FACILITY AUDIT REPORT

FONTANA LABORATORY
#151

NOVEMBER 20, 1991

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

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GENERAL BUILDING INFORMATION

FONTANA LABORATORY #151

BUILDING ADDRESS: 116 W. 19TH AVENUE

GROSS SQ. FT.: 32,604

NET ASSIGNABLE SQ. FT.: 20,688

MECHANICAL/CUSTODIAL AREA SQ. FT.: 3,495

YEAR OF CONSTRUCTION: 1964

YEAR OF LAST RENOVATION: N/A

NUMBER OF STORIES/BASEMENT: FIVE (5) STORIES PLUS A BASEMENT

AIR CONDITIONING (Percentage): 60 %

CURRENT USE: MATERIALS SCIENCE AND ENGINEERING OFFICES & LABORATORIES

TYPE OF CONSTRUCTION: REINFORCED CONCRETE FRAME, MASONRY SKIN

ESTIMATED REPLACEMENT COST: $ 3,770,000 *

BUILDING APPEARANCE: FUNCTIONAL, BUSY, EFFICIENT, DIRTY

HANDICAPPED ACCESSIBILITY: NONE DIRECTLY FROM OUTSIDE. HANDICAPPED ACCESS IS FROM MacQUIGG LABORATORY. ELEVATORS ARE LOCATED IN KOFFOLT AND MacQUIGG.

OVERALL BUILDING CONDITION: SATISFACTORY **

NUMBER OF EXIT STAIRWAYS: ONE (1)

* Replacement Cost assigned January 1991 by the Office of Campus Planning and Space Utilization.
** Office of Campus Planning and Space Utilization C-1 Report Condition Code.

BUILDING SYSTEMS INFORMATION

FONTANA LABORATORY #151

HEATING:
Source CENTRAL POWER PLANT STEAM
Type Heating System HOT WATER
Steam (Line size, valve location) 4"SS, 2 1/2"SR, FROM KOFFOLT RM #3
Bldg Htg Water (line size, valve location) STEAM CONVERTER RM #539

VENTILATION SYSTEM:
DDHV SYSTEM THAT WAS MODIFIED TO VAV SYSTEM IN MID-1970S

COOLING:
Bldg % 60% Chillers TRANE 225 TON CENTRIFUGAL WATER CHILLER
Window Units ONE Thru-the-wall NONE Direct exp. units NONE

HVAC CONTROL SYSTEM: POWERS 600 DDC MONITORING SYSTEM

ELECTRIC: Source Size(KVA) Primary/Secondary Switchgear & Main Disc. (Rm)
1. SECONDARY FEED FROM KOFFOLT LABORATORY BUILDING #145
2.

PLUMBING:
Water (size, valve location) 6 INCH LINE IN ROOM #37
Gas (size, valve location) 1 1/4" LINE SUPPLIED FROM KOFFOLT LAB RM #3
Domestic Hot Water (size, valve location) 2"DHWS, 1"DHWR, FROM KOFFOLT RM 3
Compressed Air (size, location) SUPPLIED FROM KOFFOLT RM #03, 2 INCH LINE

SEWERS: Storm TWO 6" COMBINATION SEWER LINES Sanitary

METERS:
Gas (size, location) NONE
Water (size, location) NONE
Electric (size, location) NONE

ALARM SYSTEMS:
Fire Alarm MANUAL Panel Location RM 044M MacQUIGG LABORATORY
Fire Pump YES Pump Location RM 05OM, OFF OF FOUNDRY IN MacQUIGG
Sprinklers NONE Panel Location NONE
Other Alarms NONE

ELEVATORS:
Number NONE Type (passenger, freight)
Manufacturer _____ Size

EMERGENCY GENERATOR: Size NONE Location

KEY BOX LOCATION: NONE, USE KOFFOLT OR MacQUIGG BSM

ASBESTOS SURVEY (1986):
ASBESTOS CONTAINING MATERIALS WERE LOCATED IN THE HEAT EXCHANGER. INSULATION IN ROOM 539M AND THE EXHAUST FAN DUCTWORK USED SOME TRANSITE.

FONTANA LABORATORY NARRATIVE

GENERAL

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

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

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

HISTORY

Fontana Laboratory was constructed in 1964. It is connected to Koffolt Laboratory on the west and MacQuigg Laboratory on the north. It was originally built as an addition to Koffolt Laboratory. In 1967 MacQuigg Laboratory was constructed and the north end of Fontana was modified to connect it with MacQuigg. This resulted in four different buildings being connected and serving as one large building for Chemical Engineering, Metallurgical Engineering, Ceramic Engineering, and Geological Sciences. The buildings are still used primarily by these disciplines, but two of the engineering departments have been combined to form the Department of Materials Science and Engineering.

In an interview with Mr. Roland Farrar, building coordinator, it was learned that the occupants are satisfied with the performance of the building systems. A review of the work orders indicated that there are very few calls or problems with Fontana Laboratory.

The current building use is as follows: Classrooms 13%, Offices 10%, Laboratories 62%, and Mechanical 15%.

PRIMARY SYSTEMS

The foundations, substructure, and superstructure all appear to be in excellent condition. There are no signs of settlement or movement in the building foundation. The exterior closure consists of brick veneer, limestone panels and serpentine panels under the windows.

The single glazed aluminum frame windows were in good condition and when tested operated correctly. A project to replace these windows is proposed as a building improvement to provide better occupant comfort and to reduce the energy loss through the windows.

The BUR roofing was installed in 1964 when the building was constructed. There have been a few reported roof leaks in the past that were the result of failures in the roof cover. There were no current leaks observed. It is felt that this roof can be patched and maintained for the next few years, but that a major roof replacement will be needed in the near future.

SECONDARY SYSTEMS

The partitions, doors, walls, floors, and ceilings are in good condition. The corridors and stairwells are a grey glazed tile that is dirty, but in good condition. The fire doors from the stairwells need to be painted.

