

# EAST CAROLINA UNIVERSITY

## BIOTECHNOLOGY BUILDING

ASSET CODE: BIOT

FACILITY CONDITION ANALYSIS

OCTOBER 30, 2009





EAST CAROLINA UNIVERSITY  
Facility Condition Analysis

---

**TABLE OF CONTENTS**

**Section 1: GENERAL ASSET INFORMATION**

A. Asset Executive Summary.....	1.1.1
B. Asset Summary.....	1.2.1
C. Inspection Team Data.....	1.3.1
D. Facility Condition Analysis - Definitions .....	1.4.1
1. Report Description .....	1.4.1
2. Project Classification.....	1.4.2
3. Project Subclass Type .....	1.4.2
4. Priority Class / Sequence .....	1.4.2
5. Priority Class .....	1.4.3
6. City Index Material / Labor Cost / Cost Summaries.....	1.4.3
7. Project Number .....	1.4.4
8. Photo Number .....	1.4.4
9. Life Cycle Cost Model Description and Definitions .....	1.4.4
10. Category Code .....	1.4.5
E. Category Code Report.....	1.5.1

**Section 2: DETAILED PROJECT SUMMARIES AND TOTALS**

A. Detailed Project Totals – Matrix with FCNI Data and Associated Charts .....	2.1.1
B. Detailed Projects by Priority Class / Priority Sequence .....	2.2.1
C. Detailed Projects by Cost within range [ \$0 - < \$100,000 ] .....	2.3.1
D. Detailed Projects by Cost within range [ ≥ \$100,000 - < \$500,000 ].....	2.3.2
E. Detailed Projects by Cost within range [ ≥ \$500,000 ].....	2.3.3
F. Detailed Projects by Project Classification.....	2.4.1
G. Detailed Projects by Project Subclass - Energy Conservation.....	2.5.1
H. Detailed Projects by Category / System Code.....	2.6.1

**Section 3: SPECIFIC PROJECT DETAILS ILLUSTRATING DESCRIPTION / COST .....** 3.1.1

**Section 4: DRAWINGS / PROJECT LOCATIONS**

**Section 5: LIFE CYCLE MODEL SUMMARY AND PROJECTIONS**

A. Building Component Summary.....	5.1.1
B. Expenditure Projections.....	5.2.1

**Section 6: PHOTOGRAPHIC LOG .....** 6.1.1



# FACILITY CONDITION ANALYSIS

## SECTION 1

### GENERAL ASSET INFORMATION



## EXECUTIVE SUMMARY - BIOTECHNOLOGY BUILDING

### PROJECT COSTS BY CLASSIFICATION



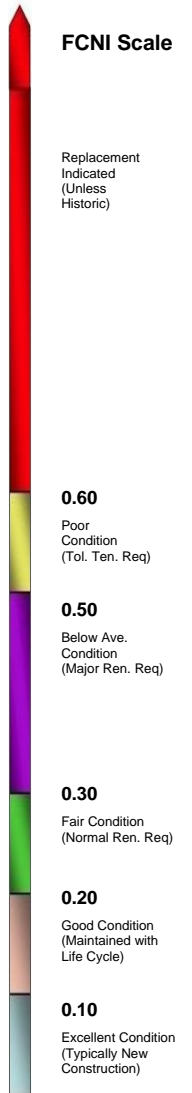
**Building Code:** BIOT  
**Building Name:** BIOTECHNOLOGY BUILDING  
**Year Built:** 1991  
**Building Use:** Laboratory  
**Square Feet:** 28,152

#### Project Costs by Priority

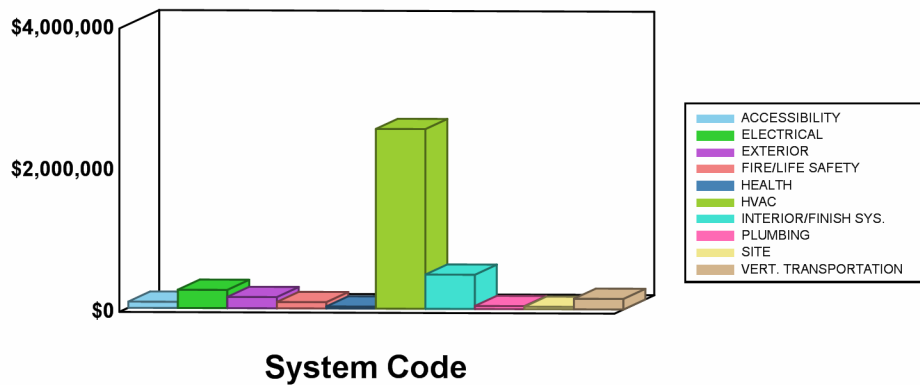
**Priority 1:** \$0  
**Priority 2:** \$0  
**Priority 3:** \$1,483,096  
**Priority 4:** \$2,365,139  
**Total Project Costs:** **\$3,848,235**

**Facility Replacement Cost:** **\$11,514,000**

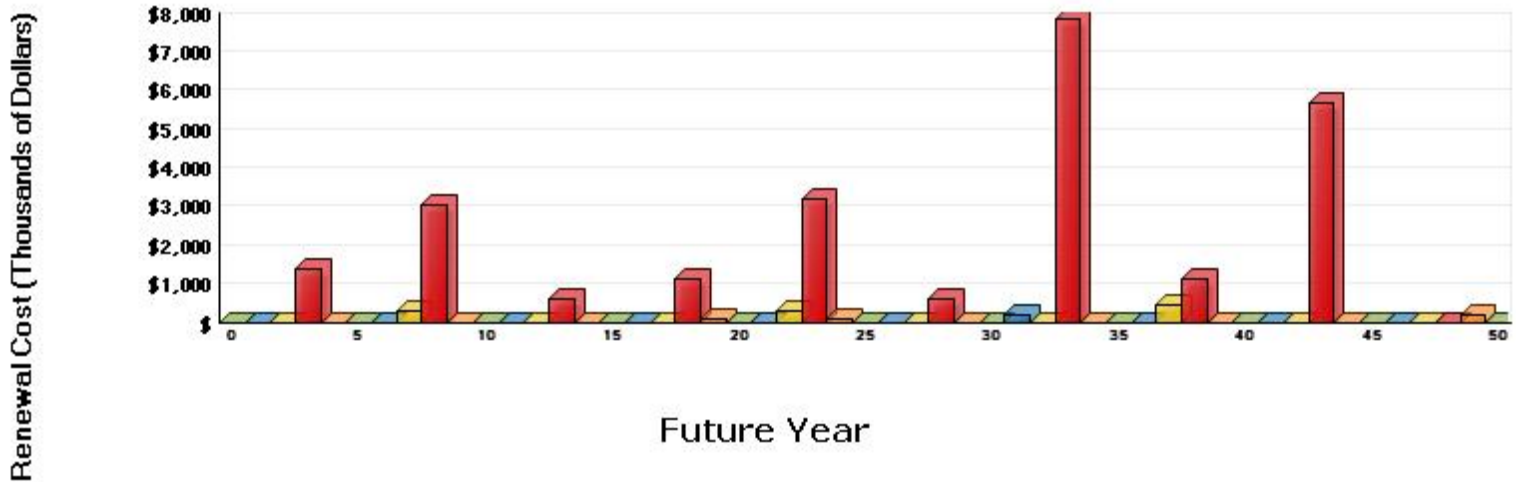
**Facility Condition Needs Index (FCNI): 0.33**  
 (Project Costs / Replacement Cost)



### PROJECT COSTS BY SYSTEM CODE



### LIFE CYCLE MODEL EXPENDITURE PROJECTIONS



**Average Annual Renewal Cost Per SqFt \$8.80**





## B. ASSET SUMMARY

Built in 1991, the Biotechnology Building is a two-story research and medical clinic building with a concrete structure on a slab-on-grade foundation. The exterior is brick, with a single-ply membrane roof. The building houses research areas on the upper first floor and a pediatric clinic on the lower ground floor. The pediatric area appears to have been renovated since the original construction date. The Biotechnology Building totals 28,152 square feet and is located at the Health Science Campus of East Carolina University in Greenville, North Carolina.

The information in this report was gathered during a site visit that concluded on September 3, 2009.

### SITE

Landscaping around the building consists of grassy lawns, ornamental shrubs, and some mature trees. It is in average condition, but should outlast the ten-year scope of this report with routine maintenance. Pedestrian paving systems are in overall average condition and will need replacement in the next ten years. New systems, including excavation, grading, base compaction, and paving, are recommended. Vehicular paving systems are in fair condition and will need moderate upgrades.

### EXTERIOR STRUCTURE

Brick veneer is the primary exterior finish. While the brick is fundamentally sound, exposure to the elements has caused some deterioration of the mortar joints and expansion joints. Cleaning, surface preparation, selective repairs, and applied finish or penetrating sealant upgrades are recommended to restore the aesthetics and integrity of the building envelope.

Replacement of the primary metal-framed glass entrance doors is recommended. The new doors should maintain the architectural design aspects of this facility and be modern, energy-efficient applications. Windows are dual-pane in aluminum frames. They appear to be energy-efficient and in good condition. No window upgrades should be needed in the next ten years.

The roof is an unballasted single-ply membrane that is currently in good condition. However, it is not expected to outlast the scope of this analysis. Future budget modeling should include a provision for the replacement of all failing roofing systems. Replace this roof with a similar application.

### INTERIOR FINISHES / SYSTEMS

Interior floor finishes include vinyl tile and carpet. Walls are painted plaster or concrete. Ceiling finishes are lay-in, acoustical tile throughout the building. The interior finishes vary in age and condition from area to area. Floor, wall, and ceiling finish upgrades should be considered as part of any future cosmetic improvements or major comprehensive renovation efforts.

Lab casework in the pediatric areas appears to be newer and in excellent condition. The laboratory casework on the first floor is sound, but future laboratory finish upgrades should include casework restoration. Interior doors are properly fire rated, equipped with lever hardware, and in good condition. No interior door replacements should be needed in the next ten years.

## ACCESSIBILITY

Access to the building is provided by several at-grade entrances. The main points of entry are also equipped with automatic door operation. Once inside, two passenger elevators provide wheelchair access to each floor. The pediatric areas on the ground floor are equipped with accessible single user restrooms, while the upper level has older restrooms that need an upgrade. The stairwells have proper guardrailing and handrailing and should not need modification in the next ten years.

Building amenities are required to be generally accessible to all persons. The configurations of the break room kitchenettes and drinking fountains are barriers to accessibility. The installation of wheelchair accessible kitchenette cabinetry and refrigerated, dual level drinking fountains is recommended where applicable.

While the ground floor restrooms are handicapped accessible, the first floor restroom fixtures and finishes are mostly original to the year of construction. The fixtures are sound but dated and are spaced such that clearances are not ADA compliant. A comprehensive restroom renovation, including new fixtures, finishes, partitions, and accessories, is recommended. Restroom expansion may be necessary in order to meet modern minimum fixture counts and accessibility legislation.

While the interior doors are equipped with lever hardware and in good condition, door signage does not meet ADA requirements. Current accessibility legislation has established signage requirements for all permanent spaces in a building. Compliant signage should meet specific size, graphical, Braille, height, and location requirements. To comply with the intent of this legislation, it is recommended that all non-compliant signage be upgraded to conform to appropriate accessibility standards. This scope includes directional signage.

## HEALTH

There were no reports or evidence of any asbestos-containing material or lead based paint. An environmental cooler was observed on the first floor, labeled as room 138. This walk-in cold box supports research functions in the laboratory areas. The mechanical components of this system have been in service beyond their expected life cycles and should be replaced within the purview of this analysis.

## FIRE / LIFE SAFETY

The paths of egress in this building are adequate with regard to fire rating. There are no compromises involving doors, partitions, elevators lobbies, or stairs. No fire / life safety issues related to architectural features were observed during the inspection of this facility.

Fire and life safety protection within the structure is provided by an addressable Simplex 4100U fire alarm system assessed to have been installed within the past ten years. This system is equipped with combination audible annunciators and xenon strobes, smoke detectors, and fire pulls. It is anticipated that the fire alarm system will reach the end of its useful service life within the next five years, and complete system upgrade is recommended.

This facility is protected by a comprehensive, automatic, wet-pipe fire suppression system with fusible link-type sprinkler heads. The statistical life cycle for a sprinkler head is approximately twenty years. During this time, scale can accumulate inside the head and cause it to malfunction when needed. It is recommended that the aging sprinkler heads be replaced to ensure that proper protection is available.

Emergency exits are indicated by original LED type exit signs connected to the emergency power network. The exit signs are at the end of their useful service life, and renewal is recommended within the next five years. Replace the existing exit signs with modern, efficient LED type units, and install additional units to comply with current NFPA life safety codes. The path of egress is illuminated by select interior light fixtures connected to generator power. Based on the daytime inspection, the emergency egress illumination level was not easily identified. It is assumed that there is sufficient emergency egress lighting, since no deficiencies were reported.

## HVAC

The primary heating medium is steam supplied from the central plant. The low pressure steam is reduced to heating hot water via a hot water heat exchanger located in mechanical room 003. Outdated base-mounted hot water pumps circulate the heating hot water to the hot water reheat boxes for air handling units AHU1 and AC-Ground Floor. Steam condensate is returned to the central plant by an aging condensate return unit.

Chilled water is the primary cooling media and is also supplied from the central plant. A base-mounted, 7-1/2 horsepower chilled water pump circulates chilled water to the cooling coils of the two air handlers. The heating and cooling equipment have been in service for eighteen years and will reach the end of their useful service life within the next five years. Renewal is recommended, and the project cost is allocated in the overall HVAC recommendation addressed below.

Air distribution throughout the structure is provided by two variable air volume Trane air handling units, AHU1 and AC-Ground Floor. The air handler supply and return fans are equipped with ABB variable frequency drives. Building exhaust is provided by multiple centrifugal and utility exhaust fans. Building automation is provided by an outdated hybrid pneumatic Johnson Control system. The air distribution equipment is in fair operating condition. However, it was reported that there are major air imbalance issues throughout the facility when the fume hoods are in operation. It is anticipated that the HVAC systems and components will become inefficient and maintenance intensive with age. A complete upgrade of the HVAC system is recommended.

Approximately ten fume hoods serve the research labs of the second floor biotech area. The fume hoods and their associated mechanical exhaust fans have been in service beyond their intended life cycles. It is recommended that they be replaced within the scope of this analysis.

## ELECTRICAL

High voltage from the utility company is reduced to 120/208 volt, three-phase building service via a liquid service entrance transformer located at the southeast corner of the building. The related 2,000 amp, Square D switchboard is located in mechanical room 003. It is in good condition and, with regular preventive maintenance, should remain serviceable for the scope of this assessment.

The electrical distribution network is also in good operating condition. However, it is recommended that minor deficiencies in the electrical distribution network be rectified. Such remedies include, but are not limited to, installing additional circuits, replacing worn switches and receptacles, replacing circuit breakers, and updating panel directories.

The lighting configuration consists of lay-in and surface-mounted, T8 and compact fluorescent fixtures. The replacement of all interior light fixtures is recommended based on life cycle depletion. Select lamps with the same color temperature and rendering index for lighting uniformity. Install occupancy sensors in select areas for additional energy conservation.

Nighttime illumination is provided by approximately two original wall-mounted HID fixtures and pole-mounted street / sidewalk lighting. Due to the daytime inspection, the illumination level was not easily verified. Based on the present fixture locations, there appears to be a sufficient quantity. However, because of life cycle depletion, a formal cost estimate was created for replacement of the wall-mounted HID fixtures within the next five years.

## PLUMBING

Potable water is distributed throughout this facility via a copper piping network. Sanitary waste and stormwater piping is of cast-iron, no-hub construction with copper run-outs. The supply and drain piping networks are adequate and in good condition. They will likely provide reliable service throughout the scope of this analysis. Domestic water is heated by two steam to hot water heat exchangers. These units are approaching the end of their expected life cycles and will require replacement within the scope of this analysis.

The plumbing fixtures are a combination of original and updated fixtures. The newer fixtures should provide adequate service over the next ten years. The original fixtures are recommended for replacement as part of a general restroom accessibility upgrade.

Duplex sump pumps facilitate the drainage of stormwater from this facility. This system is currently serviceable. However, it should be anticipated that it will require replacement within the purview of this analysis.

## VERTICAL TRANSPORTATION

The University commissioned an outside contractor to perform an elevator condition study in 2009. The capital project recommendations from this study have been included as projects in the ISES database.

Note: The deficiencies outlined in this report were noted from a visual inspection. ISES engineers and architects developed projects with related costs that are needed over the next ten-year period to bring the facility to “like-new” condition. The costs developed do not represent the cost of a complete facility renovation. Soft costs not represented in this report include telecommunications, furniture, window treatment, space change, program issues, relocation, swing space, contingency, or costs that could not be identified or determined from the visual inspection and available building information. However, existing fixed building components and systems were thoroughly inspected. The developed costs represent correcting existing deficiencies and anticipated life cycle failures (within a ten-year period) to bring the facility to modern standards without any anticipation of change to facility space layout or function. Please refer to Section Three of this report for recommended Specific Project Details.

