

# **FACILITY AUDIT REPORT**

## **HOWLETT GREENHOUSES**

**#297**

**April 30, 1999**



**HOWLETT GREENHOUSES**

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Department of Physical Facilities  
Division of Resource Management

# HOWLETT GREENHOUSES

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## EXECUTIVE SUMMARY FOR HOWLETT GREENHOUSES

The Howlett Greenhouse and the adjoining headhouse were built in 1969. There were four freestanding polyhouses built to the west of the greenhouse. Three additional polyhouses have been added in the same location. The greenhouse and the original polyhouses were built at the same time as Howlett Hall. In 1996, the greenhouse underwent an extensive renovation. New glass panels were installed in the west section of the greenhouse, new lexan panels were installed in the east section of the greenhouse and the evaporative cooling systems were replaced. New covers were installed over the utility trenches in the greenhouse. The headhouse received a new unisex, accessible restroom. The major deficiencies to be addressed are the installation of a new roof over the headhouse, repairing the concrete roof over the adjoining equipment room and replacing the hot water pumps for the greenhouse.

### PROPOSED MAINTENANCE PROJECTS

#### HOWLETT GREENHOUSES #297

<b>A. Corrective Maintenance Projects:</b>		<b>Control No</b>
<i>1. Repair the concrete over the mechanical room and install a coal tar roof.</i>	\$ 16,000	1068
<b>Sub Total</b>	<b>\$ 16,000</b>	
<b>B. Building Improvement/Addition Projects:</b>		
<i>1. Install exhaust fan basement area.</i>	\$ 12,000	5766
<b>Sub Total</b>	<b>\$ 12,000</b>	
<b>C. Building Component Replacements expected within the next 5-10 years:</b>		
<i>1. Replace the built-up roof over the headhouse.</i>	\$ 78,000	5767
<i>2. Replace the greenhouse hot water pumps and controls.</i>	\$ 65,000	5768
<i>3. Replace the 30 year old AHU and the controls.</i>	\$ 52,000	5769
<b>Sub Total</b>	<b>\$ 195,000</b>	
<b>Total Cost for all Projects</b>	<b>\$ 223,000</b>	

**RENOVATION PROJECTS IN PROGRESS OR COMPLETED  
SINCE LAST AUDIT**

**HOWLETT GREENHOUSES #297**

<b>Projects:</b>	<b>Budget</b>	<b>Project #</b>
<i>Remove three boilers.</i>	\$ 27,037	9986-5028
<i>Renovate Greenhouse and Headhouse.</i>	\$ 1,209,393	315-93-107
<i>Roof repair.</i>	\$ 9,000	9986-5090

## GENERAL BUILDING INFORMATION

### HOWLETT GREENHOUSES #297

BUILDING ADDRESS: *680 THARP ST.*

GROSS SQ. FT.: *45,999*

NET ASSIGNABLE SQ. FT.: *43,388*

MECHANICAL/CUSTODIAL AREA SQ. FT.: *7,077*

YEAR OF CONSTRUCTION: *1969*

YEAR OF LAST RENOVATION: *1996*

NUMBER OF STORIES/BASEMENT: *One story with basement.*

AIR CONDITIONING (Percentage): *60% of Headhouse*

CURRENT USE: *Horticultural greenhouse and one classroom.*

TYPE OF CONSTRUCTION: *Concrete block and glass/lexan panels.*

ESTIMATED REPLACEMENT COST: *\$ 5,251,000 \**

COST PER GROSS SQUARE FEET: *\$114.15*

WHEELCHAIR ACCESSIBILITY: *Headhouse is at ground level with an automatic door at the west entrance.*

OVERALL BUILDING CONDITION: *Satisfactory \*\**

NUMBER OF EXIT STAIRWAYS: *None*

NUMBER OF OTHER EXITS: *Seven(7)*

AREA SHOP RESPONSIBILITY: *Kinnear Road Shop*

\* *Replacement Cost assigned January 1999 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

### HOWLETT GREENHOUSES #297

#### HEATING:

Source – *Power plant*

Type Heating System – *Hot water*

Main Steam Feed (Line size, valve location) – *2” high pressure, room G005M*

Building Htg. Water (line size, valve location) – *3”, room G005M*

**VENTILATION SYSTEM:** *one ac system and forty nine exhaust fans*

#### COOLING:

BLDG. % *60*, Chiller: *two-300tons, R22, Screw, Trane*

Window Units: *none*, Thru-the-wall: *none*, Direct expansion units: *none*

**HVAC CONTROL SYSTEM:** *Electric, electronic and pneumatic controls*

#### ELECTRIC:

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

201/306    1,500    13,200/ 208/120    *Room G005M*

201/306    1,500    13,200/ 408/277    *Room G005M*

#### PLUMBING SERVICES:

Water (size, valve location) – *4” room G121M*

Gas (size, valve location) – *4” room G013*

Domestic Hot Water (size, valve location) – *4” room G005M*

Compressed Air (size, location) – *2” room G013M*

#### SEWERS:

Storm – *2 @ 3”, 18 @ 4”, 4 @ 5”* Sanitary – *1 @ 5”, 3 @ 6”* Combined  
Storm/San- *none*

#### METERS:

Gas (size, location) – *4” room 121M*

Water (size, location) – *6” room G005M*

Electric (location) – *none*

#### ALARM SYSTEMS:

Fire Alarm, Main Panel Room *G013M*, Remote Panel Location *none*

Fire Pump *none* GPM,  Riser, Pump Location, Room

Sprinkler, Valve Location Room,  100%,  Partial,  Limited

Horns/Strobes,  Bells in  Halls,  Rooms

Other Alarms – *none*

**ELEVATORS:**

Number-*One*, Type (passenger, freight)- *Freight*  
Manufacturer – *Otis*, Size- *4,000#*, *98” x 100”*

**EMERGENCY GENERATOR:**

Size- *375 KVA* Location- *room G013M*

**ASBESTOS SURVEY (1986):** *Pipe insulation in room G005M was found to contain asbestos materials.*

# HOWLETT GREENHOUSES NARRATIVE

## HISTORY

The Howlett Greenhouse and the adjoining headhouse were built in 1969. There were four free standing polyhouses built to the west of the greenhouse. Three additional polyhouses have been added in the same location. The greenhouse and the original polyhouses were built at the same time as Howlett Hall. In 1996, the greenhouse underwent an extensive renovation. New glass panels were installed in the west section of the greenhouse, new lexan panels were installed in the east section of the greenhouse and the evaporating system was replaced. New covers were installed over the utility trenches in the greenhouse. The headhouse received a new unisex, accessible restroom. The headhouse has one classroom and one office for the staff.

