

FACILITY AUDIT REPORT  
ANIMAL SCIENCE BUILDING  
#156  
NOVEMBER 30, 1995

Prepared by: Jack O'Dea Jr.  
The Ohio State University  
Department of Physical Facilities  
Division of Resource Management

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**EXECUTIVE SUMMARY AND PROJECT LIST FOR  
ANIMAL SCIENCE BUILDING**

The Animal Science Building is a 35-year-old building and has had no major renovations since it was constructed. Small renovation projects over the years included lab renovations, cooling tower replacement, DX split and through-the-wall air conditioning units, a transformer pit, power plant steam supply and most recent the chiller replacement for AC-1. A renovation project to recondition the meat coolers and process rooms is underway at this time.

The roof, the plumbing, heating piping, elevator, air handling units and the exterior brick walls are the main concerns with the building. The roof is original, is well past the expected life of 25 years and will need to be replaced in the next five years. The plumbing and heating piping in the basement area shows some signs of leakage indicating future repairs or replacement. The air handling units are unreliable, multi-sourced and outdated. The overall cooling scheme is fragmented, does not meet today's standards and needs to be replaced.

**PROPOSED MAINTENANCE PROJECTS**

<b>A. Corrective Maintenance Projects:</b>	<b>Control No.</b>	
1. Cut control joints in the brick, drill weep holes, remove old caulking, tuckpoint open brick joints, caulk all joints at limestone/limestone, limestone/brick, brick/brick and brick/windows/doors/lintels/parapets etc. on the exterior. Remove dried caulking and mortar on the interior and caulk or mortar joints in walls and around windows. Pressure clean all walls and seal when above work is completed. ....	\$ 42,500	2993
2. Relevel concrete slabs and south steps at the street, rework front steps, install handicap ramp, replace and/or repair concrete steps and walks in the rear..	\$ 20,000	2994 3.
Replace the BUR roof. ....	\$185,000	3035
<b>SUB-TOTAL</b> .....	<b>\$271,000</b>	
<b>B. Building Improvement/Addition Projects:</b>		
1. Upgrade the fire annunciation system. ....	\$150,000	2995
<b>SUB-TOTAL</b> .....	<b>\$150,000</b>	
<b>C. Building Component Replacements expected within the next 5 to 10 years:</b>		
1. Replace AHU-1, 2, 3 and 5 and AHU units in rooms 136, and 138. Install central air conditioning. ....	\$400,000	2996
2. Replace the domestic hot water heater and tank. ...	\$ 24,000	2997
3. Replace the heating water pumps and heat exchanger, heating units in rooms 142, 139 and 023 and coils and controls to the new AHU units. ....	\$100,000	2998
4. Remove the corridor ceiling tiles and replace with a new 2x4 ceiling and lighting system. ....	\$ 42,000	2999
5. Rebuild and/or replace the elevator. ....	\$ 75,000	3000
<b>SUB-TOTAL</b> .....	<b>\$641,000</b>	
<b>Total Cost for all Projects</b> .....	<b>\$1,062,000</b>	

GENERAL BUILDING INFORMATION

ANIMAL SCIENCE BUILDING #156

BUILDING ADDRESS: 2029 FYFFE ROAD

GROSS SQ. FT.: 61,739

NET ASSIGNABLE SQ. FT.: 38,959

MECHANICAL/CUSTODIAL AREA SQ. FT.: 4996

YEAR OF CONSTRUCTION: 1959-60

YEAR OF LAST RENOVATION: N/A

NUMBER OF STORIES/BASEMENT: BASEMENT AND TWO STORIES

AIR CONDITIONING (Percentage): APP 50%

CURRENT USE: LABS, MEAT PROCESSING, CLASSROOMS AND OFFICES

TYPE OF CONSTRUCTION: REINFORCED CONCRETE FRAME WITH BRICK EXTERIOR

ESTIMATED REPLACEMENT COST: \$8,959,000 \*

WHEELCHAIR ACCESSIBILITY: IN REAR OF BUILDING; HOWEVER, RAMPS DO NOT MEET ADA STANDARDS

OVERALL BUILDING CONDITION: SATISFACTORY \*\*

NUMBER OF EXIT STAIRWAYS: FOUR

AREA SHOP RESPONSIBILITY: MIDWEST SHOP

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

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

**BUILDING SYSTEMS INFORMATION**

**ANIMAL SCIENCE BUILDING #156**

**HEATING:**

Source STEAM LOOP FROM POWER PLANT  
Type Heating System LOW PRESSURE STEAM TO HOT WATER IN ROOM 038M  
Steam (Line size, valve location) 4" HPS IN ROOM 002A  
Building Htg Water (line size, valve location) 3" IN ROOM 038M

**VENTILATION SYSTEM: EXHAUST FANS AND AIR HANDLING UNITS**

**COOLING:**

Bldg % 50 Chillers ONE 60 TON CHILLER 1992  
Window Units TWO Thru-the-wall FIVE Direct exp. units FIVE

**HVAC CONTROL SYSTEM: PNEUMATIC AND ELECTRIC**

**ELECTRIC:** Source Size(KVA) Primary/Secondary Switchgear & Main Disc. (Rm)  
1. 201/306 500 208 / 120 IN ROOM 002M

**PLUMBING:**

Water (size, valve location) 4" IN ROOM 002M  
Gas (size, valve location) 6" WEST SIDE  
Domestic Hot Water (size, valve location) 4" IN ROOM 038M  
Compressed Air (size, location) 1" FROM TUNNEL TO 3/4" TO BUILDING

**SEWERS:**

Storm 12" AT N/W CORNER, 6" NORTH SIDE Sanitary 2 EA. 6" ON EAST SIDE

**METERS:**

Gas (size, location) 3" WEST SIDE WITH PRV  
Water (size, location) NONE  
Electric (size, location) 600 AMP IN ROOM 002M

**ALARM SYSTEMS:**

Fire Alarm YES Panel Location ROOM 038M  
Fire Pump NO Pump Location N/A  
Sprinklers NO Panel Location N/A  
Other Alarms NO

**ELEVATORS:**

Number ONE Type (passenger, freight) PASSENGER/FREIGHT  
Manufacturer OTTIS Size 64" x 88"

**EMERGENCY GENERATOR:**

Size N/A Location

**ASBESTOS SURVEY (1986):**

LOCATED IN ROOMS 002M, 036M, 038M, 225M, 201M AND HALL CEILINGS TO THESE ROOMS.  
INSULATION INSTALLED ON PIPING AND EQUIPMENT.