### C. INSPECTION TEAM DATA

**DATE OF INSPECTION:** September 3, 2009

**INSPECTION TEAM PERSONNEL:**

<u>NAME</u>	<u>POSITION</u>	<u>SPECIALTY</u>
Thomas Ferguson, AIA, LEED® AP	Project Architect	Interior Finishes / Exterior / ADA- Handicapped Accessibility / Site / Fire Safety / Life Safety / Health
Rob Gasaway, Q.E.I.	Facility Analyst	Interior Finishes / Exterior / ADA- Handicapped Accessibility / Site / Fire Safety / Life Safety / Health
John Holder, Q.E.I.	Project Engineer	Mechanical / Electrical / Plumbing / Energy / Fire Safety / Life Safety / Health
Imelda Jordan	Project Engineer	Mechanical / Electrical / Plumbing / Energy / Fire Safety / Life Safety / Health
James Lewis	Project Engineer	Mechanical / Electrical / Plumbing / Energy / Fire Safety / Life Safety / Health
Carl Mason, PE, BSCP	Project Engineer	Interior Finishes / Exterior / ADA- Handicapped Accessibility / Site / Fire Safety / Life Safety / Health
Paul Southwell	Project Engineer	Mechanical / Electrical / Plumbing / Energy / Fire Safety / Life Safety / Health
Norm Teahan, RA, AIA, NCARB	Project Architect	Interior Finishes / Exterior / ADA- Handicapped Accessibility / Site / Fire Safety / Life Safety / Health

**FACILITY CONTACTS:**

<u>NAME</u>	<u>POSITION</u>
William Bagwell	Associate Vice Chancellor, Campus Operations

**REPORT DEVELOPMENT:**

Report Development by: ISES Corporation  
2165 West Park Court  
Suite N  
Stone Mountain, GA 30087

Contact: Kyle Thompson, Project Manager  
770-879-7376

## D. FACILITY CONDITION ANALYSIS - DEFINITIONS

The following information is a clarification of Asset Report Sections using example definitions.

### 1. REPORT DESCRIPTION

Section 1: Asset Executive Summary, Asset Summary, and General Report Information

Section 2: Detailed Project Summaries and Totals

- A. Detailed Project Totals – Matrix with FCNI Data and Associated Charts
- B. Detailed Projects by Priority Class / Priority Sequence
- C. Detailed Projects by Cost within range [ \$0 - < \$100,000 ]
- D. Detailed Projects by Cost within range [ ≥ \$100,000 - < \$500,000 ]
- E. Detailed Projects by Cost within range [ ≥ \$500,000 ]
- F. Detailed Projects by Project Classification
- G. Detailed Projects by Project Rating Type - Energy Conservation
- H. Detailed Projects by Category / System Code

FCNI = Facility Condition Needs Index, Total Cost vs. Replacement Cost. The FCNI provides a life cycle cost comparison. Facility replacement cost is based on replacement with current construction standards for facility use type, and not original design parameters. This index gives the University a comparison within all buildings for identifying worst case / best case building conditions.

$$\text{FCNI} = \frac{\text{Deferred Maintenance / Modernization} + \text{Capital Renewal} + \text{Plant Adaption}}{\text{Plant / Facility Replacement Cost}}$$

Section 3: Specific Project Details Illustrating Description / Cost

Section 4: Drawings with Iconography

The drawings for this facility are marked with ICONS (see legend), denoting the specific location(s) for each project. Within each ICON is the last four characters of the respective project number (e.g., 0001IS01 is marked on plan by IS01). There is one set of drawings marked with ICONS representing all priority classes (1, 2, 3, and 4).

Section 5: Life Cycle Model Summary and Projections

Section 6: Photographic Log

## 2. PROJECT CLASSIFICATION

- A. Plant / Program Adaption: Expenditures required to adapt the physical plant to the evolving needs of the institution and to changing codes or standards. These are expenditures beyond normal maintenance. Examples include compliance with changing codes (e.g. accessibility), facility alterations required by changed teaching or research methods, and improvements occasioned by the adoption of modern technology (e.g., the use of personal computer networks).
- B. Deferred Maintenance: Refers to expenditures for repairs which were not accomplished as a part of normal maintenance or capital repair which have accumulated to the point that facility deterioration is evident and could impair the proper functioning of the facility. Costs estimated for deferred maintenance projects should include compliance with applicable codes, even if such compliance requires expenditures beyond those essential to affect the needed repairs. Deferred maintenance projects represent catch up expenses.
- C. Capital Renewal: A subset of regular or normal facility maintenance which refers to major repairs or the replacement / rebuilding of major facility components (e.g., roof replacement at the end of its normal useful life is capital repair; roof replacement several years after its normal useful life is deferred maintenance).

## 3. PROJECT SUBCLASS TYPE

- A. Energy Conservation: Projects with energy conservation opportunities, based on simple payback analysis.

## 4. PRIORITY SEQUENCE BY PRIORITY CLASS (Shown in Sections 2 and 3)

All projects are assigned both a Priority Sequence number and Priority Class number for categorizing and sorting projects based on criticality and recommended execution order.

Example:

	<u>PRIORITY CLASS 1</u>	
CODE	PROJECT NO.	PRIORITY SEQUENCE
HV2C	0001HV04	01
PL1D	0001PL02	02

	<u>PRIORITY CLASS 2</u>	
CODE	PROJECT NO.	PRIORITY SEQUENCE
IS1E	0001IS06	03
EL4C	0001EL03	04



## 5. PRIORITY CLASS (Shown in Sections 2 and 3)

### PRIORITY 1 - Currently Critical (Immediate)

Projects in this category require immediate action to:

- a. return a facility to normal operation
- b. stop accelerated deterioration
- c. correct a cited safety hazard

### PRIORITY 2 - Potentially Critical (Year One)

Projects in this category, if not corrected expeditiously, will become critical within a year. Situations in this category include:

- a. intermittent interruptions
- b. rapid deterioration
- c. potential safety hazards

### PRIORITY 3 - Necessary - Not Yet Critical (Years Two to Five)

Projects in this category include conditions requiring appropriate attention to preclude predictable deterioration or potential downtime and the associated damage or higher costs if deferred further.

### PRIORITY 4 - Recommended (Years Six to Ten)

Projects in this category include items that represent a sensible improvement to existing conditions. These items are not required for the most basic function of a facility; however, Priority 4 projects will either improve overall usability and / or reduce long-term maintenance.

## 6. COST SUMMARIES AND TOTALS

The cost summaries and totals are illustrated by Detailed Projects sorted in multiple formats (shown in Sections 2 and 3).

City Index material / labor cost factors: (shown in Sections 2 and 3)

Cost factors are based on the Greenville City Index and are adjusted for material and labor cost factors (2009). Refer to the project related labor report found later in this section.

#### Global Markup Percentages

#### R.S. MEANS

Local Labor Index:	51.3 %	of National Average
Local Materials Index:	100.7 %	of National average
General Contractor Markup:	20.0 %	Contractor profit & overhead, bonds & insurance
Professional Fees:	16.0 %	Arch. / Eng. Firm design fees and in-house design cost

**7. PROJECT NUMBER** (Shown in Sections 2 and 3)

Example:

Project Number = 0001-EL-04 (unique for each independent project)

- 0001 - Building Identification Number
- EL - System Code, EL represents Electrical
- 04 - Sequential Assignment Project Number by Category / System

**8. PHOTO NUMBER** (Shown in Section 6)

A code shown on the Photographic Log identifies the building number, photo sequence, and architect, engineer, or vertical transportation.

Example: 0001006e

<u>Building Number</u>	<u>Photo Sequence</u>	<u>Arch / Eng / VT</u>
0001	006	e

**9. LIFE CYCLE COST MODEL DESCRIPTION AND DEFINITIONS** (Shown in Section 5)

Included in this report is a Life Cycle Cost Model. This model consists of two elements, one is the component listing (starting on page 5.1.1) and the other is the Life Cycle Cost Projections Graph (page 5.2.1). The component list is a summary of all major systems and components within the facility. Each indicated component has the following associated information:

Uniformat Code	This is the standard Uniformat Code that applies to the component
Component Description	This line item describes the individual component
Qty	The quantity of the listed component
Units	The unit of measure associated with the quantity
Unit Cost	The cost to replace each individual component unit (This cost is in today's dollars)
Total Cost	Unit cost multiplied by Quantity, also in today's dollars. Note that this is a one time renewal / replacement cost
Install Date	Year that the component was installed. Where this data is not available, it defaults to the year the asset was constructed
Life Exp	Average life expectancy for each individual component

The component listing forms the basis for the Life Cycle Cost Projections Graph shown on page 5.2.1. This graph represents a projection over a fifty-year period (starting from the date the report is run) of expected component renewals based on each individual item's renewal cost and life span. Some components might require renewal several times within the fifty-year model, while others might not occur at all. Each individual component is assigned a renewal year based on life cycles, and the costs for each item are inflated forward to the appropriate year. The vertical bars shown on the graph represent the accumulated (and inflated) total costs for each individual year. At the bottom of the graph, the average annual cost per gross square foot (\$/GSF) is shown for the facility. In this calculation, all costs are not inflated. This figure can be utilized to assess the adequacy of existing capital renewal and repair budgets.

**10. CATEGORY CODE** (Shown in Sections 2 and 3)

Refer to the following Category Code Report.

Example: Category Code = EL5A

EL = System Description  
5 = Component Description  
A = Element Description

**CATEGORY CODE**

AC1A - AC4B  
EL1A - EL8A  
ES1A - ES6E  
FS1A - FS6A  
HE1A - HE7A  
HV1A - HV8B  
IS1A - IS6D  
PL1A - PL5A  
SI1A - SI4A  
SS1A - SS7A  
VT1A - VT7A

**SYSTEM DESCRIPTION**

ACCESSIBILITY  
ELECTRICAL  
EXTERIOR STRUCTURE  
FIRE / LIFE SAFETY  
HEALTH  
HVAC  
INTERIOR FINISHES / SYSTEMS  
PLUMBING  
SITE  
SECURITY SYSTEMS  
VERTICAL TRANSPORTATION

CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
<b>SYSTEM DESCRIPTION: ACCESSIBILITY</b>			
AC1A	SITE	STAIR AND RAILINGS	Includes exterior stairs and railings which are not part of the building entrance points.
AC1B	SITE	RAMPS AND WALKS	Includes sidewalks, grade change ramps (except for a building entrance), curb ramps, etc.
AC1C	SITE	PARKING	Designated parking spaces including striping, signage, access aisles and ramps, etc.
AC1D	SITE	TACTILE WARNINGS	Raised tactile warnings located at traffic crossing and elevation changes.
AC2A	BUILDING ENTRY	GENERAL	Covers all aspects of entry into the building itself including ramps, lifts, doors and hardware, power operators, etc.
AC3A	INTERIOR PATH OF TRAVEL	LIFTS/RAMPS/ELEVATORS	Interior lifts, ramps and elevators designed to accommodate level changes inside a building. Includes both installation and retrofitting.
AC3B	INTERIOR PATH OF TRAVEL	STAIRS AND RAILINGS	Upgrades to interior stairs and handrails for accessibility reasons.
AC3C	INTERIOR PATH OF TRAVEL	DOORS AND HARDWARE	Accessibility upgrades to the interior doors including widening, replacing hardware power, assisted operators, etc.
AC3D	INTERIOR PATH OF TRAVEL	SIGNAGE	Interior building signage upgrades for compliance with ADA.
AC3E	INTERIOR PATH OF TRAVEL	RESTROOMS/BATHROOMS	Modifications to and installation of accessible public restrooms and bathrooms. Bathrooms, which are an integral part of residential suites, are catalogued under HC4A.
AC3F	INTERIOR PATH OF TRAVEL	DRINKING FOUNTAINS	Upgrading/replacing drinking fountains for reasons of accessibility.
AC3G	INTERIOR PATH OF TRAVEL	PHONES	Replacement/modification of public access telephones.
AC4A	GENERAL	FUNCTIONAL SPACE MODIFICATIONS	This category covers all necessary interior modifications necessary to make the services and functions of a building accessible. It includes installation of assistive listening systems, modification of living quarters, modifications to laboratory workstations, etc. Bathrooms, which are integral to efficiency suites, are catalogued here.
AC4B	GENERAL	OTHER	All accessibility issues not catalogued elsewhere.
<b>SYSTEM DESCRIPTION: ELECTRICAL</b>			
EL1A	INCOMING SERVICE	TRANSFORMER	Main building service transformer.
EL1B	INCOMING SERVICE	DISCONNECTS	Main building disconnect and switchgear.
EL1C	INCOMING SERVICE	FEEDERS	Incoming service feeders. Complete incoming service upgrades, including transformers, feeders, and main distribution panels are catalogued here.
EL1D	INCOMING SERVICE	METERING	Installation of meters to record consumption and/or demand.
EL2A	MAIN DISTRIBUTION PANELS	CONDITION UPGRADE	Main distribution upgrade due to deficiencies in condition.
EL2B	MAIN DISTRIBUTION PANELS	CAPACITY UPGRADE	Main distribution upgrades due to inadequate capacity.
EL3A	SECONDARY DISTRIBUTION	STEP DOWN TRANSFORMERS	Secondary distribution stepdown and isolation transformers.
EL3B	SECONDARY DISTRIBUTION	DISTRIBUTION NETWORK	Includes conduit, conductors, sub-distribution panels, switches, outlets, etc. Complete interior rewiring of a facility is catalogued here.
EL3C	SECONDARY DISTRIBUTION	MOTOR CONTROLLERS	Mechanical equipment motor starters and control centers.
EL4A	DEVICES AND FIXTURES	EXTERIOR LIGHTING	Exterior building lighting fixtures including supply conductors and conduit.
EL4B	DEVICES AND FIXTURES	INTERIOR LIGHTING	Interior lighting fixtures (also system wide emergency lighting) including supply conductors and conduits.
EL4C	DEVICES AND FIXTURES	LIGHTING CONTROLLERS	Motion sensors, photocell controllers, lighting contactors, etc.

CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
EL4D	DEVICES AND FIXTURES	GFCI PROTECTION	Ground fault protection including GFCI receptacles and breakers.
EL4E	DEVICES AND FIXTURES	LIGHTNING PROTECTION	Lightning arrestation systems including air terminals and grounding conductors.
EL5A	EMERGENCY POWER SYSTEM	GENERATION/DISTRIBUTION	Includes generators, central battery banks, transfer switches, emergency power grid, etc.
EL6A	SYSTEMS	UPS/DC POWER SUPPLY	Uninterruptible power supply systems and DC motor-generator sets and distribution systems.
EL7A	INFRASTRUCTURE	ABOVE GROUND TRANSMISSION	Includes poles, towers, conductors, insulators, fuses, disconnects, etc.
EL7B	INFRASTRUCTURE	UNDERGROUND TRANSMISSION	Includes direct buried feeders, ductbanks, conduit, manholes, feeders, switches, disconnects, etc.
EL7C	INFRASTRUCTURE	SUBSTATIONS	Includes incoming feeders, breakers, buses, switchgear, meters, CTs, PTs, battery systems, capacitor banks, and all associated auxiliary equipment.
EL7D	INFRASTRUCTURE	DISTRIBUTION SWITCHGEAR	Stand-alone sectionalizing switches, distribution switchboards, etc.
EL7F	INFRASTRUCTURE	AREA AND STREET LIGHTING	Area and street lighting systems including stanchions, fixtures, feeders, etc.
EL8A	GENERAL	OTHER	Electrical system components not catalogued elsewhere.
<b>SYSTEM DESCRIPTION: EXTERIOR</b>			
ES1A	FOUNDATION/FOOTING	STRUCTURE	Structural foundation improvements involving structural work on foundation wall/footing, piers, caissons, piles including crack repairs, shoring & pointing
ES1B	FOUNDATION/FOOTING	DAMP/PROOFING/DEWATERING	Foundation/footing waterproofing work including, damp proofing, dewatering, insulation, etc.
ES2A	COLUMNS/BEAMS/WALLS	STRUCTURE	Structural work to primary load-bearing structural components aside from floors including columns, beams, bearing walls, lintels, arches, etc.
ES2B	COLUMNS/BEAMS/WALLS	FINISH	Work involving restoration of the appearance and weatherproof integrity of exterior wall/structural envelope components including masonry/pointing, expansion joints, efflorescence & stain removal, grouting, surfacing, chimney repairs, etc.
ES3A	FLOOR	STRUCTURE	Work concerning the structural integrity of the load supporting floors both exposed and unexposed including deformation, delamination, spalling, shoring, crack repair, etc.
ES4A	ROOF	REPAIR	Work on waterproof horizontal finish (roof) involving repair and/or limited replacement (<40% total) including membrane patching, flashing repair, coping caulk/resetting, PPT wall parging/coating, walkpad installation, skylight and roof hatch R&R, etc.
ES4B	ROOF	REPLACEMENT	Work involving total refurbishment of roofing system including related component rehab.
ES5A	FENESTRATIONS	DOORS	Work on exterior exit/access door including storefronts, airlocks, air curtains, vinyl slat doors, all power/manual operating hardware (except handicapped), etc.
ES5B	FENESTRATIONS	WINDOWS	Work on exterior fenestration closure & related components including glass/metal/wood curtain walls, fixed or operable window sashes, glazing, frames, sills, casings, stools, seats, coatings, treatments, screens, storm windows, etc.
ES6A	GENERAL	ATTACHED STRUCTURE	Work on attached exterior structure components not normally considered in above categories including porches, stoops, decks, monumental entrance stairs, cupolas, tower, etc.
ES6B	GENERAL	AREAWAYS	Work on attached grade level or below structural features including subterranean light wells, areaways, basement access stairs, etc.
ES6C	GENERAL	TRIM	Work on ornamental exterior (generally non-structural) elements including beltlines, quoins, porticos, soffits, cornices, moldings, trim, etc.
ES6D	GENERAL	SUPERSTRUCTURE	Finish and structural work on non-standard structures with exposed load-bearing elements such as stadiums, bag houses, bleachers, freestanding towers, etc.

CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
ES6E	GENERAL	OTHER	Any exterior work not specifically categorized elsewhere including finish and structural work on freestanding boiler stacks.
<b>SYSTEM DESCRIPTION: FIRE / LIFE SAFETY</b>			
FS1A	LIGHTING	EGRESS LIGHTING/EXIT SIGNAGE	R & R work on exit signage and packaged AC/DC emergency lighting.
FS2A	DETECTION/ALARM	GENERAL	Repair or replacement of fire alarm/detection system/components including alarms, pull boxes, smoke/heat detectors, annunciator panels, central fire control stations, remote dialers, fire station communications, etc.
FS3A	SUPPRESSION	SPRINKLERS	Repair or installation of water sprinklers type automatic fire suppressions including wet pipe & dry pipe systems, heads, piping, deflectors, valves, monitors, associated fire pump, etc.
FS3B	SUPPRESSION	STANDPIPE/HOSE	Repair or installation of standpipe system or components including hardware, hoses, cabinets, nozzles, necessary fire pumping system, etc.
FS3C	SUPPRESSION	EXTINGUISHERS	Repairs or upgrades to F.E. cabinets/wall fastenings and handheld extinguisher testing/replacement.
FS3D	SUPPRESSION	OTHER	Other fire suppression items not specifically categorized elsewhere including fire blankets, carbon dioxide automatic systems, Halon systems, dry chemical systems, etc.
FS4A	HAZARDOUS MATERIALS	STORAGE ENVIRONMENT	Installation or repair of special storage environment for the safe holding of flammable or otherwise dangerous materials/supplies including vented flammables storage cabinets, holding pens/rooms, cages, fire safe chemical storage rooms, etc.
FS4B	HAZARDOUS MATERIALS	USER SAFETY	Improvements, repairs, installation, or testing of user safety equipment including emergency eyewashes, safety showers, emergency panic/shut-down system, etc.
FS5A	EGRESS PATH	DESIGNATION	Installation, relocation or repair of posted diagrammatic emergency evacuation routes.
FS5B	EGRESS PATH	DISTANCE/GEOMETRY	Work involving remediation of egress routing problems including elimination of dead end corridors, excessive egress distance modifications and egress routing inadequacies.
FS5C	EGRESS PATH	SEPARATION RATING	Restoration of required fire protective barriers including wall rating compromises, fire rated construction, structural fire proofing, wind/safety glazing, transom retrofitting, etc.
FS5D	EGRESS PATH	OBSTRUCTION	Clearance of items restricting the required egress routes.
FS5E	EGRESS PATH	STAIRS RAILING	Retrofit of stair/landing configurations/structure, railing heights/geometries, etc.
FS5F	EGRESS PATH	FIRE DOORS/HARDWARE	Installation/replacement/repair of fire doors and hardware including labeled fire doors, fire shutters, closers, magnetic holders, panic hardware, etc.
FS5G	EGRESS PATH	FINISH/FURNITURE RATINGS	Remediation of improper fire/smoke ratings of finishes and furniture along egress routes.
FS6A	GENERAL	OTHER	Life/fire safety items not specifically categorized elsewhere.
<b>SYSTEM DESCRIPTION: HEALTH</b>			
HE1A	ENVIRONMENTAL CONTROL	EQUIPMENT AND ENCLOSURES	Temperature control chambers (both hot and cold) for non-food storage. Includes both chamber and all associated mechanical equipment.
HE1B	ENVIRONMENTAL CONTROL	OTHER	General environmental control problems not catalogued elsewhere.
HE2A	PEST CONTROL	GENERAL	Includes all measures necessary to control and destroy insects, rodents and other pests.
HE3A	REFUSE	GENERAL	Issues related to the collection, handling and disposal of refuse.
HE4A	SANITATION EQUIPMENT	LABORATORY AND PROCESS	Includes autoclaves, cage washers, steam cleaners, etc.
HE5A	FOOD SERVICE	KITCHEN EQUIPMENT	Includes ranges, grilles, cookers, sculleries, etc.
HE5B	FOOD SERVICE	COLD STORAGE	Includes the cold storage room and all associated refrigeration equipment.

CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
HE6A	HAZARDOUS MATERIAL	STRUCTURAL ASBESTOS	Testing, abatement and disposal of structural and building finish materials containing asbestos.
HE6B	HAZARDOUS MATERIAL	MECHANICAL ASBESTOS	Testing, abatement and disposal of mechanical insulation materials containing asbestos.
HE6C	HAZARDOUS MATERIAL	PCBs	Includes testing, demolition, disposal and cleanup of PCB contaminated substances.
HE6D	HAZARDOUS MATERIAL	FUEL STORAGE	Includes monitoring, removal and replacement of above and below ground fuel storage and distribution systems. Also includes testing and disposal of contaminated soils.
HE6E	HAZARDOUS MATERIAL	LEAD PAINT	Testing, removal and disposal of lead-based paint systems.
HE6F	HAZARDOUS MATERIAL	OTHER	Handling, storage, and disposal of other hazardous materials.
HE7A	GENERAL	OTHER	Health related issues not catalogued elsewhere.
<b>SYSTEM DESCRIPTION: HVAC</b>			
HV1A	HEATING	BOILERS/STACKS/ CONTROLS	Boilers for heating purposes including their related stacks, flues, and controls.
HV1B	HEATING	RADIATORS/ CONVECTORS	Including cast iron radiators, fin tube radiators, baseboard radiators, etc.
HV1C	HEATING	FURNACE	Furnaces and their related controls, flues, etc.
HV1D	HEATING	FUEL SUPPLY/STORAGE	Storage and/or distribution of fuel for heating purposes, including tanks and piping networks and related leak detection/monitoring.
HV2A	COOLING	CHILLERS/ CONTROLS	Chiller units for production of chilled water for cooling purposes, related controls (not including mods for CFC compliance).
HV2B	COOLING	HEAT REJECTION	Repair/replacement of cooling towers, dry coolers, air-cooling and heat rejection. (Includes connection of once-through system to cooling tower.)
HV3A	HEATING/COOLING	SYSTEM RETROFIT/ REPLACE	Replacement or major retrofit of HVAC systems.
HV3B	HEATING/COOLING	WATER TREATMENT	Treatment of hot water, chilled water, steam, condenser water, etc.
HV3C	HEATING/COOLING	PACKAGE/SELF-CONTAINED UNITS	Repair/replacement of self-contained/package type units including stand up units, rooftop units, window units, etc; both air conditioners and heat pumps.
HV3D	HEATING/COOLING	CONVENTIONAL SPLIT SYSTEMS	Repair, installation, or replacement of conventional split systems; both air conditioners and heat pumps including independent component replacements of compressors and condensers.
HV4A	AIR MOVING/ VENTILATION	AIR HANDLERS/ FAN UNITS	Includes air handlers & coils, fan coil units, unit ventilators, filtration upgrades, etc., not including package/self-contained units, split systems or other specifically categorized systems.
HV4B	AIR MOVING/ VENTILATION	EXHAUST FANS	Exhaust fan systems including fans, range and fume hoods, controls, and related ductwork.
HV4C	AIR MOVING/ VENTILATION	OTHER FANS	Supply, return, or any other fans not incorporated into a component categorized elsewhere.
HV4D	AIR MOVING/ VENTILATION	AIR DISTRIBUTION NETWORK	Repair, replacement, or cleaning of air distribution network including ductwork, terminal reheat/cool, VAV units, induction units, power induction units, insulation, dampers, linkages, etc.
HV5A	STEAM/HYDRONIC DISTRIBUTION	PIPING NETWORK	Repair/replacement of piping networks for heating and cooling systems including pipe, fittings, insulation, related components, etc.
HV5B	STEAM/HYDRONIC DISTRIBUTION	PUMPS	Repair or replacement of pumps used in heating and cooling systems, related control components, etc.
HV5C	STEAM/HYDRONIC DISTRIBUTION	HEAT EXCHANGERS	Including shell and tube heat exchangers and plate heat exchangers for heating and cooling.
HV6A	CONTROLS	COMPLETE SYSTEM	Replacement of HVAC control systems.

CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
		UPGRADE	
HV6B	CONTROLS	MODIFICATIONS/ REPAIRS	Repair or modification of HVAC control system.
HV6C	CONTROLS	AIR COMPRESSORS/ DRYERS	Repair or modification of control air compressors and dryers.
HV7A	INFRASTRUCTURE	STEAM/HOT WATER GENERATION	Generation of central steam and/or hot water including boilers and related components.
HV7B	INFRASTRUCTURE	STEAM/HOT WATER DISTRIBUTION	Distribution system for central hot water and/or steam.
HV7C	INFRASTRUCTURE	CHILLED WATER GENERATION	Generation of central chilled water including chillers and related components.
HV7D	INFRASTRUCTURE	CHILLED WATER DISTRIBUTION	Distribution system for central chilled water.
HV7E	INFRASTRUCTURE	TUNNELS/ MANHOLES/ TRENCHES	Repairs, installation, replacement of utility system access chambers.
HV7F	INFRASTRUCTURE	OTHER	HVAC infrastructure issues not specifically categorized elsewhere.
HV8A	GENERAL	CFC COMPLIANCE	Chiller conversions/replacements for CFC regulatory compliance, monitoring, etc.
HV8B	GENERAL	OTHER	HVAC issues not catalogued elsewhere.
<b>SYSTEM DESCRIPTION: INTERIOR FINISHES / SYSTEMS</b>			
IS1A	FLOOR	FINISHES-DRY	R & R of carpet, hardwood strip flooring, concrete coating, vinyl linoleum & tile, marble, terrazzo, rubber flooring, underlayment in predominantly dry areas ("dry" includes non-commercial kitchens)
IS1B	FLOOR	FINISHES-WET	Flooring finish/underlayment work in predominantly "wet" areas including work with linoleum, rubber, terrazzo, concrete coating, quarry tile, ceramic tile, epoxy aggregate, etc.
IS2A	PARTITIONS	STRUCTURE	Structural work on full height permanent interior partitions including wood/metal stud & drywall systems, CMU systems, structural brick, tile, glass block, etc.
IS2B	PARTITIONS	FINISHES	Work on full height permanent interior partitions including R & R to gypsum board, plaster, lath, wood paneling, acoustical panels, wall coverings, column coverings, tile, paint, etc.
IS3A	CEILINGS	REPAIR	Repair of interior ceilings (<40% of total) including tiles, gypsum board, plaster, paint, etc.
IS3B	CEILINGS	REPLACEMENT	Major refurbishments (>40% of total) to interior ceiling systems including grid system replacements, structural framing, new suspended systems, paint, plastering, etc.
IS4A	DOORS	GENERAL	Any work on interior non-fire rated doors, roll-up counter doors, mechanical/plumbing access doors, and all door hardware (except for reasons of access improvement).
IS5A	STAIRS	FINISH	Any finish restorative work to stair tower walking surfaces including replacement of rubber treads, safety grips, nosings, etc. (except as required to accommodate disabled persons).
IS6A	GENERAL	MOLDING	R & R to interior trim/molding systems including rubber/vinyl/wood base, crown/chair/ornamental moldings, cased openings, etc.
IS6B	GENERAL	CABINETY	R & R work to interior casework systems including cabinets, countertops, wardrobes, lockers, mail boxes, built-in bookcases, lab/work benches, reagent shelving, etc. (except as required for access by the disabled).
IS6C	GENERAL	SCREENING	Work on temporary or partial height partitioning systems including toilet partitions, urinal/vanity screens, etc.
IS6D	GENERAL	OTHER	Any work on interior elements not logically or specifically categorized elsewhere including light coves, phone booths, interior light wells, etc.
<b>SYSTEM DESCRIPTION: PLUMBING</b>			



CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
PL1A	DOMESTIC WATER	PIPING NETWORK	Repair or replacement of domestic water supply piping network, insulation, hangers, etc.
PL1B	DOMESTIC WATER	PUMPS	Domestic water booster pumps, circulating pumps, related controls, etc.
PL1C	DOMESTIC WATER	STORAGE/ TREATMENT	Equipment or vessels for storage or treatment of domestic water.
PL1D	DOMESTIC WATER	METERING	Installation, repair, or replacement of water meters.
PL1E	DOMESTIC WATER	HEATING	Domestic water heaters including gas, oil, and electric water heaters, shell and tube heat exchangers, tank type and instantaneous.
PL1F	DOMESTIC WATER	COOLING	Central systems for cooling and distributing drinking water.
PL1G	DOMESTIC WATER	FIXTURES	Plumbing fixtures including sinks, drinking fountains, water closets, urinals, etc.
PL1H	DOMESTIC WATER	CONSERVATION	Alternations made to the water distribution system to conserve water.
PL1I	DOMESTIC WATER	BACKFLOW PROTECTION	Backflow protection devices including backflow preventers, vacuum breakers, etc.
PL2A	WASTEWATER	PIPING NETWORK	Repair or replacement of building wastewater piping network.
PL2B	WASTEWATER	PUMPS	Pump systems used to lift wastewater including sewage ejectors and other sump systems.
PL3A	SPECIAL SYSTEMS	PROCESS GAS/FLUIDS	Generation and/or distribution of process steam, compressed air, natural and LP gas, process water, vacuum, etc.
PL4A	INFRASTRUCTURE	POTABLE WATER STORAGE/ TREATMENT	Storage and treatment of potable water for distribution.
PL4B	INFRASTRUCTURE	INDUSTRIAL WATER DISTRIBUTION/ TREATMENT	Storage and treatment of industrial water for distribution.
PL4C	INFRASTRUCTURE	SANITARY WATER COLLECTION	Sanitary water collection systems, sanitary sewer systems; including combined systems.
PL4D	INFRASTRUCTURE	STORM WATER COLLECTION	Storm water collection systems, storm sewer systems; storm water only.
PL4E	INFRASTRUCTURE	POTABLE WATER DISTRIBUTION	Potable water distribution network.
PL4F	INFRASTRUCTURE	WASTEWATER TREATMENT	Wastewater treatment plants, associated equipment, etc.
PL5A	GENERAL	OTHER	Plumbing issues not categorized elsewhere.
<b>SYSTEM DESCRIPTION: SITE</b>			
SI1A	ACCESS	PEDESTRIAN	Paved pedestrian surfaces including walks, site stairs, step ramps, paths, pedestrian signage, sidewalk bridges/canopies, pedestrian plaza/mall areas, etc.
SI1B	ACCESS	VEHICULAR	Paved vehicular surfaces including roads, paths, curbs, guards, bollards, bridges, skyways, joints, shoulder work, culverts, ditches, vehicular signage, etc.
SI2A	LANDSCAPE	GRADE/FLORA	Landscape related work including new grass/turf refurbishment, grade improvements, catch basins, swales, berms, pruning, new ornamental flora, etc.
SI3A	HARDSCAPE	STRUCTURE	Permanent hard site features, predominantly ornamental, including terraces, fences, statues, freestanding signage, fountains, benches, etc.
SI4A	GENERAL	OTHER	Other site work not specifically categorized elsewhere.
<b>SYSTEM DESCRIPTION: SECURITY SYSTEMS</b>			
SS1A	LIGHTING	EXTERIOR	Fixtures, stanchions, foliage interference, cleanliness, locations, etc.

CATEGORY CODE REPORT			
CODE	COMPONENT DESCRIPTION	ELEMENT DESCRIPTION	DEFINITION
SS2A	SITE	FENCING	Perimeter campus fencing, individual building fencing, includes both pedestrian and vehicular control fences.
SS2B	SITE	GENERAL	Hidden areas due to foliage, fencing, parking, walls, etc.
SS3A	COMMUNICATIONS	EMERGENCY PHONES	Access, locations, visibility, function, reliability, etc.
SS4A	ACCESS CONTROL	DOORS	Access, locks, keys, two way speakers, reliability, redundancy, etc.
SS4B	ACCESS CONTROL	WINDOWS	Locks, screens, access, reliability, etc.
SS4C	ACCESS CONTROL	SYSTEMS	Card key, proximity devices, data control, data use, reliability, system design, etc.
SS5A	MONITORING	SYSTEMS	Cameras, audio communication, monitoring stations, locations, system design, etc.
SS6A	CIRCULATION	PEDESTRIAN	On campus as well as to and from off campus housing and class locations, etc.
SS6B	CIRCULATION	VEHICULAR	Guard gates, access, systems, data control and use, identification, etc.
SS7A	GENERAL	OTHER	General information/projects pertaining to security issues.
<b>SYSTEM DESCRIPTION: VERTICAL TRANSPORTATION</b>			
VT1A	MACHINE ROOM	GENERAL	Machine, worm gear, thrust bearing, brake, motors, sheaves, generator, controller, selector, governor, pump(s), valves, oil, access, lighting, ventilation, floor.
VT2A	CAR	GENERAL	Position indicator, lighting, floor, gate-doors, operation devices, safeties, safety shoe, light ray/detection, emergency light, fire fighter service, car top, door operator, stop switch, car frame, car guides, sheaves, phone, ventilation.
VT3A	HOISTWAY	GENERAL	Enclosure, fascia, interlock, doors, hangers, closers, sheaves, rails, hoistway switches, ropes, traveling cables, selector tape, weights, compensation.
VT4A	HALL FIXTURES	GENERAL	Operating panel, position indicator, hall buttons, lobby panel, hall lanterns, fire fighter service, audible signals, card/key access.
VT5A	PIT	GENERAL	Buffer(s), guards, sheaves, hydro packing, floor, lighting, safety controls.
VT6A	OPERATING CONDITIONS	GENERAL	Door open time, door close time, door thrust, acceleration, deceleration, leveling, dwell time, speed, OFR time, nudging.
VT7A	GENERAL	OTHER	General information/projects relating to vertical transportation system components.