The light fixtures and registers are in need of a good cleaning. Some of the ceiling tiles are stained, particularly on the 4th floor underneath the mechanical room. The age and condition of the ceiling tile would justify a replacement of the acoustic tiles rather than a cleaning, but the suspended ceiling grid will need to be cleaned.

The floors are primarily vinyl tile that has been repaired with different colors of tile. Several of the laboratories have exposed concrete that has been sealed. All these surfaces are in fair condition.

SERVICE SYSTEMS

The major service systems all appear to be functioning according to their intended purpose. There is no elevator or restrooms in Fontana Laboratory. The plumbing system is limited to the departmental laboratories and the water coolers in the corridors. Two of the water coolers are currently out of service and parts are on order to repair them. The steam converter and heating hot water lines in the mechanical room have had their share of leaks, but they have been repaired.

The hot water heating system has convectors located on the outside walls and a dual duct high velocity ventilation system that has been modified. There were no observed deficiencies in the heating systems. The cooling system consists of 16 fan coil units and the DDHV ventilation system. The chiller is a Trane 225 ton centrifugal unit that was installed in 1964. It also supplies chilled water to Koffolt Laboratory. When asked, the building occupants responded very positively about the performance of the A/C system during the summer.

ELECTRICITY

The electrical service is a secondary feed from Koffolt. The switchgear is located in RM 032M of Koffolt Lab. The demand meter for these two buildings had registered a maximum demand of 324 KW or 33% of capacity.

A 600 amp distribution panel, located in room 037, supplies the building electricity except for the mechanical room. The mechanical room, #539M, also has two panels, one with 600 amps and the other with 1000 amps. The building appears to have adequate electrical service. Several of the panel boxes have surplus breakers that are not being utilized. The building has fluorescent light fixtures throughout.

SAFETY STANDARDS

Fontana Laboratory is equipped with a manual fire alarm system. Hose cabinets and portable fire extinguishers are located on each floor. There is a battery back-up emergency lighting system that is located in Rm 044 MacQuigg Laboratory.

The Ohio Board of Regents Facilities Asbestos Inspection and Risk Assessment

Program's report: Inventory of friable Asbestos-Containing Materials in Buildings of the Ohio State University (Main and Branch Campuses) and Recommendations for Corrective Action by PEI Associates, September 1986, identifies asbestos containing materials in the heat exchanger insulation in Rm 539M and the exhaust fan ductwork.

CONCLUSION

Fontana Laboratory is providing functional laboratory space for the Department of Materials Science and Engineering. The roof has exceeded its useful expected life and will have to be replaced in the near future. The electrical, plumbing, and heating system all appear to functioning satisfactorily.

The cooling system which cools only 60% of the building is supplied by a chiller that is 27 years old. The chiller is performing adequately, but as to how many years it will continue to perform is unknown. Consideration will have to be given to a complete redesign of the ventilation system in both Koffolt and Fontana when it is decided to provide 100% air conditioning for these two buildings. A new cooling tower was installed for Fontana Laboratory in the summer of 1991.

There are a very few corrective maintenance items listed on the proposed project list. The building is primarily in need of decorative repairs at this time. The finish surfaces could all use a good cleaning or painting. In general, the building occupants have not created excessive wear and tear on the building systems in Fontana Laboratory.

PROPOSED MAINTENANCE PROJECTS

Fontana Laboratory #151

A. Corrective Maintenance Projects:

1. Replacement of BUR roof covering and flashing (5,426 SF).....$ 35,570

2. Ceiling Tiles replaced in corridors.....$ 5,350

SUB-TOTAL = $ 40,920

B. Building Improvement/Addition Projects:

1. Replace the single glazed windows with double glazed thermal-break windows (116 windows).....$48,580

2. Replace wall mounted exterior lights with high pressure sodium wall pack.....$ 2,430

SUB-TOTAL = $ 51,010

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

1. Replacement of 27 year old centrifugal chiller.....$ 250,000

2. Replace fan coil units located in laboratories (16 units).....$ 30,500

SUB-TOTAL = $ 280,500

Total Cost for all Projects = $ 372,430

MAINTENANCE PROJECTS
(Less than $5,000)

Fontana Laboratory #151

1. Repair exhaust fan switch on PM1-3394.

2. Repair water coolers on 2nd and 3rd floor (Work Order Issued).

3. Clean light fixtures & registers in corridors.

4. Clean glazed tile in the corridors and stairwell.

5. Paint fire doors in corridors.

6. Seal floor of penthouse with a concrete sealer.

BUILDING EVALUATION SUMMARY

I. BUILDING INFORMATION

FAC # 151 FACILITY NAME: FONTANA LABORATORY
DATE: 10-23-91 INSPECTOR: RDL
YEAR CONSTRUCTED: 1964
GROSS SQ FT: 32,604 NET SQ FT: 20,688
REPLACEMENT COST $ 3,770,000 X 90% = 3,393,OOO *

II. COMPONENT RATING

COMPONENT	BUILDING COMPONENT PERCENTAGE OF TOTAL COST **	BUILDING COMPONENT REPLACEMENT COST *	CONDITION VALUE MULTIPIER FOR BLDG. COMPONENT	BUILDING COMPONENT CURRENT VALUE
Foundation	4.71	159,810	0.91	145,427
Columns and Beams	18.17	616,508	0.91	561,022
Exterior Walls	2.69	91,272	0.84	76,668
Windows & Doors	7.37	250,064	0.81	202,552
Roofing	2.43	82,450	0.36	29,682
Partitions & Drs.	9.70	329,121	0.81	266,588
Wall Finishes	2.41	81,771	0.72	58,875
Floor Finishes	4.56	154,721	0.78	120,682
Ceilings & Finish	3.24	109,933	0.71	78,052
Conveying	0.00	0	0.00	0
Plumbing	12.49	423,786	0.78	330,553
Heating	7.93	269,065	0.82	220,633
Cooling & Vent.	6.11	207,312	0.53	109,875
Elec. Ser. & Dist	1.57	53,270	0.82	43,681
Lighting & Power	10.56	358,301	0.71	254,394
Safety Standards	6.06	205,616	0.63	129,538
TOTALS	100.00	3,393,000		2,628,222