The building occupants and the maintenance staff have identified a few items that need to be addressed to keep the building functioning as designed. The built-up roof of the headhouse is 30 years old, has a great deal of alligating and needs to be replaced. The concrete roof over the mechanical room is leaking and should be repaired. One of the hot water pumps for the greenhouse is leaking and the backup pump is inoperable. Both pumps should be replaced. These main items as well as some smaller projects will restore Howlett Greenhouses to its original functioning condition.

A review of the work orders indicated that there are a normal number of maintenance calls to the building. The most frequent calls relate to restroom problems and problems related to the heat pumps.

Occupancy of the building, reported by The Office of University Resource Planning & Institutional Analysis, in the C-1 Building Space Assignment Report, dated January, 1999, shows a Net Assignable Area of 43,388 SF, is as follows; Research 67%, Instructional 4%, Circulation 13%, Mechanical 15%, and Custodial/Toilet 1%.

## PRIMARY SYSTEMS

The structural components consist of concrete spread footers with poured in place concrete basement walls up to the first floor. The concrete walls support the reinforced concrete first floor that has one way concrete joists. These form the basic skeletal components of this one-story building with basement.

There are no signs of settlement or movement of the foundation walls of the headhouse. There are some vertical cracks at the four corners of the greenhouse structure. These cracks need to be sealed and the concrete walls need to be anchored to prevent further separation

Concrete blocks back the exterior veneer brick walls. The walls have cracks in several places that need to be sealed. There are no enhancing features in these walls and they extend above the roofline to form low parapet walls. Openings for windows and entrance doors are accented with brick or steel lintels that form the head, jambs and sills.

The windows are single glazed, awning type and aluminum windows. The windows are original but are in good condition. The window in room G133 has a latch missing that needs to be replaced to allow the window to be locked shut.

Three single metal exterior doors have rusted out and the doors and the frames need to be replaced. The latch on the east entrance to the greenhouse will not release the locking mechanism and should be repaired. The knob on the south door to the greenhouse does not turn and should be repaired or replaced. The garage door at the south entrance is difficult to lock and difficult to open. The latch that locks the door should be replaced as well as some of the rollers. The west entrance, which is at grade, has automatic doors that give access to the first floor and the elevator.

There is a built-up roof over the headhouse portion of the building with a wood fiber deck that is supported by steel trusses. The roof is thirty years old and shows a substantial degree of blistering. The roof over room G121M has completely deteriorated. These roofs should be replaced. One of the lightning rods is disconnected from the roof and needs to be reattached. The metal framing for the canopy roof, on the west side of the building, should be removed. There is a roof leak at the west entrance to the greenhouse. This leak should be repaired at once, to prevent further deterioration of the fiber board roof deck. The roof of the greenhouse consists of one half glass and one half lexan panels. The greenhouse roof was replaced in 1996 and is in good condition. There is a concrete roof over the mechanical room, which also forms the pad for the cooling tower. This roof has developed some leaks and allows moisture to penetrate into the mechanical room. This roof should be repaired so that moisture does not damage the equipment located in room G005M.

## **INTERIOR SYSTEMS**

The interior partitions consist of concrete blocks in the headhouse. The greenhouse has glass or lexan partitions. Because of the recent renovations, the partitions are in good condition.

The doors in the headhouse are wood doors in metal frames except to rooms G145, G149 and G101 that are metal doors in metal frames. All the doors in the greenhouse are metal doors in metal frames. All the doors in the greenhouse have glazing while none of the doors in the headhouse have glazing. The doors are in good condition.

The wall finishes are paint throughout the headhouse and are in good condition. The greenhouse has glass or lexan that require no finish.

The headhouse has vinyl tile floors in the entrance area, the corridor and in the office space. The restrooms have ceramic tile floors. The rest of the building has concrete floors. The concrete floor in room G101 has some holes that need to be patched. The rest of the floors are in good condition.

The ceilings in the building are exposed except for the classroom and the office. These two areas have suspended ceilings with mineral fiber board. The concrete ceiling in the basement has a paint finish. Most of the headhouse ceiling is the wood fiber deck that supports the roof. The ceilings are in good condition.

## **SERVICE SYSTEMS**

Most of the major service systems, sanitary and storm drainage and plumbing all appeared to be in good condition and functioning well at this time.

There is one freight elevator that gives access to the basement. The elevator is in good condition and meets fire codes.

A 4" line in room G005M supplies domestic cold water. There are hose bibs in every room in the greenhouse that supply water for the portable soaking systems. Several faucets in the greenhouse are leaking and should be repaired or replaced. There are two eyewashes in the greenhouse and they are in working order. The restroom fixtures are in good condition. Both men and women restrooms are equipped with showers. A converter located in the mechanical room G005M supplies domestic hot water.

A 2" high-pressure steam line from the power plant supplies steam to a converter located in room G005M. Hot water supplies the finned tube radiator system that supplies perimeter heat to the headhouse and the greenhouse. The supply lines for the hot water to the greenhouse were replaced in 1991 and the system seems to be functioning adequately. The one concern expressed by the building coordinator regarding the heating system related to the hot water heating pumps. One of the pumps is leaking and the back-up pump is inoperable. A project is suggested to replace these two pumps.

About 60% of the headhouse is air conditioned by an a/c unit located in the basement. Chilled water for the cooling coils comes from the Trane chiller located in room G005M. The greenhouse has an evaporating system to cool and humidify the various plant rooms. The evaporative cooling system allows water to flow over a wood fiber material and air is pulled through this moist material to cool and humidify. The evaporative system was replaced during the 1996 renovation. The cooling capacity of the two, 300 tons, screw chillers is adequate to provide chilled

water for not only the greenhouse, but also for Howlett Hall and Kottman Hall. The cooling and evaporative systems are working adequately. There are 49 exhaust and 45 recirculating fans to provide ventilation for the greenhouse and to remove air from the restrooms and common areas. The greenhouse area also has louvers that open automatically to assist in controlling the temperature in the plant rooms. The exhaust fan next to the cooling tower vibrates excessively and needs to be repaired.