FACILITY CONDITION ANALYSIS

**SECTION 2**

**DETAILED PROJECT SUMMARIES  
AND TOTALS**

**Detailed Project Totals  
 Facility Condition Analysis  
 System Code by Priority Class  
 BIOT : BIOTECHNOLOGY BUILDING**

System Code	System Description	Priority Classes				Subtotal
		1	2	3	4	
AC	ACCESSIBILITY	0	0	0	87,626	87,626
EL	ELECTRICAL	0	0	257,830	0	257,830
ES	EXTERIOR	0	0	66,204	92,196	158,400
FS	FIRE/LIFE SAFETY	0	0	89,439	0	89,439
HE	HEALTH	0	0	6,467	0	6,467
HV	HVAC	0	0	421,134	2,115,590	2,536,724
IS	INTERIOR/FINISH SYS.	0	0	483,571	0	483,571
PL	PLUMBING	0	0	8,452	34,889	43,341
SI	SITE	0	0	0	34,839	34,839
VT	VERT. TRANSPORTATION	0	0	150,000	0	150,000
	<b>TOTALS</b>	0	0	1,483,096	2,365,139	3,848,235

<b>Facility Replacement Cost</b>	<b>\$11,514,000</b>
<b>Facility Condition Needs Index</b>	<b>0.33</b>

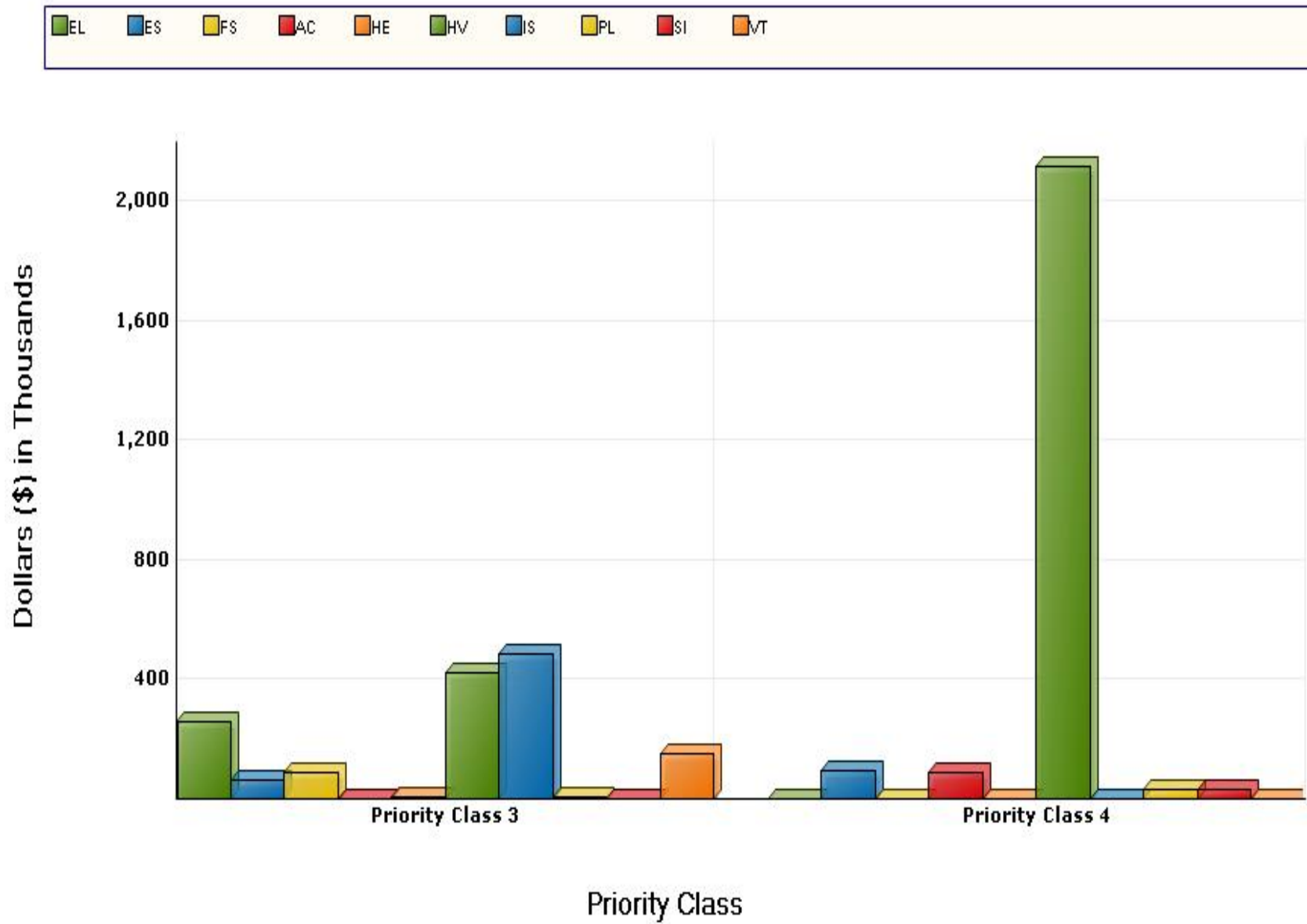
<b>Gross Square Feet</b>	<b>28,152</b>
--------------------------	---------------

<b>Total Cost Per Square Foot</b>	<b>\$136.69</b>
-----------------------------------	-----------------

# FACILITY CONDITION ANALYSIS

## System Code by Priority Class

### BIOT : BIOTECHNOLOGY BUILDING



**Detailed Project Totals  
Facility Condition Analysis  
System Code by Project Class  
BIOT : BIOTECHNOLOGY BUILDING**

System Code	System Description	Project Classes				Subtotal
		Captial Renewal	Deferred Maintenance	FCAP	Plant Adaption	
AC	ACCESSIBILITY	0	0	0	87,626	87,626
EL	ELECTRICAL	182,644	75,186	0	0	257,830
ES	EXTERIOR	138,397	20,002	0	0	158,400
FS	FIRE/LIFE SAFETY	89,439	0	0	0	89,439
HE	HEALTH	0	6,467	0	0	6,467
HV	HVAC	2,536,724	0	0	0	2,536,724
IS	INTERIOR/FINISH SYS.	367,499	116,072	0	0	483,571
PL	PLUMBING	43,341	0	0	0	43,341
SI	SITE	34,839	0	0	0	34,839
VT	VERT. TRANSPORTATION	0	150,000	0	0	150,000
	<b>TOTALS</b>	3,392,882	367,728	0	87,626	3,848,235

<b>Facility Replacement Cost</b>	\$11,514,000
<b>Facility Condition Needs Index</b>	0.33

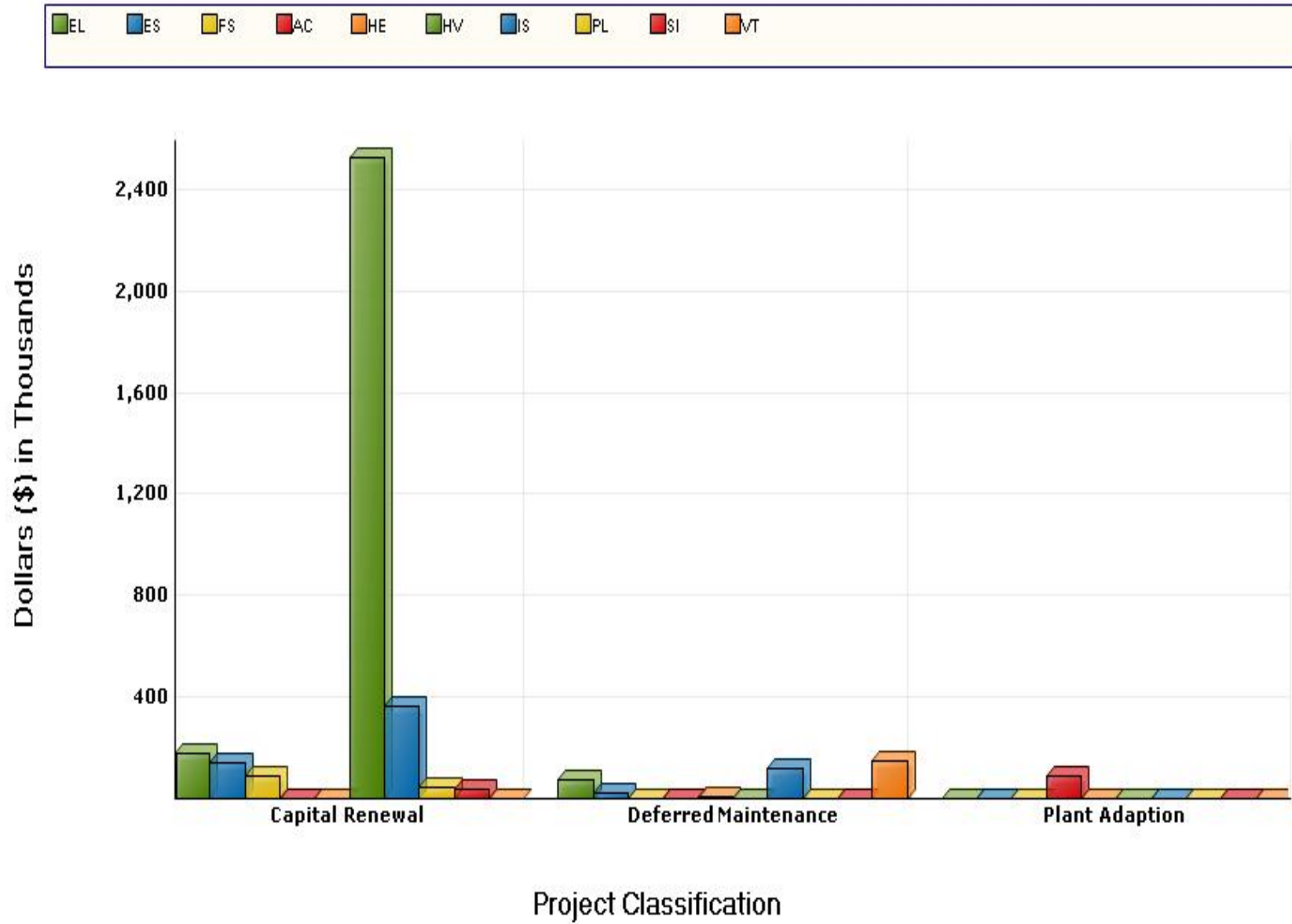
<b>Gross Square Feet</b>	28,152
--------------------------	--------

<b>Total Cost Per Square Foot</b>	\$136.69
-----------------------------------	----------

# FACILITY CONDITION ANALYSIS

## System Code by Project Class

BIOT : BIOTECHNOLOGY BUILDING



**Detailed Project Summary**  
**Facility Condition Analysis**  
**Project Class by Priority Class**  
**BIOT : BIOTECHNOLOGY BUILDING**

Project Class	Priority Classes				Subtotal
	1	2	3	4	
Capital Renewal	0	0	1,115,369	2,277,513	3,392,882
Deferred Maintenance	0	0	367,728	0	367,728
Plant Adaption	0	0	0	87,626	87,626
<b>TOTALS</b>	0	0	1,483,096	2,365,139	3,848,235

Facility Replacement Cost	\$11,514,000
Facility Condition Needs Index	0.33

Gross Square Feet	28,152
-------------------	--------

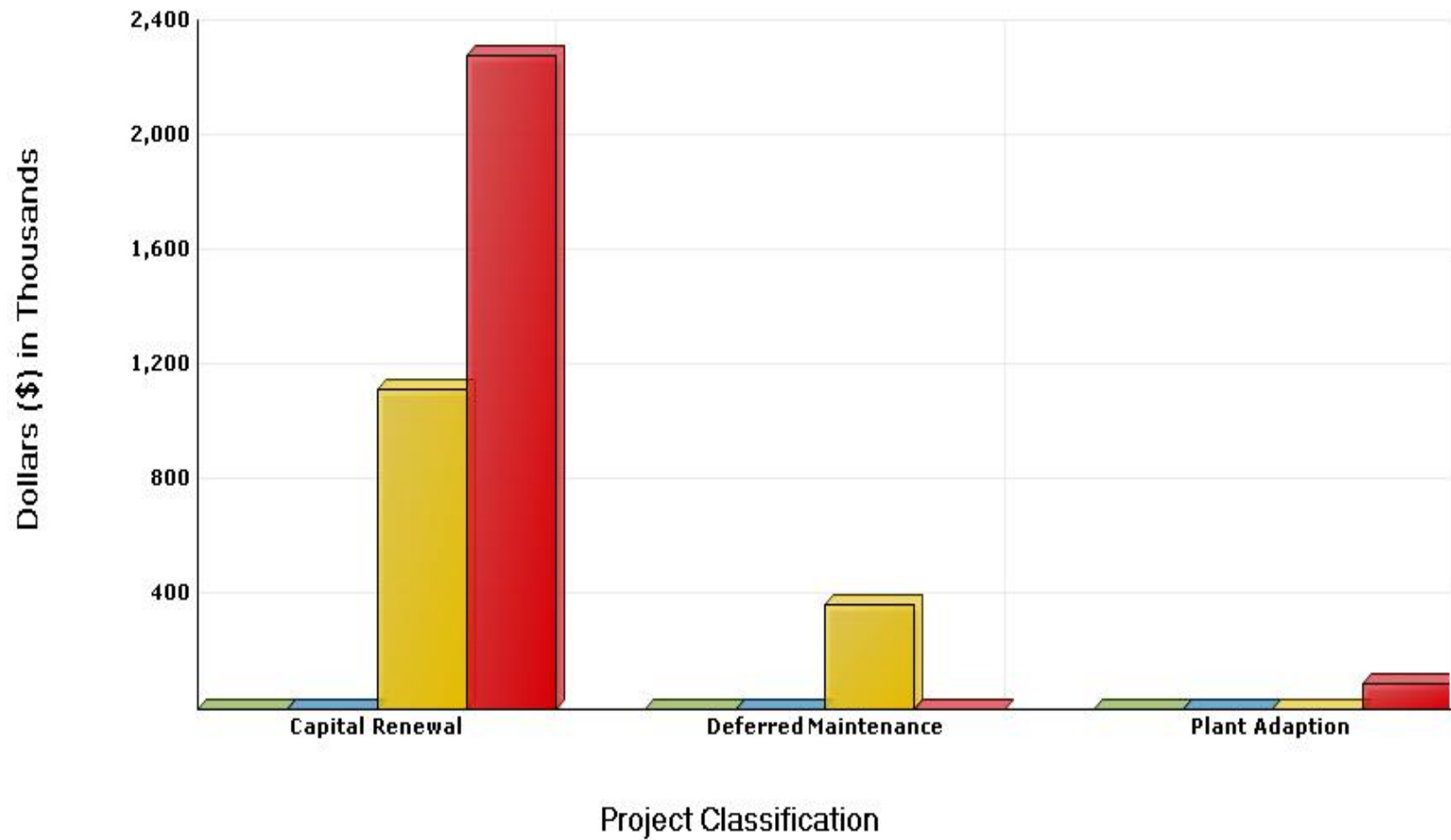
Total Cost Per Square Foot	\$136.69
----------------------------	----------



# FACILITY CONDITION ANALYSIS

## Project Class by Priority Class

### BIOT : BIOTECHNOLOGY BUILDING



**Detailed Project Summary**  
**Facility Condition Analysis**  
**Priority Class - Priority Sequence**  
BIOT : BIOTECHNOLOGY BUILDING

<b>Cat. Code</b>	<b>Project Number</b>	<b>Pri Cls</b>	<b>Pri Seq</b>	<b>Project Title</b>	<b>Construction Cost</b>	<b>Professional Fee</b>	<b>Total Cost</b>
FS3A	BIOTFS02	3	1	REPLACE SPRINKLER HEADS	9,127	1,460	10,588
FS1A	BIOTFS03	3	2	REPLACE EXIT SIGNS	2,883	461	3,345
FS2A	BIOTFS01	3	3	FIRE ALARM SYSTEM REPLACEMENT	65,092	10,415	75,506
HE1A	BIOTHE01	3	4	LAB COLD BOX REFRIGERATION SYSTEM REPLACEMENT	5,575	892	6,467
ES2B	BIOTES01	3	5	RESTORE BRICK VENEER	17,244	2,759	20,002
ES5A	BIOTES02	3	6	EXTERIOR DOOR REPLACEMENT	39,829	6,373	46,201
HV4B	BIOTHV02	3	7	FUME HOOD REPLACEMENT	363,047	58,087	421,134
EL3B	BIOTEL02	3	8	ELECTRICAL SYSTEM REPAIRS	64,816	10,370	75,186
EL4B	BIOTEL01	3	9	INTERIOR LIGHTING UPGRADE	156,237	24,998	181,234
EL4A	BIOTEL03	3	10	EXTERIOR LIGHTING REPLACEMENT	1,215	194	1,410
IS6B	BIOTIS04	3	11	LABORATORY CASEWORK UPGRADES	100,062	16,010	116,072
IS1A	BIOTIS01	3	12	REFINISH FLOORING	159,407	25,505	184,912
IS2B	BIOTIS02	3	13	REFINISH WALLS	52,199	8,352	60,551
IS3B	BIOTIS03	3	14	REFINISH CEILINGS	105,203	16,833	122,036
PL2B	BIOTPL02	3	15	REPLACE SUMP PUMPS	7,286	1,166	8,452
VT7A	BIOTVT01	3	16	UPGRADE ELEVATOR NO. 1 AND 2	150,000	0	150,000
<b>Totals for Priority Class 3</b>					<b>1,299,221</b>	<b>183,875</b>	<b>1,483,096</b>
AC4A	BIOTAC01	4	17	INTERIOR AMENITY ACCESSIBILITY UPGRADES	34,541	5,527	40,068
AC4B	BIOTAC03	4	18	INTERIOR DOOR UPGRADES	3,321	531	3,852
AC3E	BIOTAC02	4	19	RESTROOM RENOVATION	37,678	6,028	43,706
ES4B	BIOTES03	4	20	MEMBRANE ROOF REPLACEMENT	79,479	12,717	92,196
HV3A	BIOTHV01	4	21	HVAC SYSTEM REPLACEMENT	1,823,784	291,805	2,115,590
PL1E	BIOTPL01	4	22	DOMESTIC HOT WATER HEAT EXCHANGER REPLACEMENT	30,077	4,812	34,889
SI4A	BIOTSI01	4	23	SITE PAVING UPGRADES	30,033	4,805	34,839
<b>Totals for Priority Class 4</b>					<b>2,038,913</b>	<b>326,226</b>	<b>2,365,139</b>
<b>Grand Total:</b>					<b>3,338,134</b>	<b>510,101</b>	<b>3,848,235</b>