III. BUILDING RATING SUMMARY

Overall Building Rating = 77.5%

* Replacement Cost assigned January, 1991 by The Office of Campus Planning and Space Utilization deducting 10% for 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 # 151 DATE 10-30-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Footings:	N/A	Sat	Att
Individual Footings & Piers INTERIOR COLUMNS	[ ]	[X]	[ ]
Continuous Footings EXTERIOR WALLS	[ ]	[X]	[ ]
Grade Beams	[X]	[ ]	[ ]
Piles	[X]	[ ]	[ ]
Caissons	[X]	[ ]	[ ]
b. Foundation Wall Materials:			
Steel	[X]	[ ]	[ ]
Concrete Cast-in-place USED FOR ALL FOOTINGS	[ ]	[X]	[ ]
Concrete Block	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
c. Waterproofing and Underdrain:			
Coating APPLIED TO EXTERIOR WALLS	[ ]	[X]	[ ]
Membrane	[X]	[ ]	[ ]
Board	[X]	[ ]	[ ]
Drain Tile LOCATED ON EXTERIOR OF THE FOOTING	[ ]	[X]	[ ]
d. Slab on Grade (floor):			
Plain 6 INCH CONCRETE FLOOR	[ ]	[X]	[ ]
Reinforced	[X]	[ ]	[ ]
e. Special Substructures:			
	[X]	[ ]	[ ]

B. COMMENTS:

1. THERE WERE NO SIGNS OF ANY CRACKS OR MOVEMENT IN THE FOUNDATION.

C. COMPONENT RATING: **($159,810) X (0.91) = $145,427**

Possible Value	Condition Value Multiplier	Component Value

COLUMNS AND BEAMS

FAC # 151 DATE 10-30-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Columns and Beams:	N/A	Sat	Att
Concrete-in-place INTERIOR COLUMNS	[ ]	[X]	[ ]
Precast Concrete	[X]	[ ]	[ ]
Steel	[X]	[ ]	[ ]
Steel Fireproofing	[X]	[ ]	[ ]
Wood	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
b. Floors:			
Concrete Slab 6 INCH FLOORS	[ ]	[X]	[ ]
Precast Slab	[X]	[ ]	[ ]
Metal Deck	[X]	[ ]	[ ]
Metal Deck w/concrete fill	[X]	[ ]	[ ]
Wood	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
c. Roof System:			
Flat CONCRETE DECK	[ ]	[X]	[ ]
Pitched	[X]	[ ]	[ ]
Concrete CAST IN PLACE	[ ]	[X]	[ ]
Steel	[X]	[ ]	[ ]
Wood	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

B. COMMENTS:

1. THERE WERE NO OBSERVATIONS OF ANY CRACKS OR SETTLEMENT IN THE BUILDING STRUCTURE.

C. COMPONENT RATING: ($616,508) X (0.91) = $561,022

Possible Value	Condition Value Multiplier	Component Value

EXTERIOR WALLS

FAC # 151 DATE 10-18-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Walls:	N/A	Sat	Att
Concrete REINFORCED CONCRETE FRAME	[ ]	[X]	[ ]
Masonry BRICK VENEER	[ ]	[X]	[ ]
Metal Siding	[X]	[ ]	[ ]
Wood Siding	[X]	[ ]	[ ]
Other SERPENTINE PANELS UNDER WINDOWS	[ ]	[X]	[ ]

b. Finishes:			
Stucco	[X]	[ ]	[ ]
Paint	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

B. COMMENTS:

1. MORTAR JOINTS AND CAULKING ARE IN GOOD CONDITION.

C. COMPONENT RATING: **($91,272)** X **(0.84)** = **$76,688**

Possible Value		Condition Value Multiplier		Component Value

EXTERIOR WINDOWS & DOORS

FAC # 151 DATE 10-18-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Windows type & number:	N/A	Sat	Att
Wood	[X]	[ ]	[ ]
Steel	[X]	[ ]	[ ]
Alum 116 WINDOWS (2' X 4')	[ ]	[X]	[ ]
Other	[X]	[ ]	[ ]
b. Window glazing			
Single pane DOUBLE HUNG ALUMINUM WINDOWS (116 WINDOWS)	[ ]	[ ]	[X]
Double pane	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
c. Doors type & number:			
Wood	[X]	[ ]	[ ]
Steel	[X]	[ ]	[ ]
Alum ENTRANCE DOORS AT SOUTH STAIRWELL	[ ]	[X]	[ ]
Other	[X]	[ ]	[ ]
d. Shading Devices:			
Types VENETIAN BLINDS AT CLASSROOM AND OFFICE WINDOWS	[ ]	[ ]	[X]

B. COMMENTS:

1. THE SINGLE GLAZED ALUMINUM WINDOWS ARE ENERGY INEFFICIENT. THE REPLACEMENT OF WINDOWS DOES NOT MEET THE ECONOMIC PAYBACK THAT ENERGY MANAGEMENT DESIRES. THE DECISION TO REPLACE WINDOWS SHOULD ALSO CONSIDER FUTURE MAINTENANCE COSTS AND OCCUPANT COMFORT.

