SOME DEPRESSIONS FROM THE ORIGINAL FACTORY EQUIPMENT IN BLDG 073. THESE HALLWAY FLOORS SHOULD BE SMOOTHED AND COVERED WITH VINYL TILE.

C. COMPONENT RATING: ( 7.2 ) X ( .75 ) = 5.4
Possible Condition Component
Rating Value Multiplier Rating

CEILING AND FINISHES

FAC #073/126 DATE 1/29/91 INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a) System Type:

Exposed MOST HALLWAYS AND MAINTENANCE AREAS - BLDG 073
Applied to Structure BLDG 126 12"X 12" TILES
Suspended 2' X 2' & 2' X 4' IN BLDG 073

(b) Materials:

Drywall YES
Plaster NO
Mineral Fiber Board YES
Metal Pan NO
Luminous Panels NO
Other NO

(c) Finishes:

Paint YES
Mineral Fiber YES
Fabric NO
Prefinished YES
Other NO

(d) Openings & Inserts:

Air Distribution YES
Lighting Fixtures YES
Access Panels NO
Skylights NO
Fire Protection NONE OBSERVED
Other NO

B. COMMENTS:

CEILING IS ORIGINAL IN BLDG 126 AND NEEDS TO BE REPLACED (STAINED AND BROKEN TILE. UNDERSIDE OF ROOF AND EQUIPMENT MEZZANINES ARE UNSIGHTLY IN HALLWAYS IN BLDG 073. SOME OF THE CEILING FRAMING IN BLDG 073 IS WOOD. BROKEN AND STAINED CEILING TILES WERE ALSO OBSERVED IN BLDG 073.

C. COMPONENT RATING: ( 7.6 ) X ( .5 ) = 3.8
Possible Condition Component
Rating Value Multiplier Rating

CONVEYING

FAC #073/126

DATE 2/1/91

INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a)Elevators:

Number 0
Type N/A
Speed N/A
Capacity (lbs) N/A
Dimensions N/A
Door Operation:
Center N/A To Side N/A

(b)Lifts and Hoists:

Number 0
Type N/A

(c)Moving Stairs and Walks:

Number 0
Type N/A

(d)Conveyors:

Number 0
Type N/A

(e) Pneumatic Tubes:

Number 0
Type N/A

B. COMMENTS:

NO ELEVATOR - BLDG 073 IS ONE STORY FACILITY. BLDG 126 HAS A PROPOSED PROJECT TO INSTALL AN ELEVATOR.

C. COMPONENT RATING: (.7 Possible Rating) X (0 Condition Value Multiplier) = 0 Component Rating

MECHANICAL/PLUMBING

FAC #073/126

DATE 1/31/91

INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a) Services Available:

- Cold Water YES
- Hot Water YES
- Acid NO
- Waste YES
- Oxygen NO
- Natural Gas YES
- Vacuum NO
- Distilled Water
- Compressed Air YES
- Other NO

(b) Piping & Fittings:

- Cast Iron YES
- Copper Tubing YES
- Plastic YES
- Steel NO
- Glass NO
- Other NO

(c) Water Heaters:

- Electric YES (50 GALLON TANK FOR DOMESTIC H.W.)
- Gas NO
- Oil NO
- Steam Converter YES
- Other NO

(d) Drainage:

- Storm Drains YES
- Sanitary Drainage YES
- Floor Drains YES

(e) Fixtures:

- Water Closets 26
- Urinals 9
- Lavatories 19
- Showers NO
- Kitchen Sinks 1
- Service Sinks 2
- Drinking Fountains NO
- Electric Water Coolers YES

(f) Sprinkler Systems:

- Wet NO
- Dry NO
- Water Storage/Supply NO

(g) Standpipe Systems:

- Wet YES
- Dry NO
- Valves YES
- Hose Cabinets YES

B. COMMENTS:

LARGE STEAM CONVERTER IN BASEMENT OF 126 IS REQUIRES REPLACEMENT. MOST OF THE PLUMBING FIXTURES ARE ORIGINAL AND NEED TO BE REPLACED.