## **ANIMAL SCIENCE BUILDING**

### **HISTORY**

The Animal Science Building was constructed in 1959-60 and occupied in the fall of 1960 with a gross area of 61,739 SF. It was built for classrooms, offices, meat processing and labs. Over the years, renovations to several of the labs have taken place to meet the changing requirements of the research. The latest project included a replacement of a water chiller for AC-1 in 1992.

There is a current project in progress in the meat processing area to meet FDA standards. New DX refrigeration units to cool meat coolers and rooms are being installed. The new units will serve rooms 023A, 023B, 123, 143, 143A, 148 and 149. The old refrigeration systems in room 036M servicing these rooms will be removed.

A review of the work orders indicated that there are a normal number of emergency and maintenance calls to the building. However, more than normal routine maintenance problems are beginning to show up in plumbing, condensate piping, lighting, temperature control and hardware problems.

There are general maintenance projects that need to be completed within the next two to ten years to repair normal wear items noted below.

In an interview with the building coordinator, it was learned that the occupants are satisfied with the overall condition and performance of the building systems. Miscellaneous concerns of building appearances, convenience outlets and area air conditioning were expressed and are noted in the report. Maintenance personnel indicated that problems exist with HVAC controls, air balance and dirty duct systems.

The building is functioning as designed, at this time, and has held up well over the 35 years since built. However, several building components are approaching the end of their expected life and will need to be repaired or replaced over the next five years. Some exterior components have failed and will need to be repaired in the next five years. These items when completed will protect the structural and exterior components from the elements, enhance the building's performance and create a satisfying visual environment for students, faculty, staff and visitors.

Occupancy of the building reported by The Office of University Resource Planning & Institutional Analysis in the C-1 Building Space Assignment Report dated December 31, 1994 for a Net Assignable Area of 38,959 SF is as follows. Instructional and Support Labs 20.6%, Special Labs 15.2%, Sponsored Research 11.7%, Lab Services 11.4%, Mechanical 9.9%, Custodial/toilet 8.2%, General Administration 7.2%, Classrooms 4.8%, Graduate, Staff and Faculty offices 9.9% and Student Services 1.0%. Common Areas such as lobbies, halls and stairs account for 31.9% of 61,739 Gross SF.

### **PRIMARY SYSTEMS**

This structure consists of reinforced concrete perimeter footers, basement walls, interior footings and columns. There are no major signs of settlement or movement in the building foundation or structural columns and supports. Reinforced concrete columns, beams and one-way joist slab floors form the basic structural components above grade. Steel roof trusses form most of the flat roof structure

while reinforced concrete slabs were used in the southwest corner of the building. The cast in place concrete floors, columns and beams appear to be in good condition, there are no major signs of settlement or movement in these areas. Where visible, concrete roofs and steel joists appear to be in good condition.

A brick veneer was installed on concrete block or load bearing block to form the exterior walls. Some walls extend above the roof at the second floor and at the mechanical rooms. Overall the exterior brick is in good condition, however, some spalling of mortar at steel door lintels was noted. Cracks in mortar and brick due to expansion and contraction are evident at two locations on the east wall. The limestone parapet caps, trim and panel at entrance doors needs to be cleaned and sealed. Other small areas on the existing brick need to be tuckpointed and sealed where water staining, loose mortar, cracking and/or settlement has occurred.

The aluminum storefront windows and entrance doors at the first floor entrance are located on the northeast side. Openings along the east wall contain aluminum windows along the basement, first and second floor. The other three walls contain aluminum awning or double hung type windows or sealed glass block openings. Other openings in the various wall elevations include louvered air intakes, steel framed equipment room windows, overhead garage doors, cooler and man doors.

The single glazed aluminum frame windows are in good condition, some screens are loose and the original glazing has dried and shrunk in several units.

Two of the main entrance doors need to be adjusted so the doors close flush with the frames.

The roof areas are of the flat type, consisting of a metal deck, two inches of insulation and a Built-Up-Roof (BUR) consisting of five felt and tar layers with a hot tar and pea gravel surface. There were some indications of previous and/or active roof leaks. Sections of roofing recovered from the new HVAC work indicated that the roof-felt material is very brittle and has lost all of its flexible properties. An increased number of roof leaks is expected over the next few months due to the construction traffic. Since the roof is well past its expected service life, it is recommended that a new roofing system with increased insulation to meet present day codes and standards be installed.

## **SECONDARY SYSTEMS**

The reinforced concrete skeleton and exterior walls are divided with concrete block to form interior stairwells, halls and rooms. Some fine line cracking and shear cracks in concrete block walls have occurred on the east side north and south stairwells and in some load bearing walls. The lower half of some halls and stairwells are ceramic glazed blocks, which have held up well. Other areas have been coated with epoxy paint on the lower portion and semi-gloss latex paint on the upper portion of the wall.

The majority of the ceilings in this building consist of suspended 1x1 concealed spline grid system with mineral fiber tiles or steel 1x1 metal pan tiles. Ceilings in other areas consist of a suspended 2x4 lay-in system. Ceilings in stairwells, restrooms and some basement labs consist of suspended plaster ceilings with access panels as required.

Some ceilings in rooms need to be repaired or repainted but are in fair

condition. Most of the light fixtures, registers, grills and diffusers in these areas need cleaning. The age and condition of the metal ceiling tile in the halls would justify a replacement rather than cleaning or spot replacement.

The floors in halls and classrooms are primarily asphalt tile that has been well maintained, however, some high traffic areas are wearing faster than other areas. Some labs, coolers and the meat processing areas have ceramic tile floors, some of which are being repaired in the present renovation project. The ceramic tile on concrete slab floor in room 149 appears to have raised up in the center of the room. Areas of the floor to the north of the apparent raised section sound hollow when thumped. Without reference elevations or destructive testing it is not possible to determine if a problem exists at this time. The mortar joints in this area were recently repaired but appear serviceable. The equipment rooms have exposed concrete floors that have been sealed. All of these surfaces are in good to fair condition.

The doors and door hardware have held-up well after 35 years of use. Hardware and lock repairs will increase as the building ages, and some doors will need to be adjusted to shut properly.