C. COMPONENT RATING: **($250,064)** X **(0.81)** = **$202,552**

Possible Value		Condition Value Multiplier		Component Value

ROOFING

FAC # 151 DATE 10-21-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Roof Covering:	N/A	SAT	ATT
Built-up	[X]	[ ]	[ ]
Built-up w/gravel SEVERAL EXPOSED FELT AREAS (5,426 SF)	[ ]	[ ]	[X]
Asphalt Shingle	[X]	[ ]	[ ]
Copper	[X]	[ ]	[ ]
Glass (Skylight)	[X]	[ ]	[ ]
Slate	[X]	[ ]	[ ]
Spanish Tile	[X]	[ ]	[ ]
Metal	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
b. Flashing:			
Base & Counter BASE FLASHING: ASPHALT COATED FELT	[ ]	[ ]	[X]
Cap ALUMINUM COPING	[ ]	[X]	[ ]
Through Wall	[X]	[ ]	[ ]
Valley & Ridge	[X]	[ ]	[ ]
c. Gravel Stop & Edge Strips:			
Type PENTHOUSE SECTION ONLY	[ ]	[X]	[ ]
e. Drainage:			
Gutters	[X]	[ ]	[ ]
Drains ROOF DRAINS WERE PARTIALLY CLOGGED FROM TAR	[ ]	[ ]	[X]
Scuppers	[X]	[ ]	[ ]
Downspouts	[X]	[ ]	[ ]
f. Parapets:			
Concrete	[X]	[ ]	[ ]
Brick	[X]	[ ]	[ ]
Block	[X]	[ ]	[ ]
Precast	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
g. Insulation:			
Type 1 1/2" ON BUILDING ROOF & 1" ON PENTHOUSE ROOF	[ ]	[ ]	[X]

B. COMMENTS

1. SEVERAL CRACKS, BLISTERS, SPLITS, AND EXPOSED FELTS WERE OBSERVED IN THE ROOF COVER.
2. BASE FLASHING HAS SEVERAL CRACKS, PATCHWORK, AND ALLIGATORING.
3. BLISTERS ON THE ROOF COVERING INDICATE THAT THE INSULATION HAS BEEN WET AND DAMAGED FROM WATER.

C. COMPONENT RATING: **($82,450) X (0.36) = $29,682**

Possible Value	Condition Value Multiplier	Component Value

PARTITIONS & DOORS

FAC # 151 DATE 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Partition Framing:	N/A	Sat	Att
Concrete Block USED FOR ROOM AND CORRIDOR PARTITIONS	[ ]	[X]	[ ]
Glazed Block	[X]	[ ]	[ ]
Wood Stud	[X]	[ ]	[ ]
Metal Stud	[X]	[ ]	[ ]
Structural Tile	[X]	[ ]	[ ]
Rated	[ ]	[X]	[ ]
Other	[X]	[ ]	[ ]
b. Special partitions and Walls:			
Toilet METAL PAINTED PARTITIONS	[ ]	[X]	[ ]
Screen Walls	[X]	[ ]	[ ]
Gate	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
c. Wall Material:			
Plaster	[X]	[ ]	[ ]
Plaster Board	[X]	[ ]	[ ]
Glass	[X]	[ ]	[ ]
Plywood	[X]	[ ]	[ ]
Paneling	[X]	[ ]	[ ]
Trim & Wainscot	[X]	[ ]	[ ]
Tile/Glazed CORRIDORS HAVE GLAZED WALL TILE	[ ]	[X]	[ ]
d. Interior Doors & Frames:			
Met Door/Met Frame FIRE DOORS TO STAIRWELLS	[ ]	[ ]	[X]
Wood Door/Wood Frame	[X]	[ ]	[ ]
Wood Door/Metal Frame ENTRANCE DOORS TO LABORATORIES	[ ]	[X]	[ ]
Glazing	[X]	[ ]	[ ]
Roll Up	[X]	[ ]	[ ]
Sliding	[X]	[ ]	[ ]
e. Hardware:			
Door Closers OPERATING, BUT ARE OLD AND WORN	[ ]	[X]	[ ]
Lock Sets HAVE NOT BEEN RE-KEYED SINCE 1960'S	[ ]	[X]	[ ]
Kick/Push Plates MOST DOORS HAVE THEM INSTALLED	[ ]	[X]	[ ]
Thresholds	[X]	[ ]	[ ]
Panic Devices LOCATED ON EXIT DOORS	[ ]	[X]	[ ]
Security & Detection	[X]	[ ]	[ ]
Automatic Openers NONE LOCATED IN FONTANA	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

B. COMMENTS:

1. FIRE DOORS NEED TO BE PAINTED. THEY HAVE BEEN SCRATCHED AND MARKED.

C. COMPONENT RATING: **($329,121)** X **(0.81)** = **$266,588**

Possible Value | Condition Value Multiplier | Component Value

WALL FINISHES

FAC # 151 DATE 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION	N/A	Sat	Att
a. Paint CONCRETE BLOCK IN CLASSROOMS AND LABORATORIES	[ ]	[X]	[ ]
b. Wall Coating	[X]	[ ]	[ ]
c. Wall Coverings	[X]	[ ]	[ ]
d. Paneling			
Prefinished	[X]	[ ]	[ ]
Plank	[X]	[ ]	[ ]
e. Cork	[X]	[ ]	[ ]
f. Wallpaper	[X]	[ ]	[ ]
g. Ceramic Tile GLAZED TILE LOCATED IN CORRIDORS	[ ]	[ ]	[X]
h. Trim & Wainscot	[X]	[ ]	[ ]
i. Decoration	[X]	[ ]	[ ]
j. Glass	[X]	[ ]	[ ]
k. Other	[X]	[ ]	[ ]

B. COMMENTS

1. THE CORRIDOR WALLS AND STAIRWELLS NEED TO BE WASHED.
2. THE POOLED CLASSROOMS HAVE JUST BEEN PAINTED BEFORE FALL QUARTER STARTED