**Detailed Project Summary**  
**Facility Condition Analysis**  
**Project Cost Range**  
BIOT : BIOTECHNOLOGY BUILDING

<b>Cat. Code</b>	<b>Project Number</b>	<b>Pri Cls</b>	<b>Pri Seq</b>	<b>Project Title</b>	<b>Construction Cost</b>	<b>Professional Fee</b>	<b>Total Cost</b>
ES2B	BIOTES01	3	5	RESTORE BRICK VENEER	17,244	2,759	20,002
ES5A	BIOTES02	3	6	EXTERIOR DOOR REPLACEMENT	39,829	6,373	46,201
IS2B	BIOTIS02	3	13	REFINISH WALLS	52,199	8,352	60,551
FS2A	BIOTFS01	3	3	FIRE ALARM SYSTEM REPLACEMENT	65,092	10,415	75,506
FS3A	BIOTFS02	3	1	REPLACE SPRINKLER HEADS	9,127	1,460	10,588
FS1A	BIOTFS03	3	2	REPLACE EXIT SIGNS	2,883	461	3,345
HE1A	BIOTHE01	3	4	LAB COLD BOX REFRIGERATION SYSTEM REPLACEMENT	5,575	892	6,467
EL3B	BIOTEL02	3	8	ELECTRICAL SYSTEM REPAIRS	64,816	10,370	75,186
EL4A	BIOTEL03	3	10	EXTERIOR LIGHTING REPLACEMENT	1,215	194	1,410
PL2B	BIOTPL02	3	15	REPLACE SUMP PUMPS	7,286	1,166	8,452
<b>Totals for Priority Class 3</b>					<b>265,265</b>	<b>42,442</b>	<b>307,708</b>
AC4A	BIOTAC01	4	17	INTERIOR AMENITY ACCESSIBILITY UPGRADES	34,541	5,527	40,068
AC3E	BIOTAC02	4	19	RESTROOM RENOVATION	37,678	6,028	43,706
AC4B	BIOTAC03	4	18	INTERIOR DOOR UPGRADES	3,321	531	3,852
ES4B	BIOTES03	4	20	MEMBRANE ROOF REPLACEMENT	79,479	12,717	92,196
SI4A	BIOTSI01	4	23	SITE PAVING UPGRADES	30,033	4,805	34,839
PL1E	BIOTPL01	4	22	DOMESTIC HOT WATER HEAT EXCHANGER REPLACEMENT	30,077	4,812	34,889
<b>Totals for Priority Class 4</b>					<b>215,129</b>	<b>34,421</b>	<b>249,550</b>
<b>Grand Totals for Projects &lt; 100,000</b>					<b>480,394</b>	<b>76,863</b>	<b>557,257</b>

**Detailed Project Summary**  
**Facility Condition Analysis**  
**Project Cost Range**  
 BIOT : BIOTECHNOLOGY BUILDING

<b>Cat. Code</b>	<b>Project Number</b>	<b>Pri Cls</b>	<b>Pri Seq</b>	<b>Project Title</b>	<b>Construction Cost</b>	<b>Professional Fee</b>	<b>Total Cost</b>
IS1A	BIOTIS01	3	12	REFINISH FLOORING	159,407	25,505	184,912
IS3B	BIOTIS03	3	14	REFINISH CEILINGS	105,203	16,833	122,036
IS6B	BIOTIS04	3	11	LABORATORY CASEWORK UPGRADES	100,062	16,010	116,072
VT7A	BIOTVT01	3	16	UPGRADE ELEVATOR NO. 1 AND 2	150,000	0	150,000
HV4B	BIOTHV02	3	7	FUME HOOD REPLACEMENT	363,047	58,087	421,134
EL4B	BIOTEL01	3	9	INTERIOR LIGHTING UPGRADE	156,237	24,998	181,234
<b>Totals for Priority Class 3</b>					<b>1,033,956</b>	<b>141,433</b>	<b>1,175,389</b>
<b>Grand Totals for Projects &gt;= 100,000 and &lt; 500,000</b>					<b>1,033,956</b>	<b>141,433</b>	<b>1,175,389</b>

**Detailed Project Summary**  
**Facility Condition Analysis**  
**Project Cost Range**  
 BIOT : BIOTECHNOLOGY BUILDING

Cat. Code	Project Number	Pri Cls	Pri Seq	Project Title	Construction Cost	Professional Fee	Total Cost
HV3A	BIOTHV01	4	21	HVAC SYSTEM REPLACEMENT	1,823,784	291,805	2,115,590
				<b>Totals for Priority Class 4</b>	<b>1,823,784</b>	<b>291,805</b>	<b>2,115,590</b>
				<b>Grand Totals for Projects &gt;= 500,000</b>	<b>1,823,784</b>	<b>291,805</b>	<b>2,115,590</b>
				<b>Grand Totals For All Projects:</b>	<b>3,338,134</b>	<b>510,101</b>	<b>3,848,235</b>

**Detailed Project Summary**  
**Facility Condition Analysis**  
**Project Classification**  
BIOT : BIOTECHNOLOGY BUILDING

<b>Cat Code</b>	<b>Project Number</b>	<b>Pri. Seq.</b>	<b>Project Classification</b>	<b>Pri. Cls</b>	<b>Project Title</b>	<b>Total Cost</b>
FS3A	BIOTFS02	1	Capital Renewal	3	REPLACE SPRINKLER HEADS	10,588
FS1A	BIOTFS03	2	Capital Renewal	3	REPLACE EXIT SIGNS	3,345
FS2A	BIOTFS01	3	Capital Renewal	3	FIRE ALARM SYSTEM REPLACEMENT	75,506
ES5A	BIOTES02	6	Capital Renewal	3	EXTERIOR DOOR REPLACEMENT	46,201
HV4B	BIOTHV02	7	Capital Renewal	3	FUME HOOD REPLACEMENT	421,134
EL4B	BIOTEL01	9	Capital Renewal	3	INTERIOR LIGHTING UPGRADE	181,234
EL4A	BIOTEL03	10	Capital Renewal	3	EXTERIOR LIGHTING REPLACEMENT	1,410
IS1A	BIOTIS01	12	Capital Renewal	3	REFINISH FLOORING	184,912
IS2B	BIOTIS02	13	Capital Renewal	3	REFINISH WALLS	60,551
IS3B	BIOTIS03	14	Capital Renewal	3	REFINISH CEILINGS	122,036
PL2B	BIOTPL02	15	Capital Renewal	3	REPLACE SUMP PUMPS	8,452
ES4B	BIOTES03	20	Capital Renewal	4	MEMBRANE ROOF REPLACEMENT	92,196
HV3A	BIOTHV01	21	Capital Renewal	4	HVAC SYSTEM REPLACEMENT	2,115,590
PL1E	BIOTPL01	22	Capital Renewal	4	DOMESTIC HOT WATER HEAT EXCHANGER REPLACEMENT	34,889
SI4A	BIOTSI01	23	Capital Renewal	4	SITE PAVING UPGRADES	34,839
<b>Totals for Capital Renewal</b>						<b>3,392,882</b>
HE1A	BIOTHE01	4	Deferred Maintenance	3	LAB COLD BOX REFRIGERATION SYSTEM REPLACEMENT	6,467
ES2B	BIOTES01	5	Deferred Maintenance	3	RESTORE BRICK VENEER	20,002
EL3B	BIOTEL02	8	Deferred Maintenance	3	ELECTRICAL SYSTEM REPAIRS	75,186
IS6B	BIOTIS04	11	Deferred Maintenance	3	LABORATORY CASEWORK UPGRADES	116,072
VT7A	BIOTVT01	16	Deferred Maintenance	3	UPGRADE ELEVATOR NO. 1 AND 2	150,000
<b>Totals for Deferred Maintenance</b>						<b>367,728</b>
AC4A	BIOTAC01	17	Plant Adaption	4	INTERIOR AMENITY ACCESSIBILITY UPGRADES	40,068
AC4B	BIOTAC03	18	Plant Adaption	4	INTERIOR DOOR UPGRADES	3,852
AC3E	BIOTAC02	19	Plant Adaption	4	RESTROOM RENOVATION	43,706
<b>Totals for Plant Adaption</b>						<b>87,626</b>
<b>Grand Total:</b>						<b>3,848,235</b>

**Detailed Project Summary**  
**Facility Condition Analysis**  
**Energy Conservation**  
 BIOT : BIOTECHNOLOGY BUILDING

<b>Cat Code</b>	<b>Project Number</b>	<b>Pri Cls</b>	<b>Pri Seq</b>	<b>Project Title</b>	<b>Total Cost</b>	<b>Annual Savings</b>	<b>Simple Payback</b>
FS1A	BIOTFS03	3	2	REPLACE EXIT SIGNS	3,345	10	334.46
EL4B	BIOTEL01	3	9	INTERIOR LIGHTING UPGRADE	181,234	8,610	21.05
EL4A	BIOTEL03	3	10	EXTERIOR LIGHTING REPLACEMENT	1,410	130	10.84
<b>Totals for Priority Class 3</b>					<b>185,989</b>	<b>8,750</b>	<b>21.26</b>
ES4B	BIOTES03	4	20	MEMBRANE ROOF REPLACEMENT	92,196	1,200	76.83
HV3A	BIOTHV01	4	21	HVAC SYSTEM REPLACEMENT	2,115,590	17,970	117.73
<b>Totals for Priority Class 4</b>					<b>2,207,785</b>	<b>19,170</b>	<b>115.17</b>
<b>Grand Total:</b>					<b>2,393,774</b>	<b>27,920</b>	<b>85.74</b>

Detailed Project Summary  
Facility Condition Analysis  
Category/System Code  
BIOT : BIOTECHNOLOGY BUILDING

Cat. Code	Project Number	Pri Cls	Pri Seq	Project Title	Construction Cost	Professional Fee	Total Cost
AC4A	BIOTAC01	4	17	INTERIOR AMENITY ACCESSIBILITY UPGRADES	34,541	5,527	40,068
AC4B	BIOTAC03	4	18	INTERIOR DOOR UPGRADES	3,321	531	3,852
AC3E	BIOTAC02	4	19	RESTROOM RENOVATION	37,678	6,028	43,706
<b>Totals for System Code: ACCESSIBILITY</b>					<b>75,539</b>	<b>12,086</b>	<b>87,626</b>
EL3B	BIOTEL02	3	8	ELECTRICAL SYSTEM REPAIRS	64,816	10,370	75,186
EL4B	BIOTEL01	3	9	INTERIOR LIGHTING UPGRADE	156,237	24,998	181,234
EL4A	BIOTEL03	3	10	EXTERIOR LIGHTING REPLACEMENT	1,215	194	1,410
<b>Totals for System Code: ELECTRICAL</b>					<b>222,267</b>	<b>35,563</b>	<b>257,830</b>
ES2B	BIOTES01	3	5	RESTORE BRICK VENEER	17,244	2,759	20,002
ES5A	BIOTES02	3	6	EXTERIOR DOOR REPLACEMENT	39,829	6,373	46,201
ES4B	BIOTES03	4	20	MEMBRANE ROOF REPLACEMENT	79,479	12,717	92,196
<b>Totals for System Code: EXTERIOR</b>					<b>136,551</b>	<b>21,848</b>	<b>158,400</b>
FS3A	BIOTFS02	3	1	REPLACE SPRINKLER HEADS	9,127	1,460	10,588
FS1A	BIOTFS03	3	2	REPLACE EXIT SIGNS	2,883	461	3,345
FS2A	BIOTFS01	3	3	FIRE ALARM SYSTEM REPLACEMENT	65,092	10,415	75,506
<b>Totals for System Code: FIRE/LIFE SAFETY</b>					<b>77,102</b>	<b>12,336</b>	<b>89,439</b>
HE1A	BIOTHE01	3	4	LAB COLD BOX REFRIGERATION SYSTEM REPLACEMENT	5,575	892	6,467
<b>Totals for System Code: HEALTH</b>					<b>5,575</b>	<b>892</b>	<b>6,467</b>
HV4B	BIOTHV02	3	7	FUME HOOD REPLACEMENT	363,047	58,087	421,134
HV3A	BIOTHV01	4	21	HVAC SYSTEM REPLACEMENT	1,823,784	291,805	2,115,590
<b>Totals for System Code: HVAC</b>					<b>2,186,831</b>	<b>349,893</b>	<b>2,536,724</b>
IS6B	BIOTIS04	3	11	LABORATORY CASEWORK UPGRADES	100,062	16,010	116,072
IS1A	BIOTIS01	3	12	REFINISH FLOORING	159,407	25,505	184,912
IS2B	BIOTIS02	3	13	REFINISH WALLS	52,199	8,352	60,551
IS3B	BIOTIS03	3	14	REFINISH CEILINGS	105,203	16,833	122,036
<b>Totals for System Code: INTERIOR/FINISH SYS.</b>					<b>416,872</b>	<b>66,699</b>	<b>483,571</b>
PL2B	BIOTPL02	3	15	REPLACE SUMP PUMPS	7,286	1,166	8,452
PL1E	BIOTPL01	4	22	DOMESTIC HOT WATER HEAT EXCHANGER REPLACEMENT	30,077	4,812	34,889
<b>Totals for System Code: PLUMBING</b>					<b>37,363</b>	<b>5,978</b>	<b>43,341</b>
SI4A	BIOTSI01	4	23	SITE PAVING UPGRADES	30,033	4,805	34,839
<b>Totals for System Code: SITE</b>					<b>30,033</b>	<b>4,805</b>	<b>34,839</b>



**Detailed Project Summary**  
**Facility Condition Analysis**  
**Category/System Code**  
 BIOT : BIOTECHNOLOGY BUILDING

Cat. Code	Project Number	Pri Cls	Pri Seq	Project Title	Construction Cost	Professional Fee	Total Cost
VT7A	BIOTVT01	3	16	UPGRADE ELEVATOR NO. 1 AND 2	150,000	0	150,000
<b>Totals for System Code: VERT. TRANSPORTATION</b>					<b>150,000</b>		<b>150,000</b>
<b>Grand Total:</b>					<b>3,338,134</b>	<b>510,101</b>	<b>3,848,235</b>



FACILITY CONDITION ANALYSIS

**SECTION 3**

SPECIFIC PROJECT DETAILS  
ILLUSTRATING DESCRIPTION / COST

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTFS02	<b>Title:</b>	REPLACE SPRINKLER HEADS
<b>Priority Sequence:</b>	1		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	FS3A	<b>System:</b>	FIRE/LIFE SAFETY
		<b>Component:</b>	SUPPRESSION
		<b>Element:</b>	SPRINKLERS
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	NFPA	1, 13, 13D, 101	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

The sprinkler heads are recommended for replacement. The statistical life cycle for a sprinkler head is approximately twenty years. During this time, scale can accumulate inside the head and cause it to malfunction when needed. It is recommended that the aging sprinkler heads be replaced to ensure that proper protection is available.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTFS02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Fire sprinkler head replacement	SF	28,152	\$0.09	\$2,534	\$0.35	\$9,853	\$12,387
<b>Project Totals:</b>				<b>\$2,534</b>		<b>\$9,853</b>	<b>\$12,387</b>

<b>Material/Labor Cost</b>		<b>\$12,387</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$7,606</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$1,521</u>
<b>Construction Cost</b>		<u>\$9,127</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$1,460</u>
<b>Total Project Cost</b>		<u><b>\$10,588</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTFS03	<b>Title:</b>	REPLACE EXIT SIGNS
<b>Priority Sequence:</b>	2		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	FS1A	<b>System:</b>	FIRE/LIFE SAFETY
		<b>Component:</b>	LIGHTING
		<b>Element:</b>	EGRESS LTG./EXIT SIGNAGE
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Energy Conservation	\$10	
<b>Code Application:</b>	NFPA	101-47	
	IBC	1011	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

Replace the existing exit signage throughout the building, and install new exit signs as needed. The new units should be connected to the emergency power network. LED type exit signs are recommended, because they are energy efficient and require minimal maintenance.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTFS03

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Replacement of existing exit signs with LED units	EA	20	\$76.00	\$1,520	\$85.00	\$1,700	\$3,220
<b>Project Totals:</b>				<b>\$1,520</b>		<b>\$1,700</b>	<b>\$3,220</b>

<b>Material/Labor Cost</b>		<b>\$3,220</b>
<b>Material Index</b>		<b>100.7%</b>
<b>Labor Index</b>		<b>51.3%</b>
<b>Material/Labor Indexed Cost</b>		<b>\$2,403</b>
<b>General Contractor Mark Up at 20.0%</b>	<b>+</b>	<b>\$481</b>
<b>Construction Cost</b>		<b>\$2,883</b>
<b>Professional Fees at 16.0%</b>	<b>+</b>	<b>\$461</b>
<b>Total Project Cost</b>		<b>\$3,345</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTFS01	<b>Title:</b>	FIRE ALARM SYSTEM REPLACEMENT
<b>Priority Sequence:</b>	3		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	FS2A	<b>System:</b>	FIRE/LIFE SAFETY
		<b>Component:</b>	DETECTION ALARM
		<b>Element:</b>	GENERAL
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ADAAG	702.1	
	NFPA	1, 101	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

Upgrade the existing fire alarm system with a modern application. Specify a point addressable supervised main fire alarm panel with an annunciator. This work includes pull stations, audible and visible alarms, smoke and heat detectors, and a wiring network. Install all devices in accordance with current NFPA and ADA requirements. The system should be monitored to report activation or trouble to an applicable receiving station.