### **SERVICE SYSTEMS**

The major service systems of natural gas, domestic water, sanitary waste, acid waste, compressed air and vacuum all appeared to be functioning properly. The domestic water piping appears to be copper throughout and should hold up well. There was adequate water pressure at the faucets and fixtures; however, most flush valves need to be readjusted for proper operation.

The Domestic Hot Water System consists of a LPS steam heat exchanger, storage tank, return water circulating pump and controls. All appear to be operating properly. Although operating properly at this time, the domestic hot water system has exceeded its expected service life and replacement should be planned for within the next 5-10 years.

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

The elevators are operating properly and meet some ADA requirements. Maintenance records do not indicate any major problems at this time. The 4" steam line feeding the building is tapped into the high-pressure Steam line located on Coffey Road to the east of the tunnel. The High Pressure Steam is reduced through a 200/70-PSI Medium Pressure reducing station with desuperheater located in room 002M. However, the desuperheater is not working at this time and one of the desuperheater feed pumps is leaking. From this station a 4" MPS steam line feeds buildings to the north, while a 4" MPS steam line serves equipment in room 038M. A steam operated pump and condensate receiver returns condensate to the high-pressure condensate return line.

Building heating water is pumped through a Low Pressure Steam (LPS) to hot water heat exchanger located in mechanical room 038M. Low Pressure Steam is piped to the heat exchanger from a 70/15-PSI pressure reducing station also located in the room. The Hot Water Heating system supplies convectors located on the outside walls under windows, fan coil units at entrances and unit heaters. The Medium

Pressure Reducing station also supplies Low Pressure Steam to heating coils located in the air handling units, to several unit heaters and to make-up air handling units. The heating system appears to be operating properly, however, the complete system is approaching its expected life and should be replaced.

The cooling system to AC-1 consists of one York 65 Ton chiller cooled by an air-cooled condenser coil. Chilled water pumps located below the unit supply chilled water to the air-handling unit. The cooling system to the DX coil of AC-2 consists of a packaged Trane 40 Ton compressor unit cooled by an open type cooling tower, however, the cooling tower is being removed in the current renovation project. Cooling water for this unit and four meat cooler units must come from the domestic city water supply and be wasted to drain. Five areas requiring special control and/or operating parameters utilize split system heating and cooling units. Five through-the-wall Singer air-conditioning units serve rooms 101, 105 and 202 and two window units serve room 001.

The four major air-handling units 1, 2, 3 and 5 supply-air to grills and diffusers throughout the building. Three units (1, 2 and 5) are multizone constant air volume (MZCV) units. The remainder unit is a constant air volume (CAV) unit with heating only. The cooling and ventilation systems appear to be operating properly, although the outside air grills and ducts need to be cleaned. Controls for the heating and cooling system are pneumatic and electric and have experienced more failures that are frequent. The heating and cooling control systems have reached their expected service life and are in need of replacement.

Exhaust fans located throughout the building remove air from restrooms, common areas, meeting rooms, labs and mechanical rooms. Specific fans for removing lab hood exhaust are located on the second floor roof. These appear to be in good condition and well maintained.

## **ELECTRICAL**

One 500 KVA 230/120-volt transformer fed from the buckeye substation circuits number 201 & 306 provides the electrical power to the building. Fused switches from the transformer feed lighting panels, motor control center panels (MCC) and circuit breaker power distribution panels. The MCC panels contain fused switches, which distribute power to mechanical equipment in or near the room. Panel sizes vary throughout the building depending on the load. At about 8.1 watts per square foot, the building appears to have an adequate power supply.

The building has 40-watt fluorescent light fixtures throughout the building. Some areas have had the newer 32-watt fixtures installed during room renovation or normal replacement. Accent and area lighting is of the incandescent and HID type. There are an adequate number of convenience and lab outlets throughout the building.

## **SAFETY STANDARDS**

The building safety systems consist of manual pull stations at exits that provide local fire annunciation from the panel in RM 038M. This system should be up dated within the next five to ten years.

The emergency battery power source supplies power to lighted exit signs and emergency lights in the hallways and stairwells. This unit is in the process of being replaced at this time.

Automatic door openers have been installed at the west entrance. The elevators provide access to all floors of the building.

#### **BUILDING PERIMETER**

The sidewalk and steps on the east side of the building at the street have settled near the curb creating a tripping hazard and need to be releveled. The sidewalks on the east and north side of the building are in good condition. The limestone steps leading to the main entrance are deteriorating and repairs are needed at this time.

The concrete dock area on the south side is in good condition, however, minor repair and sealing is required on the concrete sections. Cracks and seams in the asphalt on the west and south of the building need to be filled and sealed.

The lawn area on the north and east side and next to the east sidewalk west side has bare spots in the grass. There is no mulch around the shrubbery.

Entrances to the building are well lighted. Area and flood lighting appears to be distributed properly.

#### **ASBESTOS**

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report: Inventory of Friable Asbestos Containing Material in Buildings of the Ohio State University (Main and Branch Campuses) and the Recommendations for Corrective Action by PEI Associates, Sept. 1986, identifies asbestos containing materials in rooms 036M, 038M, 002M, 225M and 201M. Most of this is pipe, tank, equipment and heat exchanger insulation in the mechanical rooms and piping in halls above ceilings. Some small sections were removed during repairs, however, much of the original remains on the heating system piping.

ANIMAL SCIENCE BUILDING #156

**Minor Maintenance Projects (LESS THAN \$5000) EXTERIOR**

1. Repair and/or replace all exit door weather stripping.  
Workorder #01-5061-002128-20
2. Putty windows as required, app 20 windows.  
Workorder #01-5064-206477-71
3. Seal asphalt counter flashings where the flashings step up along the walls.  
Workorder #01-5064-206478-73
4. Repair and/or replace two hose bibbs that are leaking.  
Workorder #01-5064-206479-64
5. Replace the wood sides and repair the roof on the north door overhang  
Workorder #01-5064-206480-71
6. Remove ivy on all of the exterior walls and plant grass in bare spots.  
Workorder #01-5064-206476-55
7. Adjust the main entrance doors to fit flush in the frames.  
Workorder #01-5064-206481-72
8. Repair the light wall packs on the perimeter of the building.  
Workorder #01-5064-206482-64

