#### **Facility Condition Assessment Summary Report**

This report provides a summary of the Facility Condition Index (FCI) value of a school facility and select major building systems. The FCI calculation represents the cost of needed repairs divided by the replacement value. The FCI is a numerical value of condition and helps to identify the need for renewal or replacement of specific parts of the facility. The FCI is particularly useful when comparing similar facilities within the same portfolio.

#### **Kensington CAPA High School**

Governance DISTRICT Report Type High Address 1901 N. Front St. Enrollment 519
Philadelphia, Pa 19122 Grade Range '09-12'

Phone/Fax 215-291-5010 / 215-291-6334 Admissions Category Neighborhood

Website Http://Kensingtoncapa.Wix.Com/Kcapa Turnaround Model N/A

#### **Building/System FCI Tiers**

Facilit	y Condition Index (FCI)	=	= Cost of Assessed Deficiencies  Replacement Value					
< 15%	15 to 25%	25 to 45%	45 to 60%	> 60%				
		Buildings						
Minimal Current Capital Refurbish Systems in building		Replace Systems in building.	Building should be considered for major renovation.	Building should be considered for closing/replacement.				
		Systems						
Perform routine maintenance on system	System requires minor repairs	System should be studied to determine repair vs. replacement.	System is nearing end of its life expectancy and should be considered for replacement	System should be replaced as part of the Capital Program				

#### **Building and Grounds**

	FCI	Repair Costs	Replacement Cost					
Overall	00.03%	\$15,941	\$52,135,606					
Building	00.03 %	\$15,941	\$48,816,357					
Grounds	00.00 %	\$0	\$3,319,249					

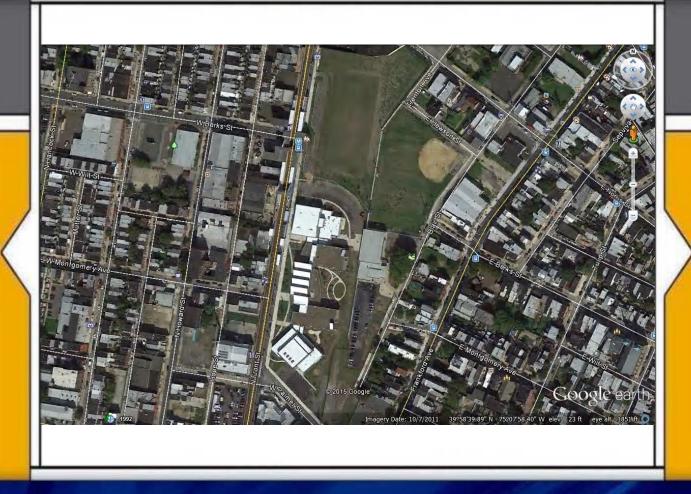
#### **Major Building Systems**

Building System	System FCI	Repair Costs	Replacement Cost
<b>Roof</b> (Shows physical condition of roof)	00.00 %	\$0	\$3,205,829
Exterior Walls (Shows condition of the structural condition of the exterior facade)	00.00 %	\$0	\$3,841,128
Windows (Shows functionality of exterior windows)	00.00 %	\$0	\$2,446,941
Exterior Doors (Shows condition of exterior doors)	00.00 %	\$0	\$103,141
Interior Doors (Classroom doors)	00.00 %	\$0	\$334,320
Interior Walls (Paint and Finishes)	00.00 %	\$0	\$1,494,661
Plumbing Fixtures	00.00 %	\$0	\$1,202,131
Boilers	00.00 %	\$0	\$1,660,043
Chillers/Cooling Towers	00.00 %	\$0	\$2,176,639
Radiators/Unit Ventilators/HVAC	00.00 %	\$0	\$3,822,456
Heating/Cooling Controls	00.00 %	\$0	\$1,200,353
Electrical Service and Distribution	00.00 %	\$0	\$862,476
Lighting	00.00 %	\$0	\$3,083,572
Communications and Security (Cameras, Pa System and Fire Alarm)	01.38 %	\$15,941	\$1,155,006

**School District of Philadelphia** 

# S552001; Kensington CAPA

Final
Site Assessment Report
January 31, 2017



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#### **Site Executive Summary**

The organization of this report, as displayed in the Table of Contents, follows the structure of the associated eCOMET database. The overall node for each school campus begins with the letter "S", which indicates the "Site" label. Each Site is comprised of separate "Building" and "Grounds" nodes; their asset names begin with the letters "B" and "G" respectively. Information rolls up to the Site node from the Building and Grounds nodes. This Site report combines facility information with subsections for the Buildings And Grounds nodes.