C. COMPONENT RATING: ($81,771) X (0.72) = $58,875

Possible Value		Condition Value Multiplier		Component Value

FLOOR FINISHES

FAC # 151 DATE 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. Carpet:			
Rolled	[X]	[ ]	[ ]
Tile	[X]	[ ]	[ ]
b. Composition:			
Epoxy	[X]	[ ]	[ ]
Synthetic	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
c. Concrete Topping:			
Clear Sealant STORAGE ROOM # 37 & PENTHOUSE	[ ]	[X]	[ ]
Abrasive	[X]	[ ]	[ ]
Epoxy	[X]	[ ]	[ ]
Aggregate	[X]	[ ]	[ ]
d. Resilient:			
Vinyl Tile USED FOR CORRIDORS AND CLASSROOMS	[ ]	[X]	[ ]
Linoleum	[X]	[ ]	[ ]
Vinyl	[X]	[ ]	[ ]
Rubber	[X]	[ ]	[ ]
Cork	[X]	[ ]	[ ]
e. Ceramic Tile	[X]	[ ]	[ ]
f. Masonry	[X]	[ ]	[ ]
g. Terrazzo	[X]	[ ]	[ ]
h. Wood	[X]	[ ]	[ ]
i. Metal	[X]	[ ]	[ ]

B. COMMENTS

1. THE VINYL TILE HAS BEEN PATCHED SEVERAL TIMES WITH DIFFERENT COLOR TILE.
2. CONCRETE SEALANT IN THE PENTHOUSE SHOULD BE REPLACED.

C. COMPONENT RATING: **($154,721)** X **(0.78)** = **$120,682**

Possible Value		Condition Value Multiplier		Component Value

CEILINGS AND FINISHES

FAC # 151 DATE 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. System Type:	N/A	Sat	Att
Exposed CLASSROOMS AND LABORATORIES	[ ]	[X]	[ ]
Applied to Structure	[X]	[ ]	[ ]
Suspended CORRIDORS AND A FEW OFFICES	[ ]	[ ]	[X]
b. Materials:			
Drywall	[X]	[ ]	[ ]
Plaster	[X]	[ ]	[ ]
Mineral Fiber Board SUSPENDED CEILINGS	[ ]	[ ]	[X]
Metal Pan	[X]	[ ]	[ ]
Luminous Panels	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
c. Finishes:			
Paint EXPOSED CEILINGS	[ ]	[X]	[ ]
Mineral Fiber DIRTY AND STAINED IN SOME AREAS	[ ]	[ ]	[X]
Fabric	[X]	[ ]	[ ]
Prefinished	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
d. Openings & Inserts:			
Air Distribution CEILING AND WALL REGISTERS	[ ]	[ ]	[X]
Lighting Fixtures FLUORESCENT FIXTURES NEED TO BE CLEANED	[ ]	[ ]	[X]
Access Panels	[X]	[ ]	[ ]
Skylights	[X]	[ ]	[ ]
Fire Protection	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

B. COMMENTS:

1. CORRIDOR CEILING HAS STAINED AND DIRTY TILES THAT NEED REPLACED.
2. POOLED CLASSROOMS HAD THE CEILINGS RECENTLY PAINTED, BUT DEPARTMENTAL LABORATORIES ARE IN NEED OF BEING PAINTED.
3. THE LIGHT FIXTURES AND REGISTERS IN ALL ROOMS NEED TO BE CLEANED.

C. COMPONENT RATING: **($109,933)** X **(0.71)** = **$78,052**

Possible Value	Condition Value Multiplier	Component Value

CONVEYING

FAC # 151 DATE 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Elevators:	N/A	Sat	Att
Number NONE	[X]	[ ]	[ ]
Type	[X]	[ ]	[ ]
Speed	[X]	[ ]	[ ]
Capacity (lbs)	[X]	[ ]	[ ]
Dimensions	[X]	[ ]	[ ]
Door Operation:			
Center	[X]	[ ]	[ ]
To Side	[X]	[ ]	[ ]
b. Lifts and Hoists:			
Number	[X]	[ ]	[ ]
Type	[X]	[ ]	[ ]
c. Moving Stairs and Walks:			
Number	[X]	[ ]	[ ]
Type	[X]	[ ]	[ ]
d. Conveyors:			
Number	[X]	[ ]	[ ]
Type	[X]	[ ]	[ ]
e. Pneumatic Tubes:			
Number	[X]	[ ]	[ ]
Type	[X]	[ ]	[ ]

B. COMMENTS:

C. COMPONENT RATING: **(-0-) X (-0-) = -0-**

Possible Value		Condition Value	Multiplier	Component Value

MECHANICAL/PLUMBING

FAC # 151 DATE 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. Services Available:			
Cold Water STEEL AND COPPER PIPING	[ ]	[X]	[ ]
Hot Water STEEL AND COPPER PIPING	[ ]	[X]	[ ]
Acid Waste DURIRON WASTE PIPES USED THROUGHOUT THE BLDG.	[ ]	[X]	[ ]
Oxygen	[X]	[ ]	[ ]
Natural Gas STEEL PIPING TO EACH LABORATORY	[ ]	[X]	[ ]
Vacuum	[X]	[ ]	[ ]
Distilled Water DISTILLERY LOCATED IN KOFFOLT LAB	[X]	[ ]	[ ]
Compressed Air STEEL PIPING TO EACH LABORATORY	[ ]	[X]	[ ]
b. Piping & Fittings:			
Cast Iron	[X]	[ ]	[ ]
Copper Tubing USED FOR DOMESTIC WATER	[ ]	[X]	[ ]
Plastic	[X]	[ ]	[ ]
Steel USED FOR LARGE WATER LINES, NATURAL GAS, & AIR	[ ]	[X]	[ ]
Glass	[X]	[ ]	[ ]
Other DURIRON USED FOR DRAIN LINES	[ ]	[X]	[ ]
c. Water Heaters:			
Electric	[X]	[ ]	[ ]
Gas	[X]	[ ]	[ ]
Oil	[X]	[ ]	[ ]
Steam Converter LOCATED IN PENTHOUSE	[ ]	[X]	[ ]
d. Drainage:			
Storm Drains	[X]	[ ]	[ ]
Sanitary Drainage	[X]	[ ]	[ ]
Combined Storm/San. TWO 6" COMBINATION SEWERS	[ ]	[X]	[ ]
Floor Drains LOCATED IN EACH LABORATORY	[ ]	[X]	[ ]
e. Fixtures:			
Water Closets	[X]	[ ]	[ ]
Urinals	[X]	[ ]	[ ]
Lavatories	[X]	[ ]	[ ]
Showers EMERGENCY SHOWERS IN CERTAIN LABORATORIES	[ ]	[X]	[ ]
Kitchen Sinks	[X]	[ ]	[ ]
Service Sinks	[X]	[ ]	[ ]
Drinking Fountains	[X]	[ ]	[ ]
Electric Water Coolers SECOND FLOOR BROKEN, PARTS ORDERED	[ ]	[ ]	[X]
f. Sprinkler Systems:			
Wet	[X]	[ ]	[ ]
Dry	[X]	[ ]	[ ]
Water Storage/Supply	[X]	[ ]	[ ]
g. Standpipe Systems:			
Wet	[X]	[ ]	[ ]
Dry	[X]	[ ]	[ ]
Valves	[X]	[ ]	[ ]
Hose Cabinets LOCATED NEAR STAIRWELL ON EACH FLOOR	[ ]	[X]	[ ]