## **ELECTRIC**

Circuits number 201/306 feed one 1,500 KVA, 208/120 volt transformer and one 1,500 KVA, 480/277 volt transformer, located in room G005M. These transformers supply the electrical service to Howlett Greenhouses and to Howlett Hall. Switchgear located in room G013M feeds the lighting and power distribution panels throughout the building. There is an outlet at room G176 that needs to be replaced. Panel sizes vary throughout the building depending on the load. At approximately 27 watts per square foot the building has an adequate power supply.

The building has 32-watt fluorescent tube throughout most of the headhouse, with 40-watt tubes in the classroom and the office area. There are incandescent lights in the greenhouse as well as high intensity fixtures in the plant rooms. The lighting is adequate for the building.

## **SAFETY STANDARDS**

Howlett Greenhouse is equipped with a manual fire alarm system consisting of pull stations that provide local fire annunciation from the panel in room G013M to bells located throughout the building. There are no wet standpipes in the building and water is provided by a fire hydrant on the south side of Tharp Road. There are no sprinklers in the building.

There are lighted exit signs with emergency exit lighting. There is an emergency generator located in room G013M.

An automatic door opener is installed at the west entrance of the building. This entrance gives access to the first floor and the freight elevator gives access to the basement.

## **ASBESTOS**

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment Program's report titled "Inventory of Friable Asbestos Containing Material in Buildings of the Ohio State University (Main and Branch Campuses) and Recommendations for Corrective Action", prepared by PEI Associates and dated Sept. 1986 located asbestos in the pipe insulation in the mechanical room and in the heat exchanger insulation.

## **PERIMETER**

The concrete sidewalk on the north side of the building has broken panels that need to be replaced. The ivy on the west side wall needs to be removed. The metal frame of the canopy at the west entrance should be removed.

Entrances to the building are well lighted and street lighting appears to be properly distributed. Signage with the building address is located along Tharp Road.

## **Minor Maintenance Projects (Less Than \$5000) INTERIOR**

### **HOWLETT GREENHOUSES #297 APRIL 30, 1999**

- 1 Replace latch to window in room G133.  
Customer Request # 10482
- 2 Patch concrete floor in room G101.  
Customer Request # 10483
- 3 Repair leaking faucets in the greenhouse.  
Customer Request # 10484
- 4 Repair the electric outlet in greenhouse corridor at room G176.  
Customer Request # 10485

## **Minor Maintenance Projects (Less Than \$5000) EXTERIOR**

### **HOWLETT GREENHOUSES #297 APRIL 30, 1999**

- 1 Fill in concrete cracks at the four corners of the greenhouse.  
Customer Request # 10486
- 2 Seal cracks in the brick veneer on the north and east side of headhouse.  
Customer Request # 10487
- 3 Replace three single metal exterior doors and the frames.  
Customer Request # 10489
- 4 Repair the locking latch on the east entrance door to the greenhouse.  
Customer Request # 10490
- 5 Repair the door knob of the south entrance door to the greenhouse.  
Customer Request # 10490
- 6 Repair the locking latch and rollers of the garage door.  
Customer Request # 10490
- 7 Reconnect a lightning rod on the east side of the headhouse roof.  
Customer Request # 10492
- 8 Repair a roof leak at the west greenhouse entrance.  
Customer Request # 10493
- 9 Repair lexan panel at room 170.  
Customer Request # 10494
- 10 Repair the exhaust fan next to the cooling tower.  
Customer Request # 10495
- 11 Replace concrete panels in the north sidewalk.  
Customer Request # 10496
- 12 Remove the metal frame of the canopy at the west entrance.  
Customer Request # 10497
- 13 Remove the ivy from the west wall.  
Customer Request # 10498

## BUILDING EVALUATION SUMMARY

### BUILDING INFORMATION

Fac # 297, Facility Name: **HOWLETT GREENHOUSES**, Date: 4/30/99

Inspector: AJR, Year Constructed: 1969, Gross Sq. Ft: 45,999,

Net Sq. Ft: 43,388, Replacement Cost: \$ 5,251,000 \*

### COMPONENT RATING

COMPONENT	BUILDING COMPONENT PERCENTAGE OF TOTAL COST **	BUILDING COMPONENT REPLACEMENT COST	BUILDING COMPONENT CONDITION VALUE MULTIPLIER	BUILDING COMPONENT CURRENT VALUE
Foundation	12.25	643,300	83	536,132
Columns and Beams	6.73	353,404	83	294,530
Exterior Walls	4.18	219,663	82	181,118
Ext. Windows & Doors	3.17	166,615	73	122,194
Roofing & Flashing	4.28	224,893	52	116,204
Partitions & Doors	8.35	438,580	77	336,272
Wall Finishes	4.21	221,158	85	188,002
Floor Finishes	4.71	247,308	67	164,885
Ceilings & Finishes	5.59	293,632	65	190,874
Conveying	2.21	115,809	73	84,933
Plumbing	17.23	904,804	83	754,073
Heating	6.83	358,634	70	251,064
Cooling and Vent.	7.84	411,682	87	358,163
Elect. Serv. & Dist.	0.80	41,841	70	29,291
Lighting and Power	7.83	410,935	70	287,677
Safety Standards	3.78	198,743	57	112,627
<b>TOTALS</b>	<b>100.00</b>	<b>5,251,000</b>	<b>76</b>	<b>\$4,008,038</b>

### BUILDING RATING SUMMARY

Overall Building Rating = **76%**

\* Replacement Cost assigned January 1999 by The Office of University Resource Planning & Institutional Analysis without the furnishings and fixed equipment allocation.

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

**FOUNDATIONS**

FAC #:297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>643,300</u>) x ( <u>83%</u>) = \$ <u>536,132</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

**SYSTEM DESCRIPTION**

**Sat Att**

- a. Footings:**
- [ X ] [ ] Interior Footings/Piers .....
- [ ] [ ] Interior Footings/Bearing Walls .....
- [ X ] [ ] Perimeter Footings.....
- [ ] [ ] Grade Beams .....
- [ ] [ ] Piles .....
- [ ] [ ] Caissons.....
- b. Foundation Wall Materials:**
- [ X ] [ ] Concrete Cast-in-place ..... *to the first floor*
- [ ] [ ] Concrete Block .....
- [ ] [ ] Stone .....
- [ ] [ ] Brick .....
- [ ] [ ] Other.....
- c. Waterproofing and Underdrain:**
- [ ] [ ] Coating .....
- [ X ] [ ] Membrane.....
- [ ] [ ] Board .....
- [ X ] [ ] Drain Tile..... *at the perimeter*
- d. Slab on Grade:**
- [ ] [ ] Plain.....
- [ ] [ ] Reinforced .....
- e. Ground/Basement Floor Slab:**
- [ ] [ ] Plain.....
- [ X ] [ ] Reinforced .....
- f. Special Substructures:**
- [ ] [ ] .....