The basis for the evaluation of condition is the functional systems and elements of a building and grounds organized according to the UNIFORMAT II Elemental Classification. The grouping of these systems and elements and applying a current replacement value to them develops a representative building cost model. Cost Models are typically developed for similar building types and functions. Evaluation of systems and their elements takes into account their current replacement values, life cycles, installation dates and next renewal dates. Systems and their elements that are within their useful lives are further evaluated to identify current deficient conditions that may have a significant impact on a system's or element's remaining service life, and to determine if they are beyond their predicted expected life. The system's or element's current replacement value is based on RS Means Commercial Cost Data.

Following are the cost model's system details for this facility. The Replacement Value is the amount needed to replace the property of the same present value. The Current Repair Amount, also known as Condition Needs, represents the budgeted contractor installed costs plus owner's soft costs for the repair, replacement or renewal for a component or system level deficiency. It excludes contributing costs for other components or systems that might also be associated with the corrective actions due to packaging the work. Facility Condition Index (FCI) is an industry-standard measurement calculated as the ratio of the repair costs to correct a facility's deficiencies to the facility's Current Replacement Value. Condition Index (CI) for a system is calculated as the sum of a the deficiencies divided by the sum of a system's Replacement Value (both values include soft-cost) expressed as a percentage ranging from 0% 100%.

Gross Area (SF): 88,915

Year Built: 2010

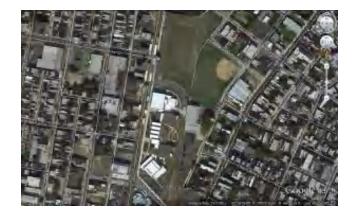
Last Renovation:

Replacement Value: \$52,135,607

Repair Cost: \$15,940.88

Total FCI: 0.03 %

Total RSLI: 85.20 %



#### **Description:**

Facility Assessment, June, 2015

School District of Philadelphia

**Kensington CAPA High School** 

1901 N. Front Street

Philadelphia, PA 19134

88,915 SF / 542 Students / LN 05

The Kensington CAPA School building is located at 1901 N. Front Street in Philadelphia, PA. The 2 story, 88,915 square foot building was constructed in 2010 and was awarded LEED Platinum status. The building has no basement.

Mr. Scott Ovington, Facility Area Coordinator provided input to the Parsons assessment team on current problems and planned renovation projects. Mr. Michael McGinley, Building Engineer, accompanied us on our tour of the school and provided us with detailed

#### Site Assessment Report - S552001; Kensington CAPA

information on the building systems and recent maintenance history. The school principal, Ms. Lisette Agosto-Cintron provided additional information about building condition.

#### STRUCTURAL/ EXTERIOR CLOSURE:

The building typically rests on concrete spread and strip footings that are not showing signs of settlement or damage. The main structure is typically steel frame, columns and girders; floors are typically concrete slab over metal deck supported by bar joists. The superstructure is generally in very good condition.

The building envelope is typically comprised of glazed block over CMU on the first floor and split face CMU on the second floor; walls are insulated cavity type.

The roof structure is a metal deck supported by bar joists and wide flange framing and is typically flat with slopes to roof drains. The central section of the building has steel framed clerestories.

Exterior walls are typically a combination of ground face CMU, face brick and metal panels over insulated CMU backup (cavity wall), in very good condition.

Exterior windows are typically anodized aluminum curtain wall, double insulated units with tilt-in operating sections covered with integral security screens; in very good condition.

Exterior doors are typically aluminum, double insulated glazed and part of the curtain wall system; service doors are typically hollow metal in hollow metal frames, in very good condition.

Roofing typically consists of 3 types: modified bitumen over rigid insulation, and single-ply, vegetative roof for flat roofs; and prefinished metal, standing seam roofing over sloped clerestories. All roofing is generally in very good condition.

#### INTERIORS:

Partition wall types include painted CMU, ground face CMU, glazed aluminum store front and drywall, in very good condition. Portions of Gym walls are acoustic CMU; Walls in auditorium theatre are typically CMU with acoustic baffles. The interior wall finishes are generally painted drywall and CMU.

Most ceilings are 2x4 suspended acoustical panels and suspended metal slat; ceiling in gym and clerestories is exposed metal deck, painted. Ceiling in the auditorium theatre is exposed with suspended acoustical baffles. All ceilings are in very good condition.

Flooring in most areas is generally vinyl composition tile, in very good condition. Flooring in library and principal's office is carpet in very good condition. Gym has resilient sheet flooring in very good condition. Flooring in toilets and kitchen area is typically ceramic tiles in good condition.