**Minor Maintenance Projects (LESS THAN \$5000) INTERIOR**

1. Repair the desuperheater valve in the steam line and repair the desuperheater pump seals.  
Workorder #01-5064-206484-64
  2. Repair the loose flush valve in room 211 and adjust all flush valves for proper operation, repair lavatory faucets that are leaking.  
Workorder #01-5064-206490-64
  3. Install insulation on domestic cold and hot water piping, heating hot water piping and duct as required.  
Workorder #01-5064-206493-64
  4. Paint interior side of exterior doors and the roll-up door in room 139.  
Workorder #01-5064-206495-64
  5. Repair the ceiling tiles in room 110K.  
Workorder #01-5064-206497-64
  6. Repair the domestic hot water pipe at the hot water tank.  
Workorder #01-5064-206498-64
- 
1. Replace and/or repair damaged screens.  
Control No. 3001

**BUILDING EVALUATION SUMMARY**

**I. BUILDING INFORMATION**

FAC # 156 FACILITY NAME: ANIMAL SCIENCE BUILDING  
 DATE: 11/30/95 INSPECTOR: JAO  
 YEAR CONSTRUCTED: 1960  
 GROSS SQ FT: 61,739 NET SQ FT: 38,959  
 REPLACEMENT COST \$ 8,959,000 \*

**II. COMPONENT RATING**

COMPONENT	BUILDING COMPONENT PERCENTAGE OF TOTAL COST**	BUILDING COMPONENT REPLACEMENT COST	CONDITION VALUE MULTIPLIER FOR BLDG. COMPONENT	BUILDING COMPONENT CURRENT VALUE
Foundation	10.22	915,610	0.85	778,269
Columns and Beams	9.91	887,837	0.85	754,661
Exterior Walls	7.08	634,297	0.79	501,095
Windows & Doors	3.15	282,209	0.67	189,080
Roofing	4.72	422,865	0.20	84,573
Partitions & Drs.	8.65	774,954	0.63	488,221
Wall Finishes	2.99	267,874	0.61	163,403
Floor Finishes	4.72	422,865	0.70	296,006
Ceilings & Finish	6.18	553,666	0.50	276,833
Conveying	1.73	154,991	0.63	97,644
Plumbing	11.79	1,056,266	0.67	707,698
Heating	7.55	676,405	0.63	426,135
Cooling & Vent.	8.66	775,849	0.50	387,925
Elec. Ser. & Dist	1.49	133,489	0.67	89,438
Lighting & Power	8.65	774,954	0.60	464,972
Safety Standards	2.52	225,767	0.60	135,460
TOTALS	100.00	8,959,000	0.65	5,841,413

**III. BUILDING RATING SUMMARY**

**Overall Building Rating = 65 %**

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

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







**EXTERIOR WINDOWS & DOORS**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

<b>a. Windows type &amp; number:</b>	N/A	Sat	Att
Wood _____	[X]	[ ]	[ ]
Steel _____	[X]	[ ]	[ ]
Alum <u>AWNING TYPE WITH SOME FIXED PANES AND STOREFRONT</u>	[ ]	[X]	[ ]
Other <u>GLASS BLOCK</u>	[ ]	[X]	[ ]
<b>b. Window glazing:</b>			
Single pane <u>ON ALL WINDOWS</u>	[ ]	[ ]	[X]
Double pane _____	[X]	[ ]	[ ]
Other <u>GLASS BLOCK</u>	[ ]	[X]	[ ]
<b>c. Doors type &amp; number:</b>			
Wood _____	[X]	[ ]	[ ]
Steel <u>EXIT, ANIMAL, COOLER AND GARAGE DOORS</u>	[ ]	[X]	[ ]
Alum <u>STOREFRONT AT MAIN ENTRANCE</u>	[ ]	[ ]	[X]
Other _____	[X]	[ ]	[ ]
<b>d. Shading Devices:</b>			
Types <u>BLINDS</u>	[ ]	[X]	[ ]

**B. COMMENTS:**

- 1 THE WEATHERPROOF SEALS ON ALL DOORS NEED TO BE REPAIRED OR REPLACED.
- 2 THE WEATHERPROOF SEALS ON ALL WINDOWS NEED TO BE REPAIRED OR REPLACED.
- 3 SOME OF THE PUTTY HOLDING THE WINDOWS IN THE FRAMES HAS CHIPPED OFF AND NEEDS TO BE REPLACED.
- 4 TWO OF THE ALUMINUM MAIN DOORS NEEDS TO BE ADJUSTED TO CLOSE FLUSH.

**C. COMPONENT RATING:**    (\$ 282,209)    ( 67 %) = \$ 189,080

Possible	Condition	Component
Value	Value Multiplier	Value

**ROOFING**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

<b>a. Roof Covering:</b>	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Built-up _____	[X]	[ ]	[ ]
Built-up w/gravel <u>5 PLY OVER FIBER BOARD INSULATION</u>	[ ]	[ ]	[X]
Asphalt Shingle _____	[X]	[ ]	[ ]
Copper _____	[X]	[ ]	[ ]
Glass (Skylight) _____	[X]	[ ]	[ ]
Slate _____	[X]	[ ]	[ ]
Spanish Tile _____	[X]	[ ]	[ ]
Metal _____	[X]	[ ]	[ ]
Other _____	[X]	[ ]	[ ]
<b>c. Flashing:</b>			
Base & Counter <u>ASPHALT BASE WITH COPPER COUNTER</u>	[ ]	[ ]	[X]
Cap <u>LIMESTONE COPING</u>	[ ]	[ ]	[X]
Through Wall _____	[X]	[ ]	[ ]
Valley & Ridge _____	[X]	[ ]	[ ]
<b>d. Gravel Stop &amp; Edge Strips:</b>			
Type _____	[X]	[ ]	[ ]
<b>e. Drainage:</b>			
Gutters w/ Exterior Downspouts _____	[X]	[ ]	[ ]
Scuppers w/ Exterior Downspouts _____	[X]	[ ]	[ ]
Drains w/ Interior Storm Drains <u>WITH OVERFLOW SCUPPERS</u>	[ ]	[X]	[ ]
<b>f. Parapets:</b>			
Concrete _____	[X]	[ ]	[ ]
Brick _____	[ ]	[X]	[ ]
Block _____	[X]	[ ]	[ ]
Precast _____	[X]	[ ]	[ ]
Other _____	[X]	[ ]	[ ]
<b>g. Insulation:</b>			
Type <u>2" FIBER BOARD</u>	[ ]	[X]	[ ]

**B. COMMENTS**

- 1 A SECTION OF REMOVED ROOFING WAS OBSERVED TO BE FIVE PLIES THAT COULD BE SEPARATED EASILY, INDICATING THAT MOST OF ALL THE TAR VOLATILES HAVE BEEN RELEASED. THE MATERIALS ARE DRY AND BRITTLE AND CAN BE DAMAGED EASILY.
- 2 THE BASE ROOF FLASHING HAS SEPARATED AT STEPS IN THE FLASHING AND NEEDS TO BE SEALED.