B. COMMENTS:

1. SEVERAL OF THE DEPT. LABORATORY FAUCETS LEAK. SEVERAL OF THE DEPT. LABORATORY SINKS LEAK AT THE GASKET BETWEEN THE MARBLE TOP AND THE SINK.
2. THERE ARE NO RESTROOMS LOCATED IN FONTANA LABORATORY.

C. COMPONENT RATING: ($423,786) X (0.78) = $330,553

Possible Value | Condition Value Multiplier | Component Value

MECHANICAL/HEATING

FAC # 151 DATE: 10-30-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Heat Source:	N/A	Sat	Att
Central Plant Steam SUPPLIED TO CONVERTER IN PENTHOUSE	[ ]	[X]	[ ]
Central Plant Hot Water	[X]	[ ]	[ ]
Boilers: Type	[X]	[ ]	[ ]
Size	[X]	[ ]	[ ]
Furnace: Type	[X]	[ ]	[ ]
Size	[X]	[ ]	[ ]
Heat Pump: Type	[X]	[ ]	[ ]
Size	[X]	[ ]	[ ]
Burners: gas	[X]	[ ]	[ ]
oil	[X]	[ ]	[ ]

b. System Type:			
Steam	[X]	[ ]	[ ]
Hot Water CONVECTORS ON THE EXTERIOR WALLS	[ ]	[X]	[ ]
Air	[X]	[ ]	[ ]
Electric	[X]	[ ]	[ ]
Solar	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

c. Space Equipment:			
Radiators	[X]	[ ]	[ ]
Convectors LOCATED ON THE EXTERIOR WALLS	[ ]	[X]	[ ]
Finned Tube	[X]	[ ]	[ ]
Baseboard	[X]	[ ]	[ ]
2-Pipe Fan Coil USED FOR COOLING ONLY	[X]	[ ]	[ ]
Unit Heaters LOCATED IN STAIRWELLS	[ ]	[X]	[ ]
Multizone	[X]	[ ]	[ ]
Double Duct SYSTEM WAS MODIFIED TO VAV IN MID-70'S	[ ]	[X]	[ ]
Terminal Reheat	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

d. Control Type:			
Pneu	[X]	[ ]	[ ]
Electric	[X]	[ ]	[ ]
Electronic	[X]	[ ]	[ ]
DDC POWERS 600 SERIES DDC CONTROLS	[ ]	[X]	[ ]
Manual Valves USED FOR CONVECTOR ON EXTERIOR WALLS	[ ]	[X]	[ ]

B. COMMENTS:

1. OCCUPANTS INDICATED THAT HEATING SYSTEM OPERATED SATISFACTORY AND WAS ADEQUATE DURING COLD WEATHER MONTHS.
2. RELOCATION OF A STEAM CONDENSATE LINE FOR MacQUIGG WILL RESULT IN A NEW 1½" LINE BEING RUN IN THE CEILING OF THE BASEMENT CORRIDOR.

C. COMPONENT RATING: **($269,065)** X **(0.82)** = **$220,633**

Possible Value		Condition Value Multiplier		Component Value

COOLING & VENTILATING

FAC # 151 DATE: 10-30-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

	N/A	Sat	Att
a. System:			
Type MODIFIED DDHV TO VAV, 15 FAN COIL UNITS, 1 DX UNIT	[ ]	[X]	[ ]
Capacity	[X]	[ ]	[ ]
b. Chillers:			
Centrifugal TRANE 225 TON ELECTRIC CENTRIFUGAL	[ ]	[X]	[ ]
Reciprocating	[X]	[ ]	[ ]
Absorption	[X]	[ ]	[ ]
c. Cooling Towers:			
Type MARLEY COOLING TOWER, NEW IN THE SUMMER OF 1991	[ ]	[X]	[ ]
Capacity 225 TONS	[ ]	[X]	[ ]
d. Condensers: LIEBERT 3 TON DX UNIT	[ ]	[X]	[ ]
e. Space Equipment:			
Direct Expansion -			
Window units	[X]	[ ]	[ ]
Thru-the-wall	[X]	[ ]	[ ]
Single zone	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
Air/Water -			
2-pipe fan coil 15 CEILING MOUNTED UNITS	[ ]	[X]	[ ]
Unit ventilators 4 LOCATED IN STAIRWELL	[ ]	[X]	[ ]
Terminal Reheat	[X]	[ ]	[ ]
Variable volume	[X]	[ ]	[ ]
Dual Duct MODIFIED TO VAV, HEAT DUCT RESTRICTED	[ ]	[X]	[ ]
Mult-zone	[X]	[ ]	[ ]
f. Special Systems:			
Type	[X]	[ ]	[ ]
Capacity	[X]	[ ]	[ ]
g. Control Systems:			
Pneu	[X]	[ ]	[ ]
Electric	[X]	[ ]	[ ]
Electronic POWERS 600 SERIES DDC CONTROL SYSTEM	[ ]	[X]	[ ]
h. Fans:			
Exhaust 33 EXHAUST FANS	[ ]	[ ]	[X]
Recirculating 15 CIRCULATING FANS	[ ]	[X]	[ ]

B. COMMENTS:

1. A FEW OF THE EXHAUST FANS ARE DIRECT WIRED BECAUSE OF ON AND OFF SWITCH PROBLEMS.
2. THE CENTRIFUGAL CHILLER IS 27 YEARS OLD, BUT CONTINUES TO OPERATE.