**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTFS01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Fire alarm control panel(s), annunciator, smoke and heat detectors, manual pull stations, audible and visual alarms, wiring, raceways, cut and patching materials	SF	28,152	\$1.46	\$41,102	\$0.89	\$25,055	\$66,157
<b>Project Totals:</b>				<b>\$41,102</b>		<b>\$25,055</b>	<b>\$66,157</b>

<b>Material/Labor Cost</b>		\$66,157
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$54,243</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$10,849</u>
<b>Construction Cost</b>		<u>\$65,092</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$10,415</u>
<b>Total Project Cost</b>		<u><b>\$75,506</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTHE01	<b>Title:</b>	LAB COLD BOX REFRIGERATION SYSTEM REPLACEMENT
<b>Priority Sequence:</b>	4		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	HE1A	<b>System:</b>	HEALTH
		<b>Component:</b>	ENVIRONMENTAL CONTROL
		<b>Element:</b>	EQUIPMENT AND ENCLOSURES
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ASHRAE	15-2004	
<b>Project Class:</b>	Deferred Maintenance		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Room Only: Floor(s) 1		

**Project Description**

Replacement of the laboratory cold box refrigeration system is recommended. Remove the existing system. Install a new non-CFC/HCFC refrigerant based system of the latest energy-efficient design.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTHE01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Refrigeration system, including compressor, evaporator unit, controls, refrigerant, and demolition of existing equipment	SYS	1	\$3,350	\$3,350	\$2,480	\$2,480	\$5,830
<b>Project Totals:</b>				<b>\$3,350</b>		<b>\$2,480</b>	<b>\$5,830</b>

<b>Material/Labor Cost</b>		<b>\$5,830</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$4,646</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$929</b>
<b>Construction Cost</b>		<b>\$5,575</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$892</b>
<b>Total Project Cost</b>		<b>\$6,467</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTES01	<b>Title:</b>	RESTORE BRICK VENEER
<b>Priority Sequence:</b>	5		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	ES2B	<b>System:</b>	EXTERIOR
		<b>Component:</b>	COLUMNS/BEAMS/WALLS
		<b>Element:</b>	FINISH
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Deferred Maintenance		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Building-wide: Floor(s) 1		

**Project Description**

Brick veneer is the primary exterior finish. While the brick is fundamentally sound, exposure to the elements has caused some deterioration of the mortar joints and expansion joints. Cleaning, surface preparation, selective repairs, and applied finish or penetrating sealant upgrades are recommended to restore the aesthetics and integrity of the building envelope.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTES01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Cleaning and surface preparation	SF	10,500	\$0.11	\$1,155	\$0.22	\$2,310	\$3,465
Selective mortar and / or sealant repairs (assumes 10 linear feet for every 100 square feet of envelope)	LF	1,050	\$2.45	\$2,573	\$4.99	\$5,240	\$7,812
Applied finish or sealant	SF	10,500	\$0.22	\$2,310	\$0.82	\$8,610	\$10,920
<b>Project Totals:</b>				<b>\$6,038</b>		<b>\$16,160</b>	<b>\$22,197</b>

<b>Material/Labor Cost</b>		<b>\$22,197</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$14,370</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$2,874</b>
<b>Construction Cost</b>		<b>\$17,244</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$2,759</b>
<b>Total Project Cost</b>		<b>\$20,002</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTES02	<b>Title:</b>	EXTERIOR DOOR REPLACEMENT
<b>Priority Sequence:</b>	6		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	ES5A	<b>System:</b>	EXTERIOR
		<b>Component:</b>	FENESTRATIONS
		<b>Element:</b>	DOORS
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Building-wide: Floor(s) 1		

**Project Description**

Replacement of the primary metal-framed glass entrance doors is recommended. The new doors should maintain the architectural design aspects of this facility and be modern, energy-efficient applications.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTES02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
High traffic door system	LEAF	11	\$1,978	\$21,758	\$1,999	\$21,989	\$43,747
<b>Project Totals:</b>				<b>\$21,758</b>		<b>\$21,989</b>	<b>\$43,747</b>

<b>Material/Labor Cost</b>		<b>\$43,747</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$33,191</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$6,638</u>
<b>Construction Cost</b>		<u>\$39,829</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$6,373</u>
<b>Total Project Cost</b>		<u><b>\$46,201</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTHV02	<b>Title:</b>	FUME HOOD REPLACEMENT
<b>Priority Sequence:</b>	7		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	HV4B	<b>System:</b>	HVAC
		<b>Component:</b>	AIR MOVING/VENTILATION
		<b>Element:</b>	EXHAUST FANS
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ASHRAE	62-2004, 110-1995	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1		

**Project Description**

Replacement of the aging fume hoods is recommended. Demolish the necessary fume hoods and their related mechanical systems. Install new modern fume hood systems, including hoods, fans, ductwork, piping, and electrical connections. Provide modern direct digital controls that interface with the HVAC system.



**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTHV02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Fume hood replacement, including mechanical systems, controls, demolition, and disposal fees	SYS	10	\$24,990	\$249,900	\$9,920	\$99,200	\$349,100
<b>Project Totals:</b>				<b>\$249,900</b>		<b>\$99,200</b>	<b>\$349,100</b>

<b>Material/Labor Cost</b>		<b>\$349,100</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$302,539</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$60,508</b>
<b>Construction Cost</b>		<b>\$363,047</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$58,087</b>
<b>Total Project Cost</b>		<b>\$421,134</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTEL02	<b>Title:</b>	ELECTRICAL SYSTEM REPAIRS
<b>Priority Sequence:</b>	8		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	EL3B	<b>System:</b>	ELECTRICAL
		<b>Component:</b>	SECONDARY DISTRIBUTION
		<b>Element:</b>	DISTRIBUTION NETWORK
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	NEC	Articles 100, 210, 410	
<b>Project Class:</b>	Deferred Maintenance		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

Aging devices, including wall switches and receptacles, are potential shock and fire hazards. Replace all worn or damaged switches, receptacles, and cover plates. Install GFCI receptacles where required by code. Test power panels for proper operation, replacing faulty breakers as needed. Update power panel directories for circuit identification.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTEL02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Switches, receptacles, cover plates, breakers, miscellaneous materials	SF	28,152	\$1.08	\$30,404	\$1.62	\$45,606	\$76,010
<b>Project Totals:</b>				<b>\$30,404</b>		<b>\$45,606</b>	<b>\$76,010</b>

<b>Material/Labor Cost</b>		\$76,010
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		\$54,013
<b>General Contractor Mark Up at 20.0%</b>	+	\$10,803
<b>Construction Cost</b>		\$64,816
<b>Professional Fees at 16.0%</b>	+	\$10,370
<b>Total Project Cost</b>		<b>\$75,186</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTEL01	<b>Title:</b>	INTERIOR LIGHTING UPGRADE
<b>Priority Sequence:</b>	9		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	EL4B	<b>System:</b>	ELECTRICAL
		<b>Component:</b>	DEVICES AND FIXTURES
		<b>Element:</b>	INTERIOR LIGHTING
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Energy Conservation	\$8,610	
<b>Code Application:</b>	NEC	Articles 210, 410	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

An interior lighting upgrade is recommended. Replace existing aged and / or inefficient light fixtures with modern fixtures of the latest energy-efficient design. Select lamps with the same color temperature and rendering index for lighting uniformity. Install occupancy sensors in select areas for additional energy conservation.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTEL01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
High efficiency fluorescent fixtures, occupancy sensors, and demolition of existing lighting	SF	28,152	\$2.83	\$79,670	\$3.46	\$97,406	\$177,076
<b>Project Totals:</b>				<b>\$79,670</b>		<b>\$97,406</b>	<b>\$177,076</b>

<b>Material/Labor Cost</b>		<b>\$177,076</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$130,197</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$26,039</b>
<b>Construction Cost</b>		<b>\$156,237</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$24,998</b>
<b>Total Project Cost</b>		<b>\$181,234</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTEL03	<b>Title:</b>	EXTERIOR LIGHTING REPLACEMENT
<b>Priority Sequence:</b>	10		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	EL4A	<b>System:</b>	ELECTRICAL
		<b>Component:</b>	DEVICES AND FIXTURES
		<b>Element:</b>	EXTERIOR LIGHTING
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Energy Conservation	\$130	
<b>Code Application:</b>	NEC	410	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Building-wide: Floor(s) 1		

**Project Description**

Nighttime illumination is provided by approximately two original wall-mounted HID fixtures and pole-mounted street / sidewalk lighting. Due to the daytime inspection, the illumination level was not easily verified. Based on the present fixture locations, there appears to be a sufficient quantity. However, because of life cycle depletion, a formal cost estimate was created for replacement of the wall-mounted HID fixtures within the next five years.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTEL03

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
HID wall-mount fixture and demolition of existing fixture	EA	2	\$406	\$812	\$190	\$380	\$1,192
<b>Project Totals:</b>				<b>\$812</b>		<b>\$380</b>	<b>\$1,192</b>

<b>Material/Labor Cost</b>		<b>\$1,192</b>
<b>Material Index</b>		<b>100.7%</b>
<b>Labor Index</b>		<b>51.3%</b>
<b>Material/Labor Indexed Cost</b>		<b>\$1,013</b>
<b>General Contractor Mark Up at 20.0%</b>	<b>+</b>	<b>\$203</b>
<b>Construction Cost</b>		<b>\$1,215</b>
<b>Professional Fees at 16.0%</b>	<b>+</b>	<b>\$194</b>
<b>Total Project Cost</b>		<b>\$1,410</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTIS04	<b>Title:</b>	LABORATORY CASEWORK UPGRADES
<b>Priority Sequence:</b>	11		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	IS6B	<b>System:</b>	INTERIOR/FINISH SYS.
		<b>Component:</b>	GENERAL
		<b>Element:</b>	CABINETRY
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Deferred Maintenance		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1		

**Project Description**

Lab casework in the pediatric areas appears to be newer and in excellent condition. The laboratory casework on the first floor is sound, but future laboratory finish upgrades should include casework restoration.



**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTIS04

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Laboratory / casework restoration, including hardware and chemical resistant paints, veneers, or sealants (assumes casework density of 20% of total lab area)	SF	11,260	\$4.17	\$46,954	\$6.25	\$70,375	\$117,329
<b>Project Totals:</b>				<b>\$46,954</b>		<b>\$70,375</b>	<b>\$117,329</b>

<b>Material/Labor Cost</b>		<b>\$117,329</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$83,385</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$16,677</u>
<b>Construction Cost</b>		<u>\$100,062</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$16,010</u>
<b>Total Project Cost</b>		<u><b>\$116,072</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTIS01	<b>Title:</b>	REFINISH FLOORING
<b>Priority Sequence:</b>	12		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	IS1A	<b>System:</b>	INTERIOR/FINISH SYS.
		<b>Component:</b>	FLOOR
		<b>Element:</b>	FINISHES-DRY

<b>Building Code:</b>	BIOT
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING
<b>Subclass/Savings:</b>	Not Applicable

<b>Code Application:</b>	Not Applicable
--------------------------	----------------

<b>Project Class:</b>	Capital Renewal
<b>Project Date:</b>	10/5/2009

<b>Project Location:</b>	Floor-wide: Floor(s) 1, G
--------------------------	---------------------------

**Project Description**

Interior floor finishes include vinyl tile and carpet. The applications vary in age and condition from area to area. Floor finish upgrades should be considered as part of any future cosmetic improvements or major comprehensive renovation efforts.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTIS01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Carpet	SF	10,770	\$5.36	\$57,727	\$2.00	\$21,540	\$79,267
Vinyl floor tile	SF	13,160	\$3.53	\$46,455	\$2.50	\$32,900	\$79,355
<b>Project Totals:</b>				<b>\$104,182</b>		<b>\$54,440</b>	<b>\$158,622</b>

<b>Material/Labor Cost</b>		<b>\$158,622</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$132,839</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$26,568</b>
<b>Construction Cost</b>		<b>\$159,407</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$25,505</b>
<b>Total Project Cost</b>		<b>\$184,912</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTIS02	<b>Title:</b>	REFINISH WALLS
<b>Priority Sequence:</b>	13		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	IS2B	<b>System:</b>	INTERIOR/FINISH SYS.
		<b>Component:</b>	PARTITIONS
		<b>Element:</b>	FINISHES

<b>Building Code:</b>	BIOT
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING
<b>Subclass/Savings:</b>	Not Applicable

**Code Application:** Not Applicable

<b>Project Class:</b>	Capital Renewal
<b>Project Date:</b>	10/5/2009

<b>Project Location:</b>	Floor-wide: Floor(s) 1, G
--------------------------	---------------------------

**Project Description**

Interior wall finishes are painted plaster or concrete. The applications vary in age and condition. Wall finish upgrades should be considered as part of any future cosmetic improvements or major comprehensive renovation efforts.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTIS02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Standard wall finish (paint, wall covering, etc.)	SF	74,140	\$0.17	\$12,604	\$0.81	\$60,053	\$72,657
<b>Project Totals:</b>				<b>\$12,604</b>		<b>\$60,053</b>	<b>\$72,657</b>

<b>Material/Labor Cost</b>		<b>\$72,657</b>
<b>Material Index</b>		<b>100.7%</b>
<b>Labor Index</b>		<b>51.3%</b>
<b>Material/Labor Indexed Cost</b>		<b>\$43,499</b>
<b>General Contractor Mark Up at 20.0%</b>	<b>+</b>	<b>\$8,700</b>
<b>Construction Cost</b>		<b>\$52,199</b>
<b>Professional Fees at 16.0%</b>	<b>+</b>	<b>\$8,352</b>
<b>Total Project Cost</b>		<b>\$60,551</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTIS03	<b>Title:</b>	REFINISH CEILINGS
<b>Priority Sequence:</b>	14		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	IS3B	<b>System:</b>	INTERIOR/FINISH SYS.
		<b>Component:</b>	CEILINGS
		<b>Element:</b>	REPLACEMENT
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

Ceiling finishes consist of lay-in, acoustical tile throughout the building. The applications vary in age and condition from room to room. Ceiling finish upgrades should be considered as part of any future cosmetic improvements or major comprehensive renovation efforts.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTIS03

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Acoustical tile ceiling system	SF	23,930	\$2.12	\$50,732	\$2.98	\$71,311	\$122,043
<b>Project Totals:</b>				<b>\$50,732</b>		<b>\$71,311</b>	<b>\$122,043</b>

<b>Material/Labor Cost</b>		\$122,043
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		\$87,669
<b>General Contractor Mark Up at 20.0%</b>	+	\$17,534
<b>Construction Cost</b>		\$105,203
<b>Professional Fees at 16.0%</b>	+	\$16,833
<b>Total Project Cost</b>		<b>\$122,036</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTPL02	<b>Title:</b>	REPLACE SUMP PUMPS
<b>Priority Sequence:</b>	15		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	PL2B	<b>System:</b>	PLUMBING
		<b>Component:</b>	WASTEWATER
		<b>Element:</b>	PUMPS
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	IPC	712	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Item Only: Floor(s) G		

**Project Description**

Replacement of the sump pump system is recommended. Remove the existing pump assembly. Install a new duplex sump pump system, including pit, pumps, alternating controls, alarms, piping, and electrical connections.