Interior doors are generally solid core wood doors in hollow metal frames, in good condition. Doors in store front partitions are typically aluminum frame, glazed.

Stairs are generally painted steel with concrete filled metal pan treads.

Interior identifying devices are of modular type directly affixed to wall surfaces.

Toilet partitions are mostly phenolic resin panels, ADA compliant, in very good condition, Accessories are in very good condition.

Institutional equipment includes library equipment; stage equipment; A/V equipment; and laboratory equipment; gym equipment – basketball backstops, scoreboards, etc. Other equipment includes kitchen equipment. All equipment is in very good condition.

#### CONVEYING EQUIPMENT:

The building does have a 4000 lb hydraulic elevator, in good condition.

#### ACCESSIBILITY:

#### Site Assessment Report - S552001; Kensington CAPA

The building does have accessible entrance and accessible routes, including walkways not exceeding 5% slope, per requirement. Toilets are generally in compliance with ADA.

#### GROUNDS (SITE):

There are two parking lots at the site, in good condition. Public parking for 24 vehicles has 2 accessible spaces; staff parking for 44 vehicles has 2 spaces designated as accessible. Compliant accessible signage is in good condition.

There is a very large grass play field adjacent to the site with parking for 6 vehicles but no other amenities. Original perimeter chain link fences are generally in good condition. The portion of the site facing the Front Street is landscaped with trees, shrubs and grass areas, generally in good condition. the trees and shrubs are not fully mature.

#### PLUMBING:

Plumbing Fixtures - The original plumbing fixtures remain in service. Fixtures in the restrooms on each floor consist of wall mounted flush valve water closets, wall hung urinals and lavatories with both wheel handle and lever faucets. The units appear to be in good condition and should provide reliable service for the next 25-30 years.

Drinking fountains in the corridors and at the restrooms consist of wall hung fixtures with integral refrigerated coolers. They are within their service life; most are accessible type.

A mop basin is available in a janitor closet in the corridor on each floor for use by the janitorial staff.

The Kitchen has two sinks; one three compartment stainless steel sink with lever operated faucets and Salvajor disposal and one two compartment stainless steel sink with lever operated faucets. There are no grease traps. Chemicals are injected manually into the sanitizing basins.

Domestic Water Distribution - A 3" city water service enters Mechanical Room 147 from the parking lot on the North side of the school. The 3" meter and valves are located in the mechanical room and a reduced pressure backflow preventer is installed. The domestic hot and cold water distribution piping is copper piping and sweat fittings. The maintenance staff reports no significant problems with scale build up in the domestic piping and the supply is adequate to the fixtures.

Two A.O. Smith Cyclone XI vertical domestic hot water heaters with a circulating pump provide domestic hot water for the building. Both units were installed in 2010, are gas fired, and are located in the Mechanical Room 142. The hot water heaters are equipped with T&P relief valves, and expansion tanks. The domestic hot water heaters are within their service life and should provide reliable service for the next 5-7 years. A water softener was located in the mechanical room.

Sanitary Waste - The sanitary sewer piping is cast iron with no-hub fittings and is within its service life. The majority of sanitary piping is located under the building slab. The maintenance staff reported no problems with the sanitary waste piping systems.

Rain Water Drainage - The building has five (5) green roofs which collect and store rain water. Rain not collected by the green roofs is routed to roof drains where the water flows through mechanical chases in the building. The system is original to the building and is well within its service life. No issues were reported with the green roofs or rain leaders.

#### MECHANICAL:

Energy Supply - A 4" city gas service enters the building near the parking lot on the North side of the school. A Spencer Gas Cube booster pumper ensures adequate gas pressure. The gas meter is 4" and is located in Mechanical Room 147.

Distribution Systems - A two pipe distribution system supplies condenser water to the air handling and heat pump units. The condenser water distribution piping was covered with insulation within the building and the material could not be confirmed. The underground condenser water piping for the geothermal field is black PVC piping. There are two 40HP end-suction Bell & Gossett condenser loop water pumps which serve as distribution pumps to the geothermal well field. Both pumps are original to the building and are within the anticipated service life of 25 years.