C. COMPONENT RATING: **($207,312)** X **(0.53)** = **$109,875**

Possible Value		Condition Value Multiplier		Component Value

ELECTRICAL/SERVICE & DISTRIBUTION

FAC # 151 DATE: 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

(a)Service:

Substation BUCKEYE, SECONDARY FEED FROM KOFFOLT LAB.
Primary Voltage 13,200
Transformer:

Manufacture	Type	KVA	Secondary Voltages
GE	SILICONE	1000	208Y/120

(b)Distribution System:

Panelboard (type) CIRCUIT BREAKERS
Voltage 208Y/120
Amperage 600 AMPS
Conduit STEEL
Conductor COPPER
Armored Cable NO
Other N/A

(c)Emergency System:

General or (type & capacity) NONE

B. COMMENTS:

1. SEVERAL OF THE PANEL BOXES HAVE SPARE BREAKERS. WITH THE CONVERSION OF THE LABORATORIES TO POOL CLASSROOM THE ELECTRIC NEEDS FOR FONTANA HAVE BEEN REDUCED. ELECTRIC SYSTEM APPEARS TO BE IN GOOD CONDITION.

C. COMPONENT RATING:

(Possible Value)	X	(Condition Value)	=	Component Value
$53,270		0.82		$43,681

ELECTRICAL/LIGHTING & POWER

FAC # 151 DATE: 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

a. Lighting (lamp type):	N/A	Sat	Att
Fluor CLASSROOMS AND LABORATORIES	[ ]	[X]	[ ]
Incand STORAGE ROOMS	[ ]	[X]	[ ]
HID	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]
b. Receptacles & Switches			
Type & Capacity 120 VOLT, 2 PRONG WALL PLUGS	[ ]	[X]	[ ]
c. Special:			
Baseboard Heat	[X]	[ ]	[ ]
Lightning Protection	[X]	[ ]	[ ]
Communication & Alarm MANUAL FIRE ALARM SYSTEM	[ ]	[X]	[ ]
Data Systems	[X]	[ ]	[ ]

B. COMMENTS:

1. LIGHT FIXTURES NEED A GOOD CLEANING.

C. COMPONENT RATING: **($358,301)** X **(0.71)** = **$254,394**

Possible Value | Condition Value Multiplier | Component Value

SAFETY STANDARDS

FAC # 151 DATE: 10-29-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

(a)Exits:

Stair Construction:	N/A	SAT	ATT
concrete	[X]	[ ]	[ ]
steel FRAME WITH CONCRETE TREADS	[ ]	[X]	[ ]
wood	[X]	[ ]	[ ]

Number of exits ONE STAIRWELL

(b)Fire Rating:

Construction Type: I X II ___ III ___ IV ___ V ___ VI

Building Height: 60 FEET ft., FIVE (5) stories

(c)Extinguishing Systems:

Portable LOCATED IN CORRIDORS AND LABORATORIES	[ ]	[X]	[ ]
Standpipe	[X]	[ ]	[ ]
Hose Cabinets LOCATED AT THE EAST END OF THE BLDG	[ ]	[X]	[ ]
Sprinklers	[X]	[ ]	[ ]
Suppression	[X]	[ ]	[ ]
Other	[X]	[ ]	[ ]

(d)Detection & Alarm Systems:

Manual Alarm LOCATED AT STAIRWELL	[ ]	[X]	[ ]
Annunciator LOCATED IN RM 044 MacQUIGG LAB	[ ]	[X]	[ ]
Smoke Detectors	[X]	[ ]	[ ]

(e)Lighting Systems:

Exit Signs LOCATED AT STAIRWELL	[ ]	[X]	[ ]
Exit Lighting LOCATED AT STAIRWELLS	[ ]	[X]	[ ]
Emergency Lighting BATTERY SYSTEM RM 044 MacQUIGG	[ ]	[X]	[ ]
Emergency Generator	[X]	[ ]	[ ]

B. COMMENTS:

C. COMPONENT RATING: **($205,616) X (0.63) = $129,538**

Possible Value		Condition Value Multiplier		Component Value

BUILDING PERIMETER EVALUATION

FAC # 151 DATE: 10-18-91 INSPECTOR: RDL

A. SYSTEM DESCRIPTION

1. Structural Access:	N/A	Sat	Att
Driveway	[X]	[ ]	[ ]
Loading Dock	[X]	[ ]	[ ]
Sidewalks			
Front RECENTLY REPLACED	[ ]	[X]	[ ]
Side	[X]	[ ]	[ ]
Rear	[X]	[ ]	[ ]
Steps			
Front ENTRANCE IN GOOD CONDITION	[ ]	[X]	[ ]
Side	[X]	[ ]	[ ]
Rear	[X]	[ ]	[ ]
Handicap Ramp HANDICAPPED ACCESS IS FROM MacQUIGG	[X]	[ ]	[ ]
2. Lawn and Landscaping:			
Lawn SMALL LAWN AREA ON THE SOUTH SIDE OF THE BUILDING	[ ]	[X]	[ ]
Shrubs LOCATED ON SOUTH SIDE (FRONT) OF BUILDING	[ ]	[X]	[ ]
Trees	[ ]	[X]	[ ]
Undesirable Insect NONE OBSERVED	[X]	[ ]	[ ]
Bedding Material	[ ]	[X]	[ ]
Watering System	[X]	[ ]	[ ]
3. General Site Information:			
Signage LOCATED ON 19TH STREET	[ ]	[X]	[ ]
Address Identification LOCATED ON SIGN ON 19TH	[ ]	[X]	[ ]
Security Lights INCANDESCENT LIGHTS LOCATED ON BUILDING	[ ]	[ ]	[X]
Street Lights LOCATED ON 19TH AND WOODRUFF	[ ]	[X]	[ ]
Drainage	[ ]	[X]	[ ]
Storm Drains	[X]	[ ]	[ ]