**COMMENTS:**

*The foundation is in good condition.*

## COLUMNS AND BEAMS

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

**COMPONENT RATING: (\$ 353,404) x (83%) = \$ 294,530**

Possible	Condition	Component
Value	Value Multiplier	Value

**SYSTEM DESCRIPTION**

Sat    Att

**a. Columns and Beams:**

- Reinforced Concrete ..... *in the mechanical room*
- Precast Concrete.....
- Steel .....
- Fireproofing .....
- Wood.....
- Other .....

**b. Floor Joists:**

- Concrete .....
- Steel Trusses .....
- Wood .....
- Other .....

**d. Floor Decks:**

- Concrete Slab.....
- Precast Slab.....
- Metal Deck w/concrete fill.....
- Wood .....

**e. Roof Joists:**

- Concrete .....
- Steel ..... *in the Headhouse*
- Wood .....

**f. Pitched Roof System:**

- Pitch [ ]3/12, [ ]6/12, [ ]10/12.....
- Dormers .....
- Steel Beams and Purlins .....
- Wood Rafters .....
- Fireproofing .....
- Underlayment.....
- Insulation.....
- Ventilation .....
- Other .....

**g. Flat Roof System:**

- Slope ..... *1/4"/foot*
- Concrete Deck.....
- Precast Slab.....

- Metal Deck w/concrete fill .....
- Metal Deck w/insulation.....
- Wood Fiber Deck .....3”
- Insulation .....
- Other.....

**COMMENTS:**

*There were no problems noted with the columns and beams.*

## EXTERIOR WALLS

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>219,663</u>) x (<u>82%</u>) = \$ <u>181,118</u></b>
<div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Walls:**

- Concrete CIP PRECAST .....*at the Greenhouse*
- Concrete Block/brick .....
- Brick MASONRY VENEER.....
- Veneer .....
- Window/Curtainwall.....
- Metal Siding.....
- Other ..... *Lexan*

**b. Wall Lintels Over Openings:**

- Concrete PRECAST CIP.....
- Limestone.....
- Brick Masonry .....
- Steel .....
- Wood .....
- Other .....

**c. Wall Trim:**

- Limestone.....
- Brick.....
- Marble.....
- Wood.....
- Other .....

**d. Finishes:**

- Plain .....
- Stucco.....
- Paint .....
- Parging .....
- Exposed Aggregate .....
- Drivit.....
- Other .....

**e. Exterior Wall Backing System:**

- Concrete .....
- Concrete Block.....
- Brick Masonry.....
- Ceramic Glazed Clay Tiles .....
- Metal Studs .....

[ ] [ ] Wood Studs .....

**COMMENTS:**

*The exterior walls are generally in good condition except for a crack in the north wall of the cooling tower screen. The concrete corners of the greenhouse walls have cracked and need to be sealed. The walls of half the greenhouse are glass and the other half are lexan, an opaque plastic material. The greenhouse walls and roofs were replaced in the 1996 renovation. There is one loose lexan panel, on the eastside of room 170, that needs to be repaired.*

## EXTERIOR WINDOWS AND DOORS

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>166,615</u>) x (73%) = \$ <u>122,194</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="text-align: center; padding: 0 10px;">Possible</td> <td style="text-align: center; padding: 0 10px;">Condition</td> <td style="text-align: center; padding: 0 10px;">Component</td> </tr> <tr> <td style="text-align: center; padding: 0 10px;">Value</td> <td style="text-align: center; padding: 0 10px;">Value Multiplier</td> <td style="text-align: center; padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

### SYSTEM DESCRIPTION

Sat	Att	
		<b>a. Window materials:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Wood.....
<input type="checkbox"/>	<input type="checkbox"/>	Steel .....
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Alum .....
<input type="checkbox"/>	<input type="checkbox"/>	PVC.....
<input type="checkbox"/>	<input type="checkbox"/>	Other .....
		<b>b. Windows type &amp; number:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Double Hung.....
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Awning.....17
<input type="checkbox"/>	<input type="checkbox"/>	Casement.....
<input type="checkbox"/>	<input type="checkbox"/>	Pivoted .....
<input type="checkbox"/>	<input type="checkbox"/>	Sliding.....
<input type="checkbox"/>	<input type="checkbox"/>	Fixed .....
<input type="checkbox"/>	<input type="checkbox"/>	Other .....
		<b>c. Window glazing:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Single pane .....
<input type="checkbox"/>	<input type="checkbox"/>	Double pane .....
		<b>d. Window Wall and/or Store Front:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Store Front .....
<input type="checkbox"/>	<input type="checkbox"/>	Vestibule.....
<input type="checkbox"/>	<input type="checkbox"/>	Single pane.....
<input type="checkbox"/>	<input type="checkbox"/>	Double pane .....
<input type="checkbox"/>	<input type="checkbox"/>	Other .....
		<b>e. Door Materials:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Wood.....
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Steel .....
<input type="checkbox"/>	<input type="checkbox"/>	Alum .....
<input type="checkbox"/>	<input type="checkbox"/>	Stainless Steel.....
		<b>f. Doors type &amp; number:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vestibule .....1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Double.....3
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Exit.....6
<input type="checkbox"/>	<input type="checkbox"/>	Stair Exit .....
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Garage.....1
<input type="checkbox"/>	<input type="checkbox"/>	Special.....

**g. Hardware:**

- Automatic opener ..... *at the west entrance*
- Push Bar Openers wt Closures .....
- Key Cards .....