Five (5) AnnexAir air handling units (AHU) provide heating and cooling to specific spaces within the building. Each unit is equipped with supply and exhaust fans, heat wheels for energy recovery, and four (4) compressors to provide cooling with heat rejected to the building condenser water. AHU-1 is located in Mechanical Room 232 above the Gymnasium and serves the Gymnasium. AHU-2 is located in Fan Room 222 and serves the first and second floor hallways. AHU-3 is located in Mechanical Room 142 and serves the

#### Site Assessment Report - S552001; Kensington CAPA

Cafeteria. AHU-4 is located in Mechanical Room 205 and serves the first and second floor hallways. AHU-5 is located in Mechanical Room 222 and serves the Auditorium. The supply and return air for the air handlers is ducted to the respective spaces they serve.

Terminal & Package Units - Heating and cooling is provided to the majority of classrooms and other spaces by Carrier water cooled heat pumps with hot gas reheat and two stage scroll compressors, located throughout the building. There are twenty two (22) floor mounted heat pumps and seventy six (76) ceiling mounted heat pumps, each of which is served by the geothermal well field. No major issues were reported with these units and the building was kept at a comfortable temperature.

The building is exhausted by a total of six (6) exhaust fans. The Building Engineer reports that all exhaust fans are operational. The exhaust fans remove air from the ceiling plenum above the drop ceiling.

Two CaptiveAire kitchen hoods with integral fire suppression and outdoor air make-up systems operated by an Ansul control system are installed above the gas fired cooking equipment. An automatic gas shutoff valve is installed with the kitchen hood equipment. The equipment is well within service life. There was no visible make-up air unit for the kitchen while the exhaust hoods are active, but it is assumed that this air is made up from the adjoining Cafeteria.

Controls & Instrumentation - A building management system (BMS) with DDC modules and communications network is installed in this building. The BMS is operational and was installed when the building was built. Room and unit parameters are available to the controller. All major mechanical equipment (heat pumps, air handling units, pumps, fans, etc) is monitored and controlled by the system. This system is well within its service life and is operating properly.

Sprinklers - The building is equipped with a dry type sprinkler system. An 8" fire water line enters the building in Mechanical Room 147 along the same wall as the domestic water. A 40-HP jockey pump ensures adequate pressure throughout the system. The fire suppression system is the originally installed equipment and should not need replacement within the next 10 years.

#### **ELECTRICAL:**

Site electrical service - An underground medium voltage cable drops from the utility power pole and feeds a utility company (PECO) oil filled transformer (750 KVA, 13.2KV – 480V/277V, 3-Phase). The school's main service switchgear is located in the main electrical room. The main service switchgear consists of two 600A, 480V breakers. One breaker feeds the HVAC Loads, and the second feeds the power & lighting loads. A standard automatic PFC capacitor bank is connected to the main distribution switch board. There is a large 125KVA emergency generator for the elevators and other emergency loads. Service entrance and the main building electrical distribution systems are new, in a very good condition, and have ample capacity. No deficiencies were noted.

Distribution system - The electrical distribution is accomplished with the use of two distribution switchboards. Switchboard A feeds the 480/277V panelboard as well as one Motor Control Center (MCC) for mechanical loads. Switchboard B feeds the emergency generator auto transfer switch, plus 8 secondary transformers to step down the voltage from 480V to 208/120V for receptacles/lighting loads. These 8 transformers and panels are located throughout the building. All distribution transformers, panels, etc. are in good condition. No major deficiencies were observed during the assessment.

Receptacle - There is sufficient number of receptacles installed in classrooms, offices, corridors and other areas throughout the building.

Lighting - Interior building is illuminated by various types of architecturally designed fixtures. They include fluorescent lighting (with T8 lamp) in majority of the areas, including; classrooms, corridor, offices and Kitchen. Surface or pendent mounted industrial fluorescent fixtures are used in mechanical and electrical rooms. Gymnasium is illuminated by metal halide enclosed glass fixtures. A centralized lighting control system has been provided for controlling the lighting system. All interior lighting fixtures are in a good condition and building illumination is sufficient.

Fire alarm - The present Fire Alarm system is fully automatic, addressable, and in compliance with safety code. Smoke is monitored by the use of duct smoke detectors and area smoke detectors in corridors. There are manual pulls stations throughout the building. There are sufficient number of horn/strobes installed in the classrooms, corridors, offices and other areas in the school. No major deficiencies were observed during the assessment.

Telephone/LAN - The school telephone and data systems are new and working adequately. A main distribution frame (MDF) along with a telephone PBX system provide the necessary communication needs of the building. School is also equipped with Wi-Fi system.

Public address - Separate PA system does not exist. School uses the telephone systems for public announcement. This system is working adequately.

Intercom System and paging - The present Intercom System is functioning fine. Each class room is provided by with intercom telephone service. The system allows paging and intercom communication between main office and classrooms, and vice versa between classrooms and main office, as well as, classrooms to classrooms.