**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTPL02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Sump pump system, including pit, pumps, controls, connections, and demolition of existing system	SYS	1	\$4,440	\$4,440	\$3,120	\$3,120	\$7,560
<b>Project Totals:</b>				<b>\$4,440</b>		<b>\$3,120</b>	<b>\$7,560</b>

<b>Material/Labor Cost</b>		<b>\$7,560</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$6,072</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$1,214</b>
<b>Construction Cost</b>		<b>\$7,286</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$1,166</b>
<b>Total Project Cost</b>		<b>\$8,452</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTVT01	<b>Title:</b>	UPGRADE ELEVATOR NO. 1 AND 2
<b>Priority Sequence:</b>	16		
<b>Priority Class:</b>	3		
<b>Category Code:</b>	VT7A	<b>System:</b>	VERT. TRANSPORTATION
		<b>Component:</b>	GENERAL
		<b>Element:</b>	OTHER
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Deferred Maintenance		
<b>Project Date:</b>	10/12/2009		
<b>Project Location:</b>	Item Only: Floor(s) G		

**Project Description**

Replace the hydraulic pumping units complete with motor, pumps, and valves. Replace the controllers, door operators, door hangers, tracks, rollers / related hardware, interlocks, car operating panel, and signal fixtures. Car interior upgrades should be considered.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTVT01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Client-reported cost to upgrade elevators	EA	1	\$150,000	\$150,000	\$0.00	\$	\$150,000
<b>Project Totals:</b>				<b>\$150,000</b>		<b>\$</b>	<b>\$150,000</b>

<b>Material/Labor Cost</b>	\$150,000
<b>Material Index</b>	100.7%
<b>Labor Index</b>	51.3%
<b>Material/Labor Indexed Cost</b>	\$150,000
<b>No GCM Required</b>	
<b>Construction Cost</b>	\$150,000
<b>No Professional Fees Required</b>	
<b>Total Project Cost</b>	<b>\$150,000</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTAC01	<b>Title:</b>	INTERIOR AMENITY ACCESSIBILITY UPGRADES
<b>Priority Sequence:</b>	17		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	AC4A	<b>System:</b>	ACCESSIBILITY
		<b>Component:</b>	GENERAL
		<b>Element:</b>	FUNCTIONAL SPACE MOD.
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ADAAG	211, 602, 804	
<b>Project Class:</b>	Plant Adaption		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

Building amenities are required to be generally accessible to all persons. The configurations of the break room kitchenettes and drinking fountains are barriers to accessibility. The installation of wheelchair accessible kitchenette cabinetry and refrigerated, dual level drinking fountains is recommended where applicable.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTAC01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
ADA compliant kitchenette unit with base cabinetry, overhead cabinetry, and amenities	SYS	2	\$4,894	\$9,788	\$1,999	\$3,998	\$13,786
Dual level drinking fountain	EA	4	\$1,216	\$4,864	\$374	\$1,496	\$6,360
Alcove construction including finishes	EA	4	\$877	\$3,508	\$3,742	\$14,968	\$18,476
<b>Project Totals:</b>				<b>\$18,160</b>		<b>\$20,462</b>	<b>\$38,622</b>

<b>Material/Labor Cost</b>		<b>\$38,622</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$28,784</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$5,757</b>
<b>Construction Cost</b>		<b>\$34,541</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$5,527</b>
<b>Total Project Cost</b>		<b>\$40,068</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTAC03	<b>Title:</b>	INTERIOR DOOR UPGRADES
<b>Priority Sequence:</b>	18		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	AC4B	<b>System:</b>	ACCESSIBILITY
		<b>Component:</b>	GENERAL
		<b>Element:</b>	OTHER
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ADAAG	703.1	
<b>Project Class:</b>	Plant Adaption		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G		

**Project Description**

While the interior doors are equipped with lever hardware and in good condition, door signage does not meet ADA requirements. Current accessibility legislation has established signage requirements for all permanent spaces in a building. Compliant signage should meet specific size, graphical, Braille, height, and location requirements. To comply with the intent of this legislation, it is recommended that all non-compliant signage be upgraded to conform to appropriate accessibility standards. This scope includes directional signage.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTAC03

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
ADA compliant signage	EA	45	\$53.11	\$2,390	\$15.62	\$703	\$3,093
<b>Project Totals:</b>				<b>\$2,390</b>		<b>\$703</b>	<b>\$3,093</b>

<b>Material/Labor Cost</b>		<b>\$3,093</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$2,767</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$553</u>
<b>Construction Cost</b>		<u>\$3,321</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$531</u>
<b>Total Project Cost</b>		<u><b>\$3,852</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTAC02	<b>Title:</b>	RESTROOM RENOVATION
<b>Priority Sequence:</b>	19		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	AC3E	<b>System:</b>	ACCESSIBILITY
		<b>Component:</b>	INTERIOR PATH OF TRAVEL
		<b>Element:</b>	RESTROOMS/BATHROOMS
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ADAAG	604, 605, 606, 607, 608	
<b>Project Class:</b>	Plant Adaption		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1		

**Project Description**

While the ground floor restrooms are handicapped accessible, the first floor restroom fixtures and finishes are mostly original to the year of construction. The fixtures are sound but dated and are spaced such that clearances are not ADA compliant. A comprehensive restroom renovation, including new fixtures, finishes, partitions, and accessories, is recommended. Restroom expansion may be necessary in order to meet modern minimum fixture counts and accessibility legislation.



**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTAC02

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Major restroom renovation, including fixtures, finishes, partitions, accessories, and expansion if necessary (assumes 55 square feet of restroom area per fixture)	FIXT	11	\$1,969	\$21,659	\$1,699	\$18,689	\$40,348
<b>Project Totals:</b>				<b>\$21,659</b>		<b>\$18,689</b>	<b>\$40,348</b>

<b>Material/Labor Cost</b>		<b>\$40,348</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$31,398</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$6,280</b>
<b>Construction Cost</b>		<b>\$37,678</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$6,028</b>
<b>Total Project Cost</b>		<b>\$43,706</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTES03	<b>Title:</b>	MEMBRANE ROOF REPLACEMENT
<b>Priority Sequence:</b>	20		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	ES4B	<b>System:</b>	EXTERIOR
		<b>Component:</b>	ROOF
		<b>Element:</b>	REPLACEMENT
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Energy Conservation	\$1,200	
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) R		

**Project Description**

The roof is an unballasted single-ply membrane that is currently in good condition. However, it is not expected to outlast the scope of this analysis. Future budget modeling should include a provision for the replacement of all failing roofing systems. Replace this roof with a similar application.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTES03

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Membrane roof	SF	14,080	\$3.79	\$53,363	\$1.73	\$24,358	\$77,722
<b>Project Totals:</b>				<b>\$53,363</b>		<b>\$24,358</b>	<b>\$77,722</b>

<b>Material/Labor Cost</b>		<b>\$77,722</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$66,233</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$13,247</u>
<b>Construction Cost</b>		<u>\$79,479</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$12,717</u>
<b>Total Project Cost</b>		<u><b>\$92,196</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTHV01	<b>Title:</b>	HVAC SYSTEM REPLACEMENT
<b>Priority Sequence:</b>	21		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	HV3A	<b>System:</b>	HVAC
		<b>Component:</b>	HEATING/COOLING
		<b>Element:</b>	SYSTEM RETROFIT/REPLACE
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Energy Conservation	\$17,970	
<b>Code Application:</b>	ASHRAE	62-2004	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Floor-wide: Floor(s) 1, G, R		

**Project Description**

A complete redesign and replacement of the HVAC system is recommended. Demolish and dispose of existing equipment. Install a new modern HVAC system with variable air volume and constant volume air distribution as needed. This includes new air handlers, exhaust fans, ductwork, terminal units, heat exchangers, pumps, piping, controls, and related electrical components. Specify direct digital controls for the new equipment. Incorporate variable frequency drives into the new HVAC design as applicable.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTHV01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Air handlers, exhaust fans, ductwork, VAVs, VFDs, DDCs, heat exchangers, pumps, piping, electrical connections, and demolition of existing equipment	SF	28,152	\$33.04	\$930,142	\$40.38	\$1,136,778	\$2,066,920
<b>Project Totals:</b>				<b>\$930,142</b>		<b>\$1,136,778</b>	<b>\$2,066,920</b>

<b>Material/Labor Cost</b>		\$2,066,920
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		\$1,519,820
<b>General Contractor Mark Up at 20.0%</b>	+	\$303,964
<b>Construction Cost</b>		\$1,823,784
<b>Professional Fees at 16.0%</b>	+	\$291,805
<b>Total Project Cost</b>		<b>\$2,115,590</b>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTPL01	<b>Title:</b>	DOMESTIC HOT WATER HEAT EXCHANGER REPLACEMENT
<b>Priority Sequence:</b>	22		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	PL1E	<b>System:</b>	PLUMBING
		<b>Component:</b>	DOMESTIC WATER
		<b>Element:</b>	HEATING
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	Not Applicable		
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/19/2009		
<b>Project Location:</b>	Item Only: Floor(s) G		

**Project Description**

Replacement of the domestic hot water converter is recommended. With age, heat exchanger efficiency is reduced by internal tube scaling. Internal wear will eventually lead to failure, allowing contaminants to enter the water system. Remove the existing system. Install a new heat exchanger, pumps, piping, and controls as needed.

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTPL01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Heat exchanger, pumps, piping, valves, controls, insulation, demolition	GPM	96	\$183	\$17,578	\$150	\$14,354	\$31,932
<b>Project Totals:</b>				<b>\$17,578</b>		<b>\$14,354</b>	<b>\$31,932</b>

<b>Material/Labor Cost</b>		\$31,932
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<u>\$25,064</u>
<b>General Contractor Mark Up at 20.0%</b>	+	<u>\$5,013</u>
<b>Construction Cost</b>		<u>\$30,077</u>
<b>Professional Fees at 16.0%</b>	+	<u>\$4,812</u>
<b>Total Project Cost</b>		<u><b>\$34,889</b></u>

**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Description**

<b>Project Number:</b>	BIOTSI01	<b>Title:</b>	SITE PAVING UPGRADES
<b>Priority Sequence:</b>	23		
<b>Priority Class:</b>	4		
<b>Category Code:</b>	SI4A	<b>System:</b>	SITE
		<b>Component:</b>	GENERAL
		<b>Element:</b>	OTHER
<b>Building Code:</b>	BIOT		
<b>Building Name:</b>	BIOTECHNOLOGY BUILDING		
<b>Subclass/Savings:</b>	Not Applicable		
<b>Code Application:</b>	ADAAG	502	
<b>Project Class:</b>	Capital Renewal		
<b>Project Date:</b>	10/5/2009		
<b>Project Location:</b>	Undefined: Floor(s) 1		

**Project Description**

Pedestrian paving systems are in overall average condition and will need replacement in the next ten years. New systems, including excavation, grading, base compaction, and paving, are recommended. Vehicular paving systems are in fair condition and will need moderate upgrades.



**Specific Project Details**  
**Facility Condition Analysis**  
**Section Three**  
BIOT : BIOTECHNOLOGY BUILDING

**Project Cost**

**Project Number:** BIOTSI01

**Task Cost Estimate**

<b>Task Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Material Unit Cost</b>	<b>Total Material Cost</b>	<b>Labor Unit Cost</b>	<b>Total Labor Cost</b>	<b>Total Cost</b>
Concrete pedestrian paving	SF	2,500	\$2.97	\$7,425	\$3.64	\$9,100	\$16,525
Vehicular paving wear course rehabilitation, sealcoat and striping allowance	SY	1,300	\$7.91	\$10,283	\$3.79	\$4,927	\$15,210
<b>Project Totals:</b>				<b>\$17,708</b>		<b>\$14,027</b>	<b>\$31,735</b>

<b>Material/Labor Cost</b>		<b>\$31,735</b>
<b>Material Index</b>		100.7%
<b>Labor Index</b>		51.3%
<b>Material/Labor Indexed Cost</b>		<b>\$25,028</b>
<b>General Contractor Mark Up at 20.0%</b>	+	<b>\$5,006</b>
<b>Construction Cost</b>		<b>\$30,033</b>
<b>Professional Fees at 16.0%</b>	+	<b>\$4,805</b>
<b>Total Project Cost</b>		<b>\$34,839</b>



FACILITY CONDITION ANALYSIS

**SECTION 4**

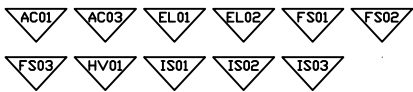
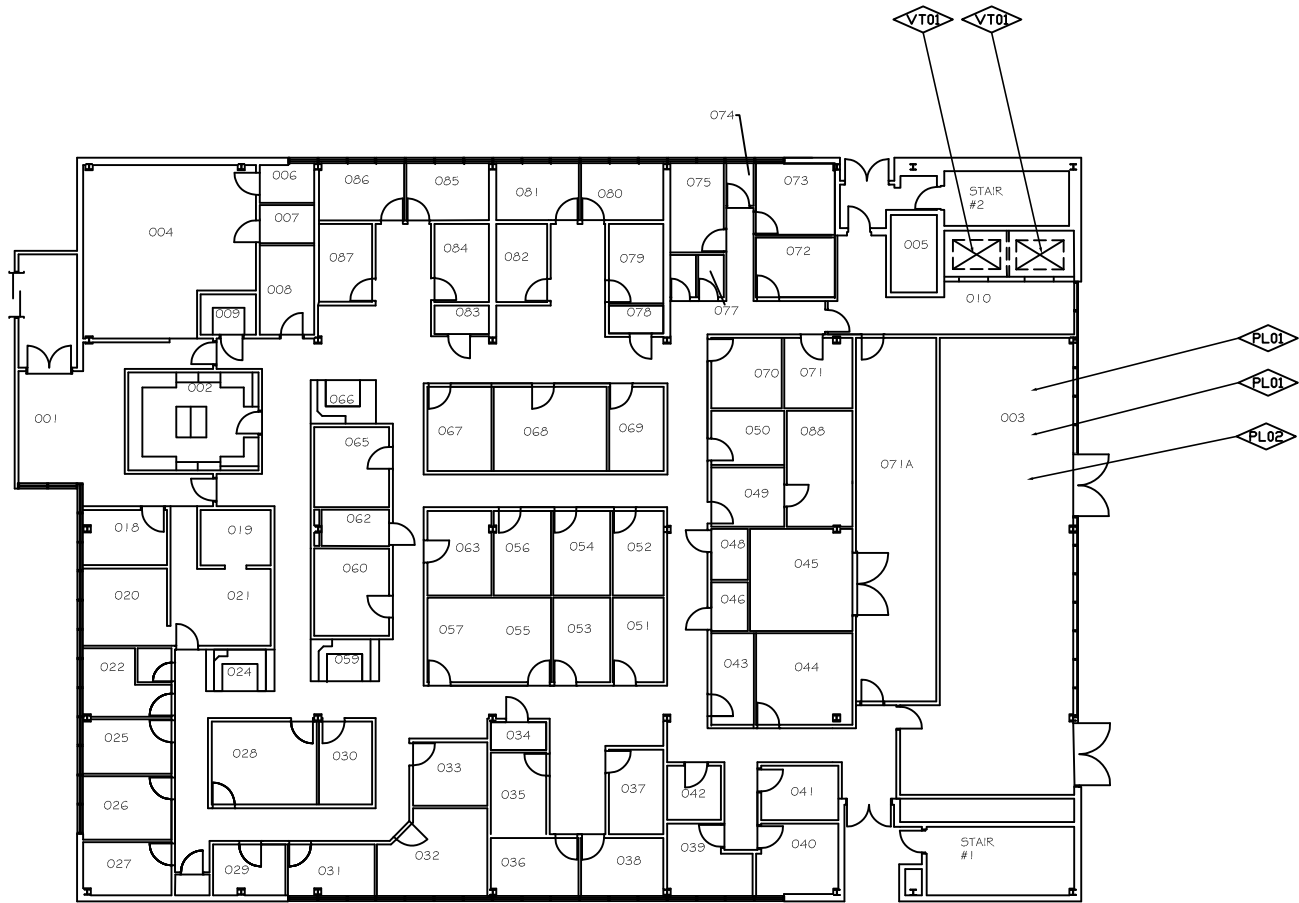
**DRAWINGS  
AND PROJECT LOCATIONS**





FACILITY  
CONDITION  
ANALYSIS

2165 West Park Court  
Suite N  
Stone Mountain GA 30087  
770.879.7376



PROJECT NUMBER  
APPLIES TO  
ONE ROOM ONLY

PROJECT NUMBER  
APPLIES TO  
ONE ITEM ONLY

PROJECT NUMBER  
APPLIES TO  
ENTIRE BUILDING

PROJECT NUMBER  
APPLIES TO  
ENTIRE FLOOR

PROJECT NUMBER  
APPLIES TO A SITUATION  
OF UNDEFINED EXTENTS

PROJECT NUMBER  
APPLIES TO AREA  
AS NOTED

Date: 10/30/09

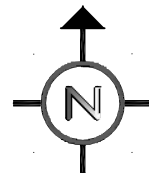
Drawn by: J.T.V.

Project No. 09-041

GROUND  
FLOOR  
PLAN

Sheet No.