**COMMENTS:**

*The walls and roof of the greenhouse are glass or lexan panels. The doorknob on the south entrance to the greenhouse will not turn and needs to be repaired. The latch to the east greenhouse door will not release the lock and needs to be repaired. The locking latch and some rollers on the garage door need to be replaced. The frame to the south entrance door to the headhouse needs to be adjusted to allow the door to close completely. The north door and frame to the chiller enclosure are rusted and need to be replaced.*

# ROOFING

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>224,893</u>) x ( <u>52%</u>) = \$ <u>116,204</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Roof Covering:**

- [ ] [ ] Built-up [ ]asphalt [ ]Coal Tar [ ]Modified .....
- [ ] [X] Built-up w/gravel [ ]asphalt [X]Coal Tar ..... *6,960 SF*
- [ ] [ ] Asphalt Roll .....
- [ ] [ ] Asphalt Shingle.....
- [ ] [ ] Copper.....
- [ ] [ ] EPDM .....
- [X] [ ] Other ..... *GLASS 34,800 SF*

**b. Flashing:**

- [ ] [X] Materials: [ ]Cu [ ]Galv [X]Al [ ]EPDM [ ]SS [ ]PVC ....
- [ ] [X] Counter ..... *1,050 LF*
- [ ] [ ] Cap..... *1,050 LF*
- [ ] [ ] Reglet.....
- [ ] [ ] Valley & Ridge .....

**c. Gravel Stop & Edge Strips:**

- [ ] [ ] Type [ ]SS [ ]Galv [ ]Al [X]Cu [ ]PVC .....

**d. Drainage:**

- [ ] [ ] Gutters w/ Exterior Downspouts.....
- [ ] [ ] Scuppers w/o Exterior Downspouts .....
- [ ] [X] Drains w/ Interior Storm Drains .....
- [X] [ ] Emergency Overflow ..... *over edge*

**e. Parapets:**

- [ ] [ ] Concrete .....
- [X] [ ] Brick ..... *1,050 LF*
- [ ] [ ] Precast .....
- [ ] [ ] Other .....

**f. Parapet Caps:**

- [X] [ ] Metal [ ]SS [ ]Galv [X]Al [ ]Cu [ ]PVC ..... *1,050 LF*
- [ ] [ ] Tile .....
- [ ] [ ] Limestone .....
- [ ] [ ] Precast .....
- [ ] [ ] Other .....

**h. Roof accessories:**

- [ ] [X] Lightning Protection .....
- [ ] [ ] Roof Curbs.....

- [ ] [ ] Equipment Frames.....
- [ ] [ ] Pitch Pockets .....
- [ ] [ ] Other.....

**COMMENTS:**

*The roof over the headhouse was installed in 1969 and is in poor condition. There is ponding around the drains and one strainer is missing. The drains should be cleaned and the missing strainer should be replaced. There is a roof leak at the east entrance to the greenhouse. One lightning rod needs to be fastened in place. This leak should be repaired to prevent damage to the wood fiber deck. The entire built-up roof should be replaced in the next five years.*

## PARTITIONS AND DOORS

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>438,580</u>) x ( <u>77%</u>) = \$ <u>336,272</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Partition Framing:**

- Concrete Block.....
- Clay Tile Block.....
- Glazed Clay Tile Block.....
- Masonry .....
- Wood Stud .....
- Metal Stud.....
- Other .....

**b. Special partitions and Walls:**

- Demountable.....
- Toilet..... *metal*
- Screen Walls .....
- Glass.....
- Gate.....
- Other ..... *lexan panels in the greenhouse*

**c. Wall Material:**

- Plaster.....
- Drywall .....
- Glass.....
- Wood Paneling.....
- Composite Paneling .....
- Steel Panels .....
- Tile .....
- Other .....

**d. Interior Doors & Frames:**

- Met Door/Met Frame .....
- Wood Door/Wood Frame .....
- Wood Door/Metal Frame.....
- Glazing.....
- Roll-up .....
- Sliding.....
- Other .....

**e. Hardware:**

- [ ] Door Knobs Levers .....
- [ ] Door Closures .....
- [ ] Kick/Push Plates .....
- [ ] Security & Detection .....
- [ ] Automatic Openers..... *at the west entrance*
- [ ] Fire Door Magnets.....
- [ ] Other .....

**COMMENTS :**

*The headhouse has concrete block partitions and the greenhouse has glass and lexan partitions. The partitions and doors are in good condition. The timing on the automatic doors at the west entrance needs to be adjusted to allow more time for a person to enter.*

## WALL FINISHES

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>221,158</u>) x ( <u>85%</u>) = \$ <u>188,002</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat    Att**

**a. Wall Finishes:**

- |                                     |                          |                           |
|-------------------------------------|--------------------------|---------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Paint.....                |
| <input type="checkbox"/>            | <input type="checkbox"/> | Vinyl Wall Coverings..... |
| <input type="checkbox"/>            | <input type="checkbox"/> | Prefinished Paneling..... |
| <input type="checkbox"/>            | <input type="checkbox"/> | Cork.....                 |
| <input type="checkbox"/>            | <input type="checkbox"/> | Wallpaper .....           |
| <input type="checkbox"/>            | <input type="checkbox"/> | Ceramic Glazed Tile.....  |
| <input type="checkbox"/>            | <input type="checkbox"/> | Marble .....              |
| <input type="checkbox"/>            | <input type="checkbox"/> | Stone.....                |
| <input type="checkbox"/>            | <input type="checkbox"/> | Trim & Wainscot.....      |
| <input type="checkbox"/>            | <input type="checkbox"/> | Decoration .....          |
| <input type="checkbox"/>            | <input type="checkbox"/> | Glass .....               |
| <input type="checkbox"/>            | <input type="checkbox"/> | Other.....                |

**COMMENTS:**

*Wall finishes are in reasonably good condition. The west entrance and the stairwell leading to the basement have been repainted in the last few years.*

## FLOOR FINISHES

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>247,308</u>) ( <u>67%</u>) = \$ <u>164,885</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