B. COMMENTS:

1. INCANDESCENT LIGHTS LOCATED ON BUILDING EXTERIOR ARE INEFFECTIVE AND ENERGY INEFFICIENT. THESE LIGHTS SHOULD BE REPLACED WITH HIGH PRESSURE SODIUM FIXTURES.

The Ohio State University
Department of Physical Facilities
BUILDING AUDIT METHODOLOGY

1. BUILDING AUDIT PROGRAM OBJECTIVE

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

2. BUILDING AUDIT APPROACH

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

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

3. DATA ORGANIZATION

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

4. COST ESTIMATES

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

5. DATA USAGE

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

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

6. LIMITATIONS

(1) All inspections are visual and do not include physical tests,

instrumentation or metering measurements, sampling, or monitoring.

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

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

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

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

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

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

(b) Includes exterior building walls and attached items.

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

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

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

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

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

ABBREVIATIONS

ATT.....ATTENTION NEEDED
BLDG.....BUILDING
BUR.....BUILT UP ROOF
DD.....DUAL DUCT AIR HANDLING SYSTEM
DDHV.....DUAL DUCT HIGH VELOCITY
DHWR.....DOMESTIC HOT WATER RETURN
DHWS.....DOMESTIC HOT WATER SUPPLY
DX.....DIRECT EXPANSION AIR CONDITIONER
FPM.....FEET PER MINUTE
HID.....HIGH INTENSITY DISCHARGE LIGHT
HVAC.....HEATING, VENTILATING AND
AIR CONDITIONING SYSTEM
KV.....KILOVOLTS
KVA.....KILOVOLTS AMPS
KW.....KILOWATTS
LC.....LIQUID COOLED
MZ.....MULTIZONE AIR HANDLING SYSTEM
N/A.....NOT APPLICABLE
PSI.....POUNDS PER SQUARE INCH
RM.....ROOM
SAT.....SATISFACTORY
SR.....STEAM RETURN LINE
SS.....STEAM SUPPLY LINE
TR.....TERMINAL REHEAT AIR HANDLING SYSTEM
V.....VOLTS
VAV.....VARIABLE AIR VOLUME SYSTEM

APPENDIX

Building Floor Plans
C-1 Building Space Assignments

Worksheet

CALCULATION OF BUILDING COMPONENT PERCENTAGE OF TOTAL COST

FONTANA LABORATORY #151 **DATE: 10-22-91**

MEANS SQUARE FOOT COSTS

BUILDING SYSTEM	CLASS	LAB.	OFFICE	SUBJECT	% TOTAL
Foundations	2.85	8.61	2.14	2.85	4.71
Columns and Beams	7.70	4.73	6.33	11.00	18.17
Exterior Walls	1.63	2.94	4.56	1.63	2.69
Ext. Windows & Drs.	2.23	2.28	1.29	4.46	7.37
Roofing	1.47	3.01	0.97	1.47	2.43
Partitions & Doors	4.77	5.87	3.76	5.87	9.70
Wall Finishes	1.46	2.96	1.45	1.46	2.41
Floor Finishes	2.76	3.31	4.28	2.76	4.56
Ceilings & Finish	3.93	3.93	3.93	1.96	3.24
Conveying	0.92	0.00	2.04	0.00	0.00
Plumbing	4.54	12.10	1.19	7.56	12.49
Heating	4.80	4.80	4.80	4.80	7.93
Cooling & Vent.	5.51	5.51	3.70	3.70	6.11
Elec. Ser. & Dist.	0.95	0.56	0.73	0.95	1.57
Lighting & Power	6.39	5.50	5.88	6.39	10.56
Safety Standards	3.67	2.66	0.31	3.67	6.06
TOTAL	55.58	68.77	47.36	60.53	100.00

Worksheet

CALCULATION OF THE CONDITION VALUE MULTIPLIER

FONTANA LABORATORY #151 **DATE: 10-22-91**

	Expect Life	Age	Age Condition Value*	Perf Rate	Performance Condition Value**	Component Condition Value
Foundation	100	27	0.24	1.00	0.67	0.91
Column & Beams	100	27	0.24	1.00	0.67	0.91
Exterior Walls	75	27	0.21	0.95	0.63	0.84
Windows & Doors	60	27	0.18	0.95	0.63	0.81
Roofs	30	27	0.03	0.50	0.33	0.36
Partitions	60	27	0.18	0.95	0.63	0.81
Wall Finishes	15	5	0.22	0.75	0.50	0.72
Floor Finishes	60	27	0.18	0.90	0.60	0.78
Ceiling & Finish	15	10	0.11	0.90	0.60	0.71
Conveying	00	00	??	0.00	0.00	0.00
Plumbing	60	27	0.18	0.90	0.60	0.78
Heating	50	27	0.15	1.00	0.67	0.82
Cooling & Vent.	30	27	0.03	0.75	0.50	0.53
Electric Serv.	50	27	0.15	1.00	0.67	0.82
Lighting & Power	40	27	0.11	0.90	0.60	0.71
Safety Standards	25	27	0.00	0.95	0.63	0.63

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

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