1 of 2





FACILITY  
CONDITION  
ANALYSIS

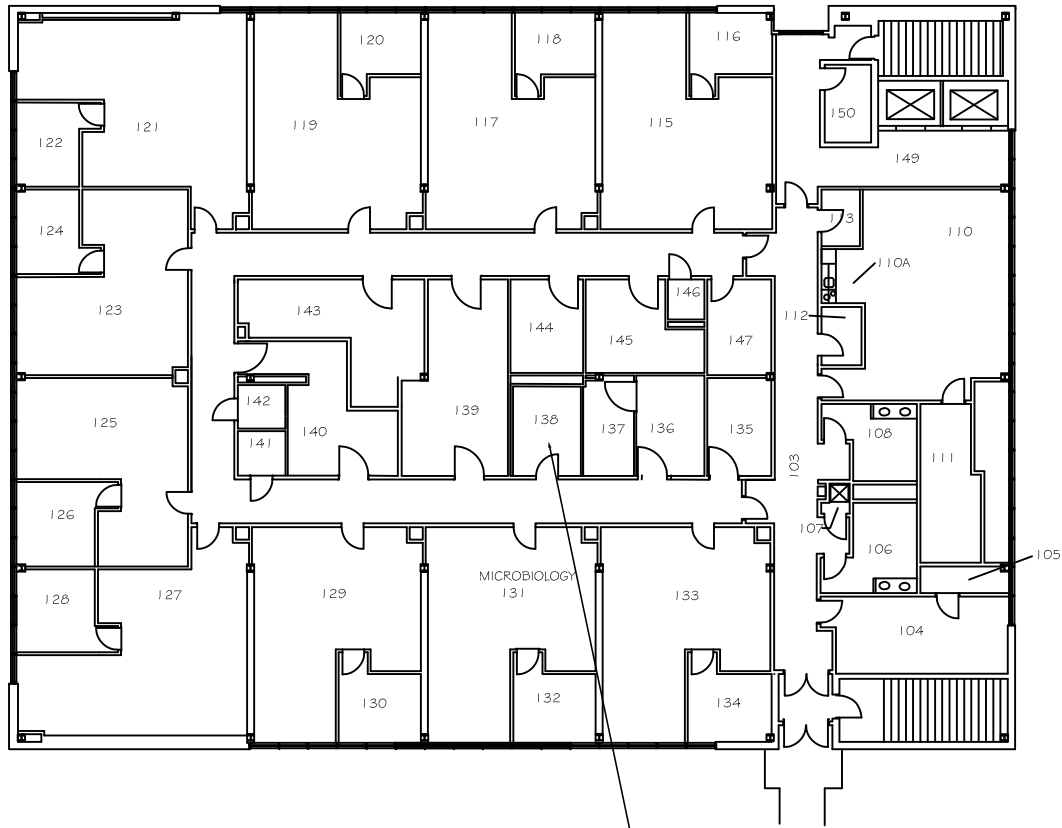
2165 West Park Court  
Suite N  
Stone Mountain GA 30087  
770.879.7376

-  PROJECT NUMBER APPLIES TO ONE ROOM ONLY
-  PROJECT NUMBER APPLIES TO ONE ITEM ONLY
-  PROJECT NUMBER APPLIES TO ENTIRE BUILDING
-  PROJECT NUMBER APPLIES TO ENTIRE FLOOR
-  PROJECT NUMBER APPLIES TO A SITUATION OF UNDEFINED EXTENTS
-  PROJECT NUMBER APPLIES TO AREA AS NOTED

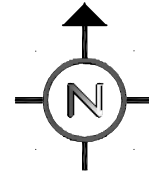
Date: 10/30/09  
 Drawn by: J.T.V.  
 Project No. 09-041

FIRST  
FLOOR  
PLAN

ROOF  
ES03 HV01



- SI01
- EL03
- ES01
- ES02
- AC01
- AC02
- AC03
- EL01
- EL02
- FS01
- FS02
- FS03
- HV01
- HV02
- IS01
- IS02
- IS03
- IS04



FACILITY CONDITION ANALYSIS

**SECTION 5**

LIFE CYCLE MODEL SUMMARY  
AND PROJECTIONS





**Life Cycle Model**  
**Building Component Summary**  
**BIOT : BIOTECHNOLOGY BUILDING**

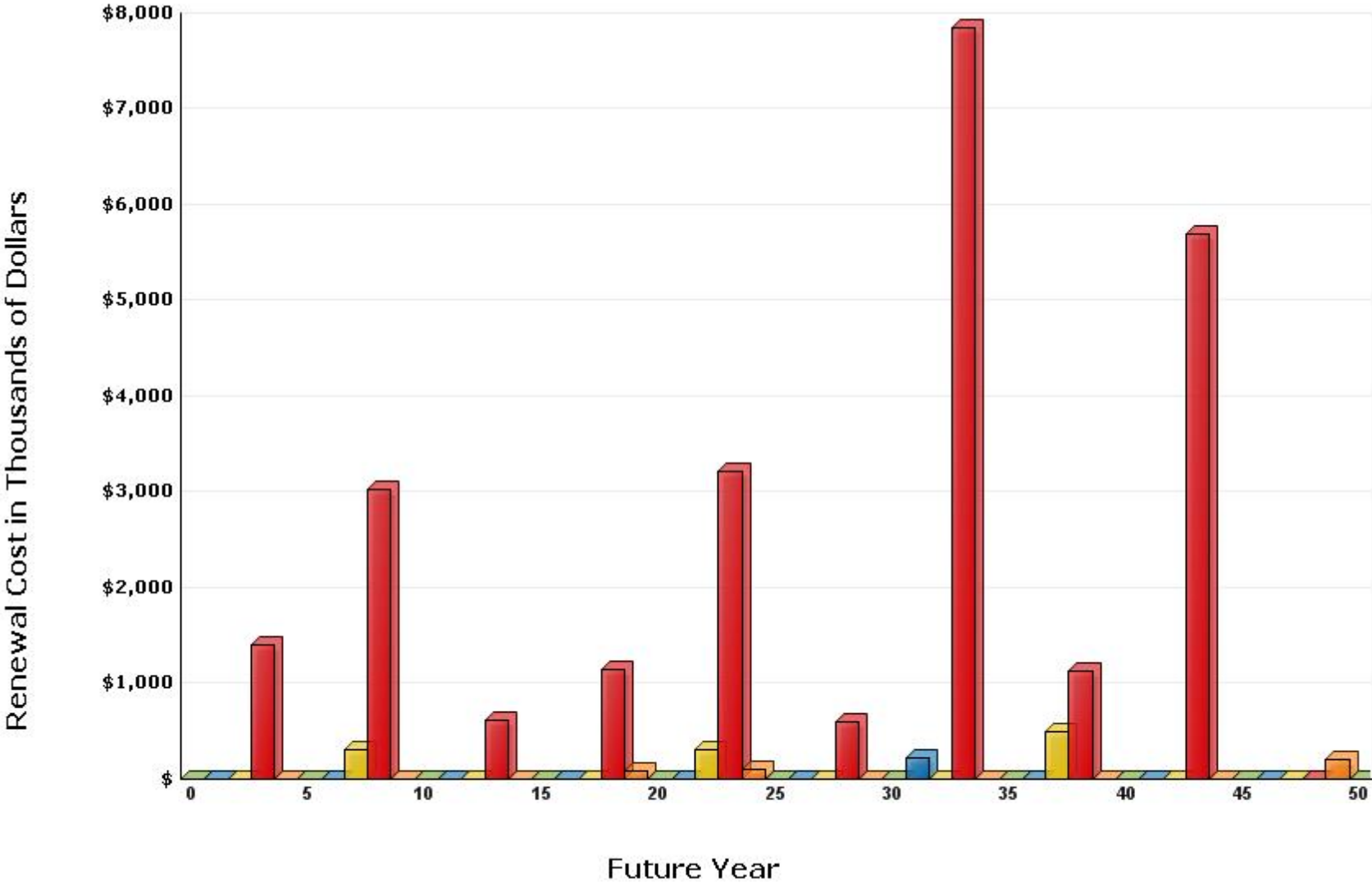
<b>Unifomat Code</b>	<b>Component Description</b>	<b>Qty</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Complex Adj</b>	<b>Total Cost</b>	<b>Install Date</b>	<b>Life Exp</b>
B2010	EXTERIOR FINISH RENEWAL	10,500	SF	\$1.30	.31	\$4,243	1991	10
B2020	STANDARD GLAZING AND CURTAIN WALL	3,500	SF	\$104.04		\$364,128	1991	55
B2030	HIGH TRAFFIC EXTERIOR DOOR SYSTEM	11	LEAF	\$4,311.24		\$47,424	1991	20
B2030	LOW TRAFFIC EXTERIOR DOOR SYSTEM	7	LEAF	\$2,863.29		\$20,043	1991	40
B3010	MEMBRANE ROOF	14,080	SF	\$6.41		\$90,208	2000	15
C1020	RATED DOOR AND FRAME INCLUDING HARDWARE	45	LEAF	\$1,489.06		\$67,008	1991	35
C1020	RATED DOOR AND FRAME INCLUDING HARDWARE	50	LEAF	\$1,489.06		\$74,453	1991	35
C1020	INTERIOR DOOR HARDWARE	45	EA	\$423.04		\$19,037	1991	15
C1020	INTERIOR DOOR HARDWARE	50	EA	\$423.04		\$21,152	1991	15
C3010	STANDARD WALL FINISH (PAINT, WALL COVERING, ETC.)	74,140	SF	\$0.80		\$59,389	1991	10
C3020	CARPET	10,770	SF	\$8.75		\$94,199	1991	10
C3020	VINYL FLOOR TILE	13,160	SF	\$6.59		\$86,696	1991	15
C3030	ACOUSTICAL TILE CEILING SYSTEM	23,930	SF	\$4.99		\$119,483	1991	15
D1010	ELEVATOR MODERNIZATION - HYDRAULIC	2	EA	\$158,628.64		\$317,257	1991	25
D1010	ELEVATOR CAB RENOVATION - PASSENGER	2	EA	\$26,616.80		\$53,234	1991	12
D2010	PLUMBING FIXTURES - LABORATORY	28,152	SF	\$10.78		\$303,351	1991	35
D2020	WATER / PROCESS PIPING - LABORATORY	28,152	SF	\$7.67		\$215,993	1991	35
D2020	WATER HEATER, SHELL AND TUBE HEAT EXCHANGER	96	GPM	\$355.69		\$34,146	1991	24
D2030	DRAIN PIPING - LABORATORY	28,152	SF	\$11.66		\$328,304	1991	40
D2030	SUMP PUMP SYS (2 PUMPS, CONTROLS)	1	SYS	\$8,276.49		\$8,276	1991	20
D2050	AIR COMPRESSOR PACKAGE (AVERAGE SIZE)	1	SYS	\$6,456.49		\$6,456	1991	25
D3030	COLD BOX REFRIGERATION SYSTEM	1	SYS	\$6,324.50		\$6,324	1991	15
D3040	CONDENSATE RECEIVER	1	SYS	\$9,504.01		\$9,504	1991	15
D3040	EXHAUST FAN - CENTRIFUGAL ROOF EXHAUSTER OR SIMILAR	3	EA	\$2,768.62		\$8,306	1991	20
D3040	EXHAUST FAN - UTILITY SET OR SIMILAR	2	EA	\$3,660.81		\$7,322	1991	20
D3040	FUME HOOD INCLUDING MECH. SYS	10	SYS	\$41,216.93		\$412,169	1991	20
D3040	HVAC SYSTEM - LABORATORY	28,152	SF	\$73.54		\$2,070,300	1991	25
D3040	BASE MTD. PUMP - UP TO 15 HP	8	HP	\$3,175.77		\$25,406	1991	20
D3040	BASE MTD. PUMP - UP TO 15 HP	6	HP	\$3,175.77		\$19,055	1991	20

**Life Cycle Model  
Building Component Summary  
BIOT : BIOTECHNOLOGY BUILDING**

<b>Uniformat Code</b>	<b>Component Description</b>	<b>Qty</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Complex Adj</b>	<b>Total Cost</b>	<b>Install Date</b>	<b>Life Exp</b>
D4010	FIRE SPRINKLER SYSTEM	28,152	SF	\$6.86		\$193,153	1991	80
D4010	FIRE SPRINKLER HEADS	28,152	SF	\$0.38		\$10,618	1991	20
D5010	ELECTRICAL SYSTEM - LABORATORY	28,152	SF	\$14.42		\$405,953	1991	50
D5010	ELECTRICAL SWITCHGEAR 120/208V	2,000	AMP	\$32.96		\$65,927	1991	20
D5020	EXIT SIGNS (CENTRAL POWER)	20	EA	\$163.78		\$3,276	1991	20
D5020	EXTERIOR LIGHT (HID)	2	EA	\$689.58		\$1,379	1991	20
D5020	LIGHTING - LABORATORY	28,152	SF	\$6.29		\$177,166	1991	20
D5030	FIRE ALARM SYSTEM, POINT ADDRESSABLE	28,152	SF	\$2.61		\$73,606	2000	15
D5040	GENERATOR, DIESEL (100-200 KW)	100	KW	\$493.93		\$49,393	2007	25
E2010	KITCHENETTE UNIT WITH CABINETRY AND AMENITIES	2	LOT	\$5,940.22		\$11,880	1991	20
E2010	LABORATORY CASEWORK (20% CASEWORK DENSITY)	11,260	SF	\$28.82		\$324,545	1991	20
F1020	ENVIRONMENTAL CHAMBER	80	SF	\$139.02		<u>\$11,121</u>	1991	35
						<b>\$6,220,884</b>		

# Life Cycle Model Expenditure Projections

BIOT : BIOTECHNOLOGY BUILDING



**Average Annual Renewal Cost Per SqFt \$8.80**



FACILITY CONDITION ANALYSIS

**SECTION 6**

PHOTOGRAPHIC LOG



**Photo Log - Facility Condition  
Analysis  
BIOT : BIOTECHNOLOGY BUILDING**

<b>Photo ID No</b>	<b>Description</b>	<b>Location</b>	<b>Date</b>
BIOT001a	Roof detail	Roof	9/3/2009
BIOT001e	Utility exhaust fan	Roof	9/3/2009
BIOT002a	Roof detail	Roof	9/3/2009
BIOT002e	Typical restroom exhaust fan	Roof	9/3/2009
BIOT003a	Roof detail	Roof	9/3/2009
BIOT003e	Reclaim circulating unit RCU2	Roof	9/3/2009
BIOT004a	Stairwell design	First floor	9/3/2009
BIOT004e	Typical Johnson Control thermostat	South stairwell	9/3/2009
BIOT005a	Stairwell design	First floor	9/3/2009
BIOT005e	LED exit sign	First floor	9/3/2009
BIOT006a	Single level drinking fountain	First floor	9/3/2009
BIOT006e	Fusible link sprinkler head	First floor	9/3/2009
BIOT007a	Interior corridor finishes	First floor	9/3/2009
BIOT007e	Typical smoke detector	First floor	9/3/2009
BIOT008a	Lab cabinetry and design	First floor	9/3/2009
BIOT008e	Typical xenon strobe and audible annunciator	First floor	9/3/2009
BIOT009a	Interior corridor finishes	First floor	9/3/2009
BIOT009e	Environmental cooler	First floor	9/3/2009
BIOT010a	Window detail	First floor	9/3/2009
BIOT010e	Original fume hood	Lab 131	9/3/2009
BIOT011a	Interior corridor finishes	First floor	9/3/2009
BIOT011e	Outdated fume hood	Lab 131	9/3/2009
BIOT012a	Stairwell design	First floor	9/3/2009
BIOT012e	Emergency eyewash and shower	First floor lab	9/3/2009
BIOT013a	Break room sink	First floor	9/3/2009
BIOT013e	Typical Square D breaker panel	Room 139	9/3/2009
BIOT014a	Conference room finishes	First floor	9/3/2009
BIOT014e	Hydraulic elevator	Elevator room 005	9/3/2009
BIOT015a	Room design	Ground floor	9/3/2009
BIOT015e	Fusible link sprinkler head	Ground floor	9/3/2009
BIOT016a	Interior lobby finishes	Ground floor	9/3/2009
BIOT016e	Fire alarm annunciator panel	Entrance 001	9/3/2009
BIOT017a	Interior corridor finishes	Ground floor	9/3/2009

**Photo Log - Facility Condition  
Analysis  
BIOT : BIOTECHNOLOGY BUILDING**

<b>Photo ID No</b>	<b>Description</b>	<b>Location</b>	<b>Date</b>
BIOT017e	Original PEDS air handling unit AHU1	Mechanical room 045	9/3/2009
BIOT018a	South facade doors	Exterior elevation	9/3/2009
BIOT018e	Outdated Johnson Control panel	Mechanical room 045	9/3/2009
BIOT019a	South facade	Exterior elevation	9/3/2009
BIOT019e	Addressable fire alarm panel	Mechanical room 003	9/3/2009
BIOT020a	West facade	Exterior elevation	9/3/2009
BIOT020e	Automatic transfer switch	Mechanical room 003	9/3/2009
BIOT021a	West facade	Exterior elevation	9/3/2009
BIOT021e	Main switchboard	Mechanical room 003	9/3/2009
BIOT022a	North facade	Exterior elevation	9/3/2009
BIOT022e	Control air compressor	Mechanical room 003	9/3/2009
BIOT023a	North entry doors	Exterior elevation	9/3/2009
BIOT023e	Original air handling unit AHU2	Mechanical room 003	9/3/2009
BIOT024a	East facade	Exterior elevation	9/3/2009
BIOT024e	Hot water pumps	Mechanical room 003	9/3/2009
BIOT025a	East facade	Exterior elevation	9/3/2009
BIOT025e	Original heat exchanger	Mechanical room 003	9/3/2009
BIOT026e	Domestic hot water heat exchangers	Mechanical room 003	9/3/2009
BIOT027e	Chilled water pump	Mechanical room 003	9/3/2009
BIOT028e	Sump pump	Mechanical room 003	9/3/2009
BIOT029e	ABB variable frequency drive	Mechanical room 003	9/3/2009
BIOT030e	Backflow preventer	Mechanical room 003	9/3/2009
BIOT031e	Service entrance transformer	Southeast corner	9/3/2009
BIOT032e	Emergency generator	Southeast corner	9/3/2009
BIOT033e	HID exterior fixture	East facade	9/3/2009



Facility Condition Analysis - Photo Log



BIOT001A.jpg



BIOT001E.jpg



BIOT002A.jpg



BIOT002E.jpg



BIOT003A.jpg



BIOT003E.jpg



BIOT004A.jpg



BIOT004E.jpg



BIOT005A.jpg



BIOT005E.jpg



BIOT006A.jpg



BIOT006E.jpg



BIOT007A.jpg



BIOT007E.jpg



BIOT008A.jpg



BIOT008E.jpg



BIOT009A.jpg



BIOT009E.jpg



BIOT010A.jpg



BIOT010E.jpg

Facility Condition Analysis - Photo Log



BIOT011A.jpg



BIOT011E.jpg



BIOT012A.jpg



BIOT012E.jpg



BIOT013A.jpg



BIOT013E.jpg



BIOT014A.jpg



BIOT014E.jpg



BIOT015A.jpg



BIOT015E.jpg



BIOT016A.jpg



BIOT016E.jpg



BIOT017A.jpg



BIOT017E.jpg



BIOT018A.jpg



BIOT018E.jpg



BIOT019A.jpg



BIOT019E.jpg



BIOT020A.jpg



BIOT020E.jpg



Facility Condition Analysis - Photo Log



BIOT021A.jpg



BIOT021E.jpg



BIOT022A.jpg



BIOT022E.jpg



BIOT023A.jpg



BIOT023E.jpg



BIOT024A.jpg



BIOT024E.jpg



BIOT025A.jpg



BIOT025E.jpg



BIOT026E.jpg



BIOT027E.jpg



BIOT028E.jpg



BIOT029E.jpg



BIOT030E.jpg



BIOT031E.jpg



BIOT032E.jpg



BIOT033E.jpg