**C. COMPONENT RATING:**    (\$ 422,865)    ( 20 %) = \$ 84,573  
    Possible            Condition            Component  
    Value            Value Multiplier    Value



**WALL FINISHES**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

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

**B. COMMENTS**

- 1 BLOCK AND TILE ARE IN GOOD CONDITION BUT NEED TO BE CLEANED.  
2 WALLS IN SOME HALLS, STAIRWELLS AND SOME ROOMS NEED TO BE TUCKPOINTED AND REPAINTED.

**C. COMPONENT RATING:**    (\$ 267,874)    ( 61 %) = \$ 163,404  
                                  Possible      Condition      Component  
                                  Value      Value Multiplier      Value

**FLOOR FINISHES**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

	N/A	Sat	Att
<b>a. Carpet:</b>			
Rolled _____	[ ]	[X]	[ ]
Tile _____	[X]	[ ]	[ ]
<b>b. Composition:</b>			
Epoxy _____	[X]	[ ]	[ ]
Synthetic _____	[X]	[ ]	[ ]
Other _____	[X]	[ ]	[ ]
<b>c. Concrete Topping:</b>			
Clear Sealant _____	[ ]	[X]	[ ]
Abrasive _____	[X]	[ ]	[ ]
Epoxy _____	[X]	[ ]	[ ]
Aggregate _____	[X]	[ ]	[ ]
<b>d. Resilient:</b>			
Vinyl Tile <u>IN REMODELED LABS</u> _____	[ ]	[X]	[ ]
Linoleum <u>ASPHALT TILES</u> _____	[ ]	[X]	[ ]
Vinyl _____	[X]	[ ]	[ ]
Rubber _____	[X]	[ ]	[ ]
Cork _____	[X]	[ ]	[ ]
<b>e. Ceramic Tile</b> <u>IN MANY LABS, RESTROOMS AND PROCESS AREAS</u> _____	[ ]	[X]	[ ]
<b>f. Masonry</b> _____	[X]	[ ]	[ ]
<b>g. Terrazzo</b> _____	[X]	[ ]	[ ]
<b>h. Wood</b> _____	[X]	[ ]	[ ]
<b>i. Metal</b> _____	[X]	[ ]	[ ]

**B. COMMENTS**

- 1 FLOORS ARE GENERALLY IN GOOD TO FAIR CONDITION, SOME ARE BEING REPAIRED IN THE MEAT PROCESSING AREA REMODELING PROJECT.
- 2 THE CERAMIC TILE FLOOR IN ROOM 149 APPEARS TO HAVE RAISED BETWEEN TWO DRAINS, THE EXTENT OF LIFT AND/OR DAMAGE IS IMPOSSIBLE TO ASCERTAIN WITHOUT REMOVING SECTIONS OF THE FLOOR. GROUT IN THIS AREA WAS REPAIRED DURING THE REMODEL PROJECT, THE FLOOR APPEARS SERVICEABLE AND NEEDS TO BE SEALED.
- 3 THE ASPHALT TILE FLOORS IN HIGH TRAFFIC AREAS ARE WEARING IN A FEW PLACES.

**C. COMPONENT RATING:**    (\$ 422,865)    ( 70 %) = \$ 296,006

Possible	Condition	Component
Value	Value Multiplier	Value

**CEILING AND FINISHES**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

<b>a. System Type:</b>	N/A	Sat	Att
Exposed _____	[ ]	[X]	[ ]
Applied to Structure _____	[ ]	[X]	[ ]
Suspended _____	[ ]	[X]	[ ]
 <b>b. Materials:</b>			
Drywall _____	[X]	[ ]	[ ]
Plaster <u>IN RESTROOMS, SOME LABS AND STAIRWELLS</u>	[ ]	[X]	[ ]
Mineral Fiber Board <u>1x1 TILES AND A FEW 2x4 TILES</u>	[ ]	[X]	[ ]
Metal Pan <u>IN HALLS</u>	[ ]	[ ]	[X]
Luminous Panels _____	[X]	[ ]	[ ]
Other <u>VINYL COATED TILES AND PANELS IN PROCESSING AREA</u>	[ ]	[X]	[ ]
 <b>c. Finishes:</b>			
Paint _____	[ ]	[X]	[ ]
Fabric _____	[X]	[ ]	[ ]
Prefinished _____	[ ]	[X]	[ ]
Other <u>VINYL</u>	[ ]	[X]	[ ]
 <b>d. Openings &amp; Inserts:</b>			
Air Distribution _____	[ ]	[X]	[ ]
Lighting Fixtures _____	[ ]	[X]	[ ]
Access Panels _____	[ ]	[X]	[ ]
Skylights _____	[X]	[ ]	[ ]
Fire Protection _____	[X]	[ ]	[ ]
Other _____	[X]	[ ]	[ ]

**B. COMMENTS:**

- 1 THE HALL METAL PANS NEED TO BE REPLACED AND RECESSED LIGHTS ADDED FOR EASIER ACCESS TO THE PIPING ABOVE FOR REPAIRS.
- 2 ALL OF THE TILED CEILINGS NEED TO BE REPAINTED.
- 3 SOME CEILINGS AROUND DIFFUSERS HAVE DETERIORATED AND NEED TO BE REPLACED OR PAINTED.