C. COMPONENT RATING: 
$$\left( \frac{4.4}{\text{Possible Rating}} \right) \times \left( \frac{.80}{\text{Condition Value Multiplier}} \right) = \frac{3.52}{\text{Component Rating}}$$

**MECHANICAL/HEATING**

FAC #073/126

DATE: 1/31/91

INSPECTOR: JPH

**A. SYSTEM DESCRIPTION**

**(a) Heat Source:**

Central Plant Steam RESEARCH COMPLEX BOILER HOUSE

Central Plant Hot Water NO

Boilers: Type SMFT Size 5 @ 48" X 121"

Furnace: Type N/A Size N/A

Heat Pump: Type N/A Size N/A

Burners: gas NO oil NO

**(b) System Type:**

Steam YES

Hot Water NO

Air YES

Electric NO

Solar NO

Other NO

**(c) Space Equipment:**

Radiators NO

Convectors NO

Finned Tube YES

Baseboard NO

2-Pipe Fan Coil YES

4-Pipe Fan Coil NO

Unit Ventilators YES

Multizone YES

Radiant Panels NO

Double Duct YES

Terminal Reheat YES

Other NO

**(d) Control Type:**

Pneu YES

Electric YES

Electronic NO

DDC NO

**B. COMMENTS:**

MAINTENANCE REPORTS STEAM PIPES LEAK EXCESSIVELY AND NEED REPLACEMENT.

**C. COMPONENT RATING:**

$$\left( \frac{*}{\text{Possible Rating}} \right) \times \left( \frac{*}{\text{Condition Value Multiplier}} \right) = \frac{*}{\text{Component Rating}}$$

\* COMBINED WITH COOLING AND VENTILATION

COOLING & VENTILATING

FAC #073/126

DATE: 1/31/91 INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a) System:

Type CHILLED WATER, DX, THRU-WALL, WINDOW A/C
Capacity 287 TONS - BLDG 073, 157 TONS - BLDG 126

(b) Chillers:

Centrifugal YES
Reciprocating YES
Absorption NO

(c) Cooling Towers:

Type ACME MOD JCT-15, ACME MOD PACT-35, MARLEY
Capacity

(d) Condensers:

AIR-COOLED CONDENSERS

(e) Space Equipment:

Direct Expansion -
Window units YES
Thru-the-wall YES
single zone YES
all-air multizone YES
single zone con. vol. NO
double duct NO
Air/Water -
2-pipe fan coil NO
unit ventilators NO
induction NO
4-pipe fan coil NO
terminal reheat YES
self contained NO
variable volume YES
var. vol. reheat YES

(f) Special Systems:

Type N/A Capacity N/A

(g) Control Systems:

Pneu YES
Electric YES
Electronic NO

(h) Fans:

Exhaust YES
Recirculating YES

B. COMMENTS:

MANY DIFFERENT SYSTEMS SERVING THE TWO BUILDINGS. MANY OF THE SYSTEMS ARE AGING BUT WELL MAINTAINED. CURRENT CONFIGURATION IS TAILORED TO THE FLEXIBLE USE OF SPACE WITHIN THE RESEARCH CENTER FOR LABORATORIES THAT ARE BASICALLY SELF-CONTAINED. OCCUPANTS VOICED VERY FEW COMPLAINTS ABOUT EXISTING SYSTEMS SAYING THAT HEATING AND COOLING WERE ADEQUATE. OBSERVED EVIDENCE OF DIRTY DUCTWORK THROUGHOUT.