Sat	Att	
		<b>a. Carpet:</b>
<input type="checkbox"/>	<input type="checkbox"/>	Rolled .....
<input type="checkbox"/>	<input type="checkbox"/>	Tile.....
		<b>b. Concrete Topping:</b>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Clear Sealant..... <i>all floors except office and classroom</i>
<input type="checkbox"/>	<input type="checkbox"/>	Antislip .....
<input type="checkbox"/>	<input type="checkbox"/>	Epoxy.....
		<b>c. Resilient:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vinyl Composition Tile..... <i>west entrance</i>
<input type="checkbox"/>	<input type="checkbox"/>	Vinyl/Plastic Tile.....
<input type="checkbox"/>	<input type="checkbox"/>	Asphalt Asbestos Tile.....
<input type="checkbox"/>	<input type="checkbox"/>	Linoleum Tile .....
<input type="checkbox"/>	<input type="checkbox"/>	Vinyl Roll .....
<input type="checkbox"/>	<input type="checkbox"/>	Rubber .....
<input type="checkbox"/>	<input type="checkbox"/>	Other .....
<input type="checkbox"/>	<input type="checkbox"/>	<b>d. Ceramic Tile</b> <input type="checkbox"/> Mosaic <input type="checkbox"/> Quarry <input type="checkbox"/> Pavers .....
<input type="checkbox"/>	<input type="checkbox"/>	<b>f. Masonry</b> <input type="checkbox"/> Marble <input type="checkbox"/> Granite <input type="checkbox"/> Slate <input type="checkbox"/> Brick.....
<input type="checkbox"/>	<input type="checkbox"/>	<b>g. Terrazzo</b> <input type="checkbox"/> Marble <input type="checkbox"/> Granite .....
<input type="checkbox"/>	<input type="checkbox"/>	<b>h. Wood</b> <input type="checkbox"/> Tiles <input type="checkbox"/> T&G Hardwood <input type="checkbox"/> Planking .....
<input type="checkbox"/>	<input type="checkbox"/>	<b>i. Pedestal</b> <input type="checkbox"/> Vinyl Tiles <input type="checkbox"/> Grills <input type="checkbox"/> Supply Air <input type="checkbox"/> Vent....
		<b>j. Base Molding:</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Vinyl.....
<input type="checkbox"/>	<input type="checkbox"/>	Wood .....
<input type="checkbox"/>	<input type="checkbox"/>	Terrazzo.....
<input type="checkbox"/>	<input type="checkbox"/>	Ceramic Tile .....
<input type="checkbox"/>	<input type="checkbox"/>	Masonry.....

**COMMENTS:**

*There are vinyl tiles at the west entrance, in the headhouse corridor, in the office and in the classroom. All the other floors in the headhouse and the greenhouse are concrete floors. There are some holes in the concrete floor in room G101 that need to be patched. The rest of the floors are in good condition.*

**CEILINGS AND FINISHES**

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>293,632</u>) x ( <u>65%</u>) = \$ <u>190,874</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

**SYSTEM DESCRIPTION**

**Sat Att**

**a. System Type:**

- Exposed.....*in all rooms except in office and classroom*
- Applied to Structure.....
- Suspended Steel Grid.....
- Suspended Aluminum Grid ..... *in office and classroom*
- Suspended Sealed Grid .....
- Suspended Concealed Spline .....

**b. Materials:**

- Drywall .....
- Plaster.....
- Mineral Fiberglas Board .....
- Fiberglas Board.....
- Metal Pan Tile.....
- Other .....

**c. Finishes:**

- Paint ..... *on exposed concrete*
- Prefinished Paint vinyl Fabric
- Other .....

**d. Openings & Inserts:**

- Air Distribution.....
- Lighting Fixtures.....
- Access Panels.....
- Sprinklers .....
- Smoke Detectors .....
- Speakers .....
- Skylights .....
- Other .....

**COMMENTS:**

*Most of the ceilings are exposed concrete with suspended ceilings in the office, classroom and the corridor of the headhouse. The ceilings are in fair condition.*

# CONVEYING

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING:</b> ( $\$ \underline{115,809}$ ) x ( $\underline{73\%}$ ) = $\$ \underline{84,933}$		
<small>Possible Value</small>	<small>Condition Value Multiplier</small>	<small>Component Value</small>

## SYSTEM DESCRIPTION

Sat Att

### a. Elevators:

- [ ] Number.....*one Otis*
- [ ] Type.....*freight*
- [ ] Speed..... *75 FPM*
- [ ] Capacity (lbs.)..... *4,000 Lbs.*
- [ ] Dimensions..... *100"x98"*
- [ ] Door Operation: Center  To Side .....
- [ ] Accessible Codes.....
- [ ] Fire Codes.....

### b. Elevators:

- [ ] Number.....
- [ ] Type.....
- [ ] Speed .....
- [ ] Capacity (lbs.).....
- [ ] Dimensions.....
- [ ] Door Operation: Center  To Side .....
- [ ] Accessible Codes.....
- [ ] Fire Codes.....

### c. Lifts and Hoists:

- [ ] Number.....
- [ ] Type.....

### d. Moving Stairs and Walks:

- [ ] Number.....
- [ ] Type.....

## COMMENTS:

*The elevator is 30 years old and is in good condition. The elevator opens vertically from the center.*

## MECHANICAL/PLUMBING

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>904,804</u>) x (<u>83%</u>) = \$ <u>754,073</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
--

### SYSTEM DESCRIPTION

**Sat Att**

**a. Services Available:**

- Cold Water ..... 4" DWS
- Backflow Valve .....
- Hot Water.....4" DHW
- Natural Gas .....4"
- Compressed Air .....
- Other .....

**b. Piping & Fittings:**

- Cast Iron.....
- Vitrified Clay .....
- Copper Pipe .....
- Copper Tubing .....
- Steel .....
- Galv. Steel .....
- Other .....

**c. Water Heaters:**

- Electric .....
- Steam Converter/Tank .....
- Steam Instantaneous.....
- Central Hot Water.....

**d. Drainage:**

- Storm Drains ..... 2 @ 3", 18 @ 4", 4 @ 5"
- Sanitary Drains..... 1 @ 5", 3 @ 6"
- Floor Drains .....
- Sump Pumps .....

**e. Fixtures: Number**

- Water Closets.....5
- Urinals .....2
- Lavatory Sinks .....5
- Kitchen Sinks .....
- Service Sinks .....2
- Showers.....2
- Electric Water Coolers .....1

- f. Sprinkler Systems:**
- Wet .....
- Dry.....
- Carbon Dioxide .....
- Halon .....
- g. Standpipe Systems:**
- Wet Dry .....
- Fire Hose Valves 2.5" 1.25" .....
- Hose Cabinets, Hoses Installed Removed .....