**C. COMPONENT RATING:**    (\$ 553,666)    ( 50 %) = \$ 276,833  
    Possible    Condition    Component  
    Value        Value Multiplier    Value

**CONVEYING**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

**a. Elevators:**

	N/A	Sat	Att
Number <u>ONE</u>	[ ]	[X]	[ ]
Type <u>OTIS</u>	[ ]	[X]	[ ]
Speed <u>75 FPM</u>	[ ]	[X]	[ ]
Capacity (lbs) <u>4000</u>	[ ]	[X]	[ ]
Dimensions <u>64" x 88"</u>	[ ]	[X]	[ ]
Door Operation:			
Center _____	[X]	[ ]	[ ]
To Side _____	[ ]	[X]	[ ]

**b. Lifts and Hoists:**

Number <u>THREE TROLLEY CRANES</u>	[ ]	[X]	[ ]
Type <u>TWO CABLE AND ONE CHAIN</u>	[ ]	[X]	[ ]

**c. Moving Stairs and Walks:**

Number _____	[X]	[ ]	[ ]
Type _____	[X]	[ ]	[ ]

**d. Conveyors:**

Number <u>MANY OVERHEAD STEEL RAILS</u>	[ ]	[X]	[ ]
Type <u>MEAT HOOK TROLLEY</u>	[ ]	[X]	[ ]

**e. Pneumatic Tubes:**

Number _____	[X]	[ ]	[ ]
Type _____	[X]	[ ]	[ ]

**B. COMMENTS:**

THE ELEVATOR HAS REACHED ITS EXPECTED SERVICE LIFE AND NEEDS TO BE REPLACED TO MEET ALL ADA REQUIREMENTS.

**C. COMPONENT RATING:**    (\$ 154,991)    ( 63 %) = \$ 97,644  
                                  Possible      Condition      Component  
                                  Value      Value Multiplier      Value

**MECHANICAL/PLUMBING**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

<b>a. Services Available:</b>	N/A	Sat	Att
Cold Water FROM ROOM 002M	[ ]	[X]	[ ]
Hot Water IN ROOM 038M	[ ]	[X]	[ ]
Acid Waste	[ ]	[X]	[ ]
Oxygen	[X]	[ ]	[ ]
Natural Gas FROM ROOM 038M	[ ]	[X]	[ ]
Vacuum LOCATED IN ROOM 139	[ ]	[X]	[ ]
Distilled Water PRODUCED LOCALLY IN LABS	[ ]	[X]	[ ]
Compressed Air FROM 1" LINE IN THE TUNNEL ROOM 002M	[ ]	[X]	[ ]
Other	[X]	[ ]	[ ]
<b>b. Piping &amp; Fittings:</b>			
Cast Iron DUCTILE CI ON WATER, CI ON WASTE PIPING	[ ]	[X]	[ ]
Copper Pipe DOMESTIC HOT AND COLD WATER, AIR AND VACUUM	[ ]	[ ]	[X]
Copper Tubing CONTROL AIR	[ ]	[X]	[ ]
Plastic	[X]	[ ]	[ ]
Steel STEAM/CONDENSATE, CHILLED AND HEATING WATER,	[ ]	[X]	[ ]
Glass ACID WASTE ABOVE GROUND	[ ]	[X]	[ ]
Other DURIRON ON UNDERGROUND ACID WASTE	[ ]	[X]	[ ]
Other GALV STEEL PIPE ON SAN VENT PIPING AND ROOF DRAINS	[ ]	[X]	[ ]
<b>c. Water Heaters:</b>			
Electric	[X]	[ ]	[ ]
Gas	[X]	[ ]	[ ]
Oil	[X]	[ ]	[ ]
Steam Converter WITH STORAGE TANK ROOM 38M	[ ]	[ ]	[X]
Other	[X]	[ ]	[ ]
<b>d. Drainage:</b>			
Storm Drains	[ ]	[X]	[ ]
Sanitary Drainage	[ ]	[X]	[ ]
Combined Storm/San.	[X]	[ ]	[ ]
Floor Drains IN EQUIPMENT, LAB. PROCESS AND REST ROOMS	[ ]	[X]	[ ]
<b>e. Fixtures:</b>			
Water Closets 18	[ ]	[X]	[ ]
Urinals 9	[ ]	[X]	[ ]
Lavatories 15	[ ]	[X]	[ ]
Showers NORMAL AND EMERGENCY 8	[ ]	[X]	[ ]
Kitchen Sinks 1	[ ]	[X]	[ ]
Service Sinks 3	[ ]	[X]	[ ]
Drinking Fountains	[X]	[ ]	[ ]
Electric Water Coolers 4	[ ]	[X]	[ ]
<b>f. Sprinkler Systems:</b>			
Wet	[X]	[ ]	[ ]
Dry	[X]	[ ]	[ ]
<b>g. Standpipe Systems:</b>			
Wet	[X]	[ ]	[ ]
Dry	[X]	[ ]	[ ]
Valves	[X]	[ ]	[ ]
Hose Cabinets	[X]	[ ]	[ ]

**B. COMMENTS:**

- 1 THE DOMESTIC WATER STEAM HEATERS AND STORAGE TANK ARE OLD AND WILL NEED TO BE REPLACED, ALSO PIPE LEAKS AROUND SAME NEED TO BE REPAIRED.
- 2 SOME PLUMBING FLUSH VALVES ARE OLD AND WILL NEED TO BE REPAIRED OR REPLACED.

**C. COMPONENT RATING:**    (\$1,056,266)    (67 %) = \$ 707,698

Possible	Condition	Component
Value	Value Multiplier	Value

**MECHANICAL/HEATING**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

<b>a. Heat Source:</b>	N/A	Sat	Att
Central Plant Steam <u>4" HPS FROM HOWLETT HALL TO TUNNEL</u>	[ ]	[X]	[ ]
Central Plant Hot Water _____	[X]	[ ]	[ ]
Boilers: Type <u>THREE BOILERS ABANDONED IN ROOM 038M</u>	[X]	[ ]	[ ]
Size _____	[X]	[ ]	[ ]
Furnace: Type _____	[X]	[ ]	[ ]
Size _____	[X]	[ ]	[ ]
Heat Pump: Type _____	[X]	[ ]	[ ]
Size _____	[X]	[ ]	[ ]

<b>b. System Type:</b>			
Steam <u>4" LPS TO HEAT EXCHANGER IN ROOM 038M</u>	[ ]	[ ]	[X]
Hot Water <u>3" FROM HEAT EXCHANGER TO BUILDING</u>	[ ]	[X]	[ ]
Air <u>THREE AIR HANDLING UNITS HEATING ONLY</u>	[ ]	[ ]	[X]
Multizone <u>IN ROOMS 201M AND 225M</u>	[ ]	[X]	[ ]
Dual Duct _____	[X]	[ ]	[ ]
Terminal Reheat _____	[X]	[ ]	[ ]
Variable Volume _____	[X]	[ ]	[ ]
Other <u>MAKE-UP AIR HANDLING IN SEVERAL ROOMS</u>	[ ]	[X]	[ ]