C. COMPONENT RATING: ( 18.5 ) X ( .66 ) = 12.2
Possible Condition Component
Rating Value Multiplier Rating

**ELECTRICAL/SERVICE & DISTRIBUTION**

FAC #073/126

DATE: 1/30/91 INSPECTOR: JPH

**A. SYSTEM DESCRIPTION**

**(a)Service:**

Substation BUCKEYE

Primary Voltage 13,200

Transformer:

Manufacturer	Type	KVA	Secondary Voltages
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ALLIS CHALMERS	DRY	750	480 DELTA
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ALLIS CHALMERS	DRY	750	480 DELTA
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WEST	DRY	225	208Y/120
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Switchgear (type and capacity)

**(b)Distribution System:**

Panelboard (type)CIRCUIT BREAKERS

Voltage 480, 208 & 120

Amperage 4300

Conduit ALUMINUM, GALVANIZED STEEL

Conductor COPPER

Wire (type)VARIOUS

Armored Cable YES

Other NO

**(c)Emergency System:**

General or (type & capacity) NO

**B. COMMENTS:**

LITTLE SPARE CAPACITY IN PANELBOARDS.

**C. COMPONENT RATING:**     $\left( \frac{1.2}{\text{Possible Rating}} \right) \times \left( \frac{.9}{\text{Condition Value Multiplier}} \right) = \frac{1.1}{\text{Component Rating}}$

ELECTRICAL/LIGHTING & POWER

FAC #073/126

DATE: 1/31/91

INSPECTOR: JPH

A. SYSTEM DESCRIPTION

(a)Lighting (lamp type):

Fluor1, 2 AND 4 TUBE FIXTURES

IncandVARIOUS

HID NO

Other NO

(b)Emergency Lighting:

Battery Pack( # ) 3

In Fixture( # ) 23 EMERGENCY LIGHTS

Exit Lights( # ) 15 +

Lights on Emergency Power( # ) 23 ON BATTERIES

(c)Motors and Starters:

Type and Capacity VARIOUS

(d)Receptacles & Switches:

Type & Capacity 2 AND 3 PRONG 120 VOLT

(e)Special:

Baseboard Heat NO

Lightning Protection NO

Communication & Alarm YES

Data Systems YES

B. COMMENTS:

OLD INCANDESCENT FIXTURES IN BLDG 126 REQUIRE REPLACEMENT. MANY OF HALLWAY LIGHTS IN BLDG 073 ARE INCANDESCENT REQUIRING REPLACEMENT. LIGHTING LEVELS SEEM LOW IN SOME AREAS. AGING SINGLE AND DOUBLE TUBE FIXTURES.

C. COMPONENT RATING: 
$$\left( \frac{10.8}{\text{Possible Rating}} \right) \times \left( \frac{.6}{\text{Condition Value Multiplier}} \right) = \frac{6.5}{\text{Component Rating}}$$

**SAFETY STANDARDS**

FAC #073/126

DATE: 2/1/91

INSPECTOR: JPH

**A. SYSTEM DESCRIPTION**

**(a) Exits:**

Stair Construction:  
concrete YES  
steel YES  
wood NO  
Number of exits 11

**(b) Fire Rating:**

Construction Type: I      II      III X IV      V      VI       
Building Height: 28 ft., 2 + BSMT stories

**(c) Extinguishing Systems:**

Portable YES  
Standpipe YES  
Hose Cabinets YES  
Sprinklers NO  
Suppression NO  
Other NO

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

Manual Alarm YES  
Annunciator YES  
Smoke Detectors YES

**(e) Lighting Systems:**

Exit Signs YES  
Exit Lighting NO  
Emergency Lighting YES  
Emergency Generator NO

**B. COMMENTS:**

HANDICAPPED ACCESS LIMITED TO BLDG 073. WOODEN FRAMING FOR PART-ITIONS DOES NOT MEET CURRENT FIRE SAFETY CODES. EXIT SIGNS ALL LIT. NO SPRINKLERS.

**C. COMPONENT RATING:** 
$$\left( \frac{1.4}{\text{Possible Rating}} \right) \times \left( \frac{.5}{\text{Condition Value Multiplier}} \right) = \frac{.7}{\text{Component Rating}}$$

**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, redecorating and 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.

APPENDIX

Reduced Building Floor Plans  
C-1 Building Space Assignments