**COMMENTS:**

*The plumbing and the fixtures are original and seem to be functioning properly. There is no hot water available at the classroom sinks, but the occupants expressed no concerns over this shortcoming. One of the hot water recirculating pumps located in room G005M was not in working order and the second pump was corroded. It is recommended that these pumps be replaced.*

## MECHANICAL/HEATING

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>358,634</u>) x ( <u>70%</u>) = \$ <u>251,064</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

### SYSTEM DESCRIPTION

Sat    Att

**a. Heat Source:**

- Central Plant Steam .....2" high pressure
- Central Plant Hot Water.....

**b. System Type:**

- Steam .....
- Hot Water..... 3" from room G005M
- Warm Air .....

**c. Air Handling Units:**

- Multizone Preheat Heating Reheat .....
- VAV Dual Duct Preheat Heating Reheat.....
- Make-up Air Preheat Heating Reheat.....
- Variable Volume Air Preheat Heating Reheat.....
- Constant Volume Air Preheat Heating Reheat ....
- Other .....

**d. Air Filters:**

- Prefilter Multi DDAHU MUAHU VAVAHU CAV
- Bagfilter Multi DDAHU MUAHU VAVAHU CAV
- Other .....

**e. Space Equipment:**

- Radiators .....
- Convectors .....
- Unit Heaters .....
- Reheat Coils.....
- DD Boxes.....
- CAV Boxes .....
- 2-Pipe Fan Coil .....at entrance
- Other ..... finned tube in headhouse and greenhouse

**f. Control Type:**

- Pneu Electric DDC DDC Upgrade.....

**COMMENTS:**

*There were no complaints about the heating in the headhouse of the greenhouse. There was a concern about the heating hot water pumps and the recommended replacement of these pumps should address these concerns.*

## COOLING/VENTILATING

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>411,682</u>) x ( <u>87%</u>) = \$ <u>358,163</u></b>						
<table style="margin: auto; border: none;"> <tr> <td style="padding: 0 10px;">Possible</td> <td style="padding: 0 10px;">Condition</td> <td style="padding: 0 10px;">Component</td> </tr> <tr> <td style="padding: 0 10px;">Value</td> <td style="padding: 0 10px;">Value Multiplier</td> <td style="padding: 0 10px;">Value</td> </tr> </table>	Possible	Condition	Component	Value	Value Multiplier	Value
Possible	Condition	Component				
Value	Value Multiplier	Value				

**SYSTEM DESCRIPTION**

**Sat Att**

- a. System/Capacity:**
  - [ ] Water .....
  - [ ] DX .....
- b. Chillers Capacity/Year/Refrigerant/Manufacturer:**
  - [ ] Centrifugal .....
  - [ ] Reciprocating.....
  - [ ] Absorption .....
  - [ ] Screw ..... 2 @ 300 tons each, 1996, R22, Trane
- c. Condenser Side:**
  - [ ] Type/Capacity CW DX ..... 600 Tons
- d. Air Handling Units:**
  - [ ] Multizone CW DX HUMD.....
  - [ ] Dual Duct CW DX HUMD.....
  - [ ] Make-up Air CW DX HUMD.....
  - [ ] Variable Volume CW DX HUMD.....
  - [ ] Constant Volume CW DX HUMD .....
  - [ ] Other.....
- e. Additional Air Filters:**
  - [ ] Postfilter Multi DDAHU MUAHU VAVAHU CAV
  - [ ] Other HEPA BAG CARTRIDGE CHARCOAL
- f. Direct Expansion: Number**
  - [ ] Window units .....
  - [ ] Thru-the-wall.....
  - [ ] Single zone .....
  - [ ] Other .....
- g. Distribution Boxes:**
  - [ ] VAV FC REHEAT .....
  - [ ] CAV FC REHEAT.....
  - [ ] DUAL DUCT FC REHEAT .....
- h. Special Systems:**
  - [ ] Type.....
  - [ ] Capacity.....
- i. Control Systems:**
  - [ ] Pneu Electric DDC DDC Upgrade.....

**j. Fans:**

- Exhaust equipment ..... 49 Exhaust fans
- Recirculating..... 45 Recirculating fans

**COMMENTS:**

*The Trane chillers were installed in 1996 to provide cooling for the Howlett Hall Headhouse, Howlett Hall and Kottman Hall. There was adequate cooling capacity for the building. The fan in room 169 was not working and needs to be repaired. There are several louvers in the Greenhouse that were inoperable and need to be repaired.*

## ELECTRICAL SERVICE AND DISTRIBUTION

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>41,841</u>) x ( <u>70%</u>) = \$ <u>29,291</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

**SYSTEM DESCRIPTION**

**a. Service:**

Substation:  Buckeye,  McCracken Power Plant  AEP

Primary Voltage:  13,200 Volts,  Volts

Switch Gear Circuit No.: 201/306

Transformer:

Manufacture	Type	KVA	Secondary/Voltages	Location
<i>General Electric</i>		<i>1,500</i>	<i>208/120</i>	<i>Room G005M</i>
<i>General Electric</i>		<i>1,500</i>	<i>480/277</i>	<i>Room G005M</i>

**b. Distribution System:**

1. Motor Control Center (MCC) Room *G005M*  
 Panelboard  Fused,  Circuit Breakers  
 Voltage  480/3,  277/3,  208/3,  240/1  
 Amperage  1200A,  1000A,  600A,  400A,  200A
2. Lighting Room *G005M*  
 Panelboard  Fused,  Circuit Breakers  
 Voltage  480/3,  277/3,  208/3,  240/1  
 Amperage  1000A,  400A,  250A,  200A,  150A,  100A
3. Building Power Room *G005M*  
 Panelboard  Fused,  Circuit Breakers  
 Voltage  480/3,  277/3,  208/3,  240/1  
 Amperage  800A,  400A,  250A,  200A,  150A,  100A

**c. Conduit and wire:**

Conduit  Steel,  Aluminum,  PVC,  Flexible  
 Conductor  Copper,  Aluminum,  MIT  
 Wire:  PVC Cover,  Romex,  Armored Cable(BX)

**d. Emergency System:**

Battery backup Room  
 Emergency Panel Room  
 UPS Room

**e. Emergency Generator:** 375 KVA, in room *G013M*

**COMMENTS:**

*The electrical distribution system is original, but at 27 watts per square foot, the system seems to be adequate for the building.*

## ELECTRICAL LIGHTING AND POWER

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

<b>COMPONENT RATING: (\$ <u>410,935</u>) x ( <u>70%</u>) = \$ <u>287,677</u></b> <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Possible Value</span> <span>Condition Value Multiplier</span> <span>Component Value</span> </div>
---

**SYSTEM DESCRIPTION**

**Sat Att**

**a. Lighting (lamp type):**

- Fluor 40 watt..... *in the office and classroom*
- Fluor 32 watt.....*in most of the building*
- Fluor Can .....
- Incandescent .....
- HID Mercury HPS Metal Halide .....
- Low Voltage (12V).....
- Other ..... *HID Sodium in the greenhouse*

**b. Lighting Levels**

- Halls.....
- Rooms.....
- Mechanical Rooms .....