<b>c. Space Equipment:</b>			
Radiators _____	[X]	[ ]	[ ]
Convectors <u>UNDER WINDOWS</u>	[ ]	[X]	[ ]
2-Pipe Fan Coil <u>HOT WATER ON SOME UNIT HEATERS</u>	[ ]	[X]	[ ]
Unit Heaters <u>IN EQUIPMENT ROOMS AND GARAGES</u>	[ ]	[X]	[ ]
Other <u>STEAM UNIT HEATERS IN SOME AREAS</u>	[ ]	[X]	[ ]
Other <u>STEAM COILS ON SOME AIR HANDLING UNITS</u>	[ ]	[X]	[ ]

<b>d. Control Type:</b>			
Pneu _____	[ ]	[X]	[ ]
Electric _____	[ ]	[X]	[ ]
DDC _____	[X]	[ ]	[ ]
Manual Valves _____	[X]	[ ]	[ ]

**B. COMMENTS:**

- 1 THE STEAM TO HOT WATER HEAT EXCHANGERS ARE OLD AND WILL NEED TO BE REPLACED.
- 2 THE MAKE-UP AIR HANDLING UNITS IN ROOMS 142, 139 AND 023 ARE OLD AND NEED TO BE REPLACED.

**C. COMPONENT RATING:**    (\$ 676,405)    ( 63 %) = \$ 426,135  
                                     Possible            Condition            Component  
                                     Value            Value Multiplier    Value



ELECTRICAL/SERVICE & DISTRIBUTION

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

**(a) Service:**

Substation 201/306  
 Primary Voltage 13,200 VOLT  
 Transformer:  
 Manufacture                      Type                      KVA                      Secondary Voltages  
GENERAL ELECTRIC      AIR                      500                      208 / 120

**(b) Distribution System:**

Panelboard (type) FUSES AND CIRCUIT BREAKERS  
 Voltage 208/120  
 Amperage 600  
 Conduit STEEL  
 Conductor COPPER  
 Wire (type) VARIES  
 Armored Cable SOME  
 Other

**(c) Emergency System:**

General or (type & capacity) BATTERY BACK-UP

**B. COMMENTS:**

- 1 THE BATTERY BACK-UP SYSTEM IS NOT IN SERVICE AND A NEW SYSTEM IS BEING INSTALLED.
- 2 THE DISTRIBUTION PANEL CIRCUIT BREAKERS ARE THE ORIGINAL UNITS.

**C. COMPONENT RATING:**    (\$ 133,489)    ( 67 %) = \$ 89,438  
    Possible                      Condition                      Component  
    Value                      Value Multiplier                      Value

**ELECTRICAL/LIGHTING & POWER**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

<b>a. Lighting (lamp type):</b>	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
Fluor <u>40 WATT</u>	[ ]	[X]	[ ]
Incand <u>ACCENT</u>	[ ]	[X]	[ ]
<u>HID IN COOLERS, SOME LABS AND EXTERIOR</u>	[ ]	[ ]	[X]
Other _____	[X]	[ ]	[ ]
<b>b. Receptacles &amp; Switches:</b>			
Type & Capacity <u>20 AMP</u>	[ ]	[ ]	[X]
<b>c. Special:</b>			
Baseboard Heat _____	[X]	[ ]	[ ]
Lightning Protection <u>ON CHIMNEY ONLY</u>	[ ]	[X]	[ ]
Communication & Alarm _____	[X]	[ ]	[ ]
Data Systems _____	[X]	[ ]	[ ]

**B. COMMENTS:**

- 1 REPLACEMENT LIGHTS ARE 32 WATT BULBS WITH ELECTRONIC BALLAST.
- 2 REPAIR EXTERIOR WALL LIGHTS ON THE BUILDING.
- 3 ADDITIONAL CONVENIENCE OUTLETS ARE NEEDED IN SOME OFFICE AREAS.

**C. COMPONENT RATING:**    (\$ 774,954)    ( 60 % ) = \$ 464,972  
                                  Possible            Condition            Component  
                                  Value            Value Multiplier    Value

**SAFETY STANDARDS**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

	<u>N/A</u>	<u>Sat</u>	<u>Att</u>
<b>(a) Exits:</b>			
Stair Construction:			
concrete <u>FILL</u>	[ ]	[X]	[ ]
steel <u>FRAME</u>	[ ]	[X]	[ ]
wood _____	[X]	[ ]	[ ]
Number of exits <u>FOUR</u>	[ ]	[X]	[ ]
<b>(b) Fire Rating:</b>			
Construction Type: I _____ II <u>X</u> III _____ IV _____ V _____ VI _____			
Building Height: _____ 30 ft., _____ TWO stories			
<b>(c) Extinguishing Systems:</b>			
Portable _____	[ ]	[X]	[ ]
Standpipe _____	[X]	[ ]	[ ]
Hose Cabinets _____	[X]	[ ]	[ ]
Sprinklers _____	[X]	[ ]	[ ]
Suppression _____	[X]	[ ]	[ ]
Other _____	[X]	[ ]	[ ]
<b>(d) Detection &amp; Alarm Systems:</b>			
Manual Alarm <u>PULL STATIONS</u>	[ ]	[X]	[ ]
Annunciator <u>BELLS ONLY</u>	[ ]	[X]	[ ]
Smoke Detectors _____	[X]	[ ]	[ ]
<b>(e) Lighting Systems:</b>			
Exit Signs _____	[ ]	[X]	[ ]
Exit Lighting _____	[ ]	[X]	[ ]
Emergency Lighting <u>62AMP BATTERY BACK-UP RM 002M</u>	[ ]	[ ]	[X]
Emergency Generator _____	[X]	[ ]	[ ]

**B. COMMENTS:**

1 THE EXISTING BATTERY EQUIPMENT IS OLD AND WILL NEED TO BE REPLACED IN THE NEAR FUTURE.

**C. COMPONENT RATING:**    (\$ 225,767)    ( 60 %) = \$ 135,460  
                                  Possible            Condition            Component  
                                  Value            Value Multiplier    Value

**BUILDING PERIMETER EVALUATION**

FAC # 156      DATE 11/30/95      INSPECTOR: JAO

**A. SYSTEM DESCRIPTION**

	N/A	Sat	Att
1. Building Access:			
Driveway <u>SOUTH LOADING AND WEST SIDE PARKING/LOADING</u>	[ ]	[ ]	[X]
Loading Dock <u>SOUTH SIDE</u>	[ ]	[X]	[ ]
Sidewalks			
Front <u>ALONG STREET AND PARALLEL TO BUILDING</u>	[ ]	[ ]	[X]
Side <u>ON NORTH TO PARKING LOT</u>	[ ]	[X]	[ ]
Rear _____	[X]	[ ]	[ ]
Steps			
Front <u>NORTHEAST MAIN ENTRANCE</u>	[ ]	[ ]	[X]
Side <u>TO ANIMAL PEN DOOR</u>	[ ]	[ ]	[X]
Rear <u>TO ANIMAL PEN DOORS AND MAN DOORS</u>	[ ]	[ ]	[X]
Handicap Ramp <u>RAMP IN REAR OF THE BUILDING</u>	[ ]	[ ]	[X]
2. Lawn and Landscaping:			
Lawn _____	[ ]	[ ]	[X]
Shrubs _____	[ ]	[ ]	[X]
Trees _____	[ ]	[X]	[ ]
Undesirable Insect _____	[X]	[ ]	[ ]
Bedding Material _____	[X]	[ ]	[ ]
Watering System _____	[ ]	[ ]	[X]
3. General Site Information:			
Signage _____	[ ]	[X]	[ ]
Address Identification _____	[ ]	[X]	[ ]
Security Lights _____	[ ]	[X]	[ ]
Street Lights _____	[ ]	[X]	[ ]
Drainage _____	[ ]	[X]	[ ]
Storm Drains _____	[ ]	[X]	[ ]

**B. COMMENTS:**

- 1 MAIN ENTRANCE LIMESTONE STEPS HAVE SETTLED, SPALLED, AND NEED TO BE REPAIRED OR REBUILT.
- 2 CONCRETE STEPS AND WALKS IN THE REAR HAVE DETERIORATED AND NEED TO BE REPAIRED OR REPLACED.
- 3 THE DRIVE NEEDS TO HAVE CRACKS FILLED AND THE BLACKTOP SEALED.
- 4 REPAIR GRASS AREAS, TRIM SHRUBS, PROPERLY DRAIN BETWEEN WALKS AND BUILDING.
- 5 THE CONCRETE STEPS AT THE SOUTHEAST CORNER AT THE STREET HAVE SETTLED AND SEVERAL SECTIONS OF CONCRETE WALKS HAVE SETTLED AND ALL NEED TO BE REPAIRED.
- 6 THE REAR HANDICAP RAMP IS NOT TO CODE AND NEEDS TO BE REBUILT.
- 7 TWO HOSE BIBBS ARE LEAKING AND NEED TO BE REPAIRED.

The Ohio State University  
Department of Physical Facilities  
BUILDING AUDIT METHODOLOGY

1. BUILDING AUDIT PROGRAM OBJECTIVE

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

2. BUILDING AUDIT APPROACH

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

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

3. DATA ORGANIZATION

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

4. COST ESTIMATES

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

## ABBREVIATIONS

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

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

Worksheet

CALCULATION OF BUILDING COMPONENT PERCENTAGE OF TOTAL COST

ANIMAL SCIENCE #156

DATE:11/30/95

MEANS SQUARE FOOT COSTS

BUILDING SYSTEM	CLASS	LAB.	OFFICE	SUBJECT	% TOTAL
Foundations	2.85	8.61	2.14	6.50	10.22
Columns and Beams	7.70	4.73	6.33	6.30	9.91
Exterior Walls	1.63	2.94	4.56	4.50	7.08
Ext. Windows & Drs.	2.23	2.28	1.29	2.00	3.15
Roofing	1.47	3.01	0.97	3.00	4.72
Partitions & Doors	4.77	5.87	3.76	5.50	8.65
Wall Finishes	1.46	2.96	1.45	1.90	2.99
Floor Finishes	2.76	3.31	4.28	3.00	4.72
Ceilings & Finish	3.93	3.93	3.93	3.93	6.18
Conveying	0.92	0.00	2.04	1.10	1.73
Plumbing	4.54	12.10	1.19	7.50	11.79
Heating	4.80	4.80	4.80	4.80	7.55
Cooling & Vent.	5.51	5.51	3.70	5.51	8.66
Elec. Ser. & Dist.	0.95	0.56	0.73	0.95	1.49
Lighting & Power	6.39	5.50	5.88	5.50	8.65
Safety Standards	3.67	2.66	0.31	1.60	2.52
TOTAL	55.58	68.77	47.36	63.59	100.01

**Worksheet**

CALCULATION OF THE CONDITION VALUE MULTIPLIER

**ANIMAL SCIENCE #156**

**DATE:11/30/95**

	Expect Life	Age	Age Condition Value*	Perf Rate	Performance Condition Value**	Component Condition Value
Foundation	100	35	0.22	.95	0.63	0.85
Column & Beams	100	35	0.22	.95	0.63	0.85
Exterior Walls	100	35	0.22	.85	0.57	0.79
Windows & Doors	50	35	0.10	.85	0.57	0.67
Roofs	25	35	-0.13	.30	0.20	0.20
Partitions	50	35	0.10	.80	0.53	0.63
Wall Finishes	20	15	0.08	.80	0.53	0.61
Floor Finishes	50	35	0.10	.90	0.60	0.70
Ceiling & Finish	30	35	-0.06	.75	0.50	0.50
Conveying	50	35	0.10	.80	0.53	0.63
Plumbing	50	35	0.10	.85	0.57	0.67
Heating	50	35	0.10	.80	0.53	0.63
Cooling & Vent.	30	35	-0.06	.75	0.50	0.50
Electric Serv.	50	35	0.10	.85	0.57	0.67
Lighting & Power	50	35	0.10	.75	0.50	0.60
Safety Standards	50	35	0.10	.50	0.33	0.43

\* The age condition value is column (C-B) x 33.33%

\*\* The performance condition value is column E x 67.77%.