**c. Fixture Condition**

- Fixtures .....
- Bulbs .....
- Fixture Lens .....

**d. Receptacles & Switches:**

- Wall Outlet 20A.....
- GFC Breakers .....
- Switches.....
- Cover Plates .....

**c. Special:**

- Lightning Protection .....
- Communication Clock Public Address Bells.....
- Alarm Fire Security .....
- Telecommunication  Phones Data Cable TV.....
- Data Systems.....
- Fiber Optics.....

**COMMENTS:**

*The building has 32-watt bulbs throughout with 40-watt bulbs in the office and the classroom. There is a wall outlet at room G176, of the greenhouse, that has shorted out and needs to be replaced.*



[ ] **f. Lightning Protection**

**COMMENTS:**

*Exit lighting has been installed at exits. There are no sprinklers in the building.  
There is a 375 KVA emergency generator in room G013M.*

# BUILDING PERIMETER EVALUATION

FAC #: 297

DATE: 4/30/99

INSPECTOR: AJR

## SYSTEM DESCRIPTION

Sat Att

### a. Building Access:

- |                                     |                                     |                        |
|-------------------------------------|-------------------------------------|------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Driveway .....         |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Loading Dock .....     |
|                                     |                                     | Sidewalks.....         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Front..... <i>west</i> |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Side..... <i>north</i> |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Rear .....             |
|                                     |                                     | Steps .....            |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Front.....             |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Side.....              |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Rear .....             |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Ramp .....             |

### b. Lawn and Landscaping:

- |                                     |                          |                          |
|-------------------------------------|--------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Lawn .....               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Shrubs.....              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Trees .....              |
| <input type="checkbox"/>            | <input type="checkbox"/> | Undesirable Insect ..... |
| <input type="checkbox"/>            | <input type="checkbox"/> | Bedding Material .....   |
| <input type="checkbox"/>            | <input type="checkbox"/> | Watering System.....     |

### c. General Site Information:

- |                                     |                                     |                             |
|-------------------------------------|-------------------------------------|-----------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Signage .....               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Address Identification..... |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Security Lights.....        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Street Lights.....          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Drainage .....              |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Storm Drains.....           |

## COMMENTS:

*The concrete sidewalk on the north side has cracked and sunken panels that need to be repaired. There is a great deal of ivy on the west side that should be removed. There is a storm drain between the headhouse and the greenhouse that is clogged and needs to be cleaned.*

The Ohio State University  
Department of Physical Facilities  
**BUILDING AUDIT METHODOLOGY**

**1. BUILDING AUDIT PROGRAM OBJECTIVE**

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

**2. BUILDING AUDIT APPROACH**

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

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

**3. DATA ORGANIZATION**

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

**4. COST ESTIMATES**

Costs are for budgeting purposes only and are based on The Means Standard Construction Cost data, auditor experience, industry sources and OSU project cost data. Costs are reported current to the year of the audit. The building component values assigned in the "Building Evaluation" forms are not cost estimates. These values are calculated from the replacement cost provided by The Office of 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 State of Ohio Division of Factory and Building Inspection at the time of construction approved the buildings inspected. The recommendations listed in the reports are not an attempt to bring these existing buildings up to present day code standards. Rather, the intent is to eliminate obvious problems and to upgrade the buildings in a reasonable manner in regard to occupant safety.
- (5) Cost estimates are in current year dollars and include contractor mark-ups, construction administration costs, and architectural/engineering costs where applicable. Escalation factors must be applied for future work. Combining of projects should serve to decrease costs. These estimates are strictly for purposes of budgeting, and final pricing will be required when the specific scope of work for the project is defined.
- (6) The building inspections are defined to include the following:
  - (a) Includes general repainting and redecorating, wholesale replacement of building and system components on-going maintenance, replacement and renovation projects are not included.
  - (b) Includes exterior building walls and attached items.
  - (c) Includes the first step up at all entries. Ramps outside the buildings are included; the steps and walks up to the ramps are not included.
  - (d) Blinds, drapes, light bulbs, and movable furniture are not included.
  - (e) Fixed equipment inside the buildings that is installed and maintained by a specific academic department or using agency is not included.
  - (f) Utility lines supplying the buildings are not included.
  - (g) The program needs of the using department are assumed to be satisfied. No consideration has been given to anticipate any changes in current occupant space needs.

## ABBREVIATIONS

A/C .....	AIR CONDITIONING
AHU .....	AIR HANDLING UNIT
ATT .....	ATTENTION
BLDG .....	BUILDING
BUR.....	BUILT UP ROOF
COND.....	CONDENSATE WATER
CAV .....	CONSTANT AIR VOLUME
DDAHU .....	DUAL DUCT AIR HANDLING UNIT
DDHV .....	DUAL DUCT HIGH VELOCITY
DHWH .....	DOMESTIC HOT WATER HEATER
DHWR.....	DOMESTIC HOT WATER RETURN
DHWS .....	DOMESTIC HOT WATER SUPPLY
DHWT.....	DOMESTIC HOT WATER TANK
DX .....	DIRECT EXPANSION AIR CONDITIONER
EWC .....	ELECTRIC WATER COOLER
FPM.....	FEET PER MINUTE
GPM .....	GALLONS PER MINUTE
HID .....	HIGH INTENSITY DISCHARGE LIGHT
HPS .....	HIGH PRESSURE STEAM (125 PSI)
HVAC.....	HEATING, VENTILATING AND AIR CONDITIONING
KV .....	KILOVOLTS
KVA .....	KILOVOLTS AMPS
KW .....	KILOWATTS
LC.....	LIQUID COOLED
LF .....	LINEAL FEET
LPS .....	LOW PRESSURE STEAM (15 PSI)
MBH.....	THOUSAND BTU PER HOUR
MCC .....	MOTOR CONTROL PANEL
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