Clock and Program system - Clock and program system are working adequately. Each classrooms has a 12-inch wall mounted round clock. The clocks are controlled by central master control panel. The master control is also programmed for class change.

Television System - Television system is not provided in the school. All classes are provided with smart boards having the ability to connect to computers and internet.

Security Systems, access control, video surveillance - The school is provided with adequate video surveillance system. Sufficient number of cameras are installed at exit doors, corridors and other critical areas. They are controlled by a Closed Circuit Television (CCTV) system. The security system is working properly. The Building Engineer mentioned that a few more cameras are needed to cover dead spaces and a few cameras need better glare control.

Emergency Power System - School is provided with a 125KW, 480/277V, 3 PH, 4W generator to feed elevators, emergency lighting and other emergency loads via a transfer switch. The generator is new and in a very good condition.

UPS - Adequate Uninterruptible Power System (UPS) is provided on the IT racks.

Emergency lighting system, including exit lighting - sufficient emergency lighting fixtures is instated in corridors, library and other exit ways. All exit signs are equipped with adequate batteries.

Lightning Protection System - There is adequate lightning protection system installed in the school. There are many lightning rods on the roof that are properly connected and grounded to earth using stranded aluminum cables.

Grounding - The present grounding system is adequate. All equipment are properly bonded to the ground.

Elevator - There are two 75HP hydraulic type elevators (manufactured by ThyssenKrupp elevator model EP07025) provided in the school. The elevators working properly and no major deficiency observed during the assessment.

Site Lighting - Campus grounds and building perimeters are adequately lighted for safety of the people and security of property.

Site Paging - The present Site paging System is adequate. Sufficient number of speaker are located on building exterior walls.

Auditorium lighting and sound system - The auditorium general lighting is adequate. Stage lighting is provided with dimmable and switchable stage work lights. Also, sound system is adequate. No major deficiencies were observed during the assessment.

#### RECOMMENDATIONS:

Install additional security cameras to cover blind spots.

#### **Attributes:**

General Attributes:											
Active:	Open	Bldg Lot Tm:	Lot 1 / Tm 4								
Status:	Accepted by SDP	Team:	Tm 4								
Site ID:	S552001										

### **Site Condition Summary**

The Table below shows the CI and FCI for each major system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

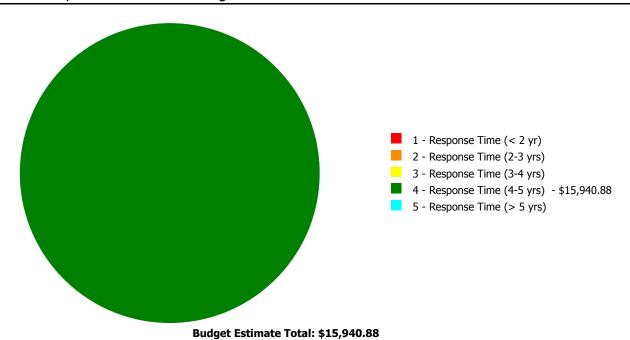
### **Current Investment Requirement and Condition by Uniformat Classification**

UNIFORMAT Classification	RSLI%	FCI %	Current Repair
A10 - Foundations	95.00 %	0.00 %	\$0.00
A20 - Basement Construction	95.00 %	0.00 %	\$0.00
B10 - Superstructure	95.00 %	0.00 %	\$0.00
B20 - Exterior Enclosure	91.89 %	0.00 %	\$0.00
B30 - Roofing	79.60 %	0.00 %	\$0.00
C10 - Interior Construction	93.20 %	0.00 %	\$0.00
C20 - Stairs	92.10 %	0.00 %	\$0.00
C30 - Interior Finishes	72.76 %	0.00 %	\$0.00
D10 - Conveying	85.71 %	0.00 %	\$0.00
D20 - Plumbing	84.70 %	0.00 %	\$0.00
D30 - HVAC	80.56 %	0.00 %	\$0.00
D40 - Fire Protection	85.71 %	0.00 %	\$0.00
D50 - Electrical	74.73 %	0.31 %	\$15,940.88
E10 - Equipment	85.71 %	0.00 %	\$0.00
E20 - Furnishings	87.50 %	0.00 %	\$0.00
G20 - Site Improvements	77.52 %	0.00 %	\$0.00
G40 - Site Electrical Utilities	83.33 %	0.00 %	\$0.00
Totals:	85.20 %	0.03 %	\$15,940.88

### **Condition Deficiency Priority**

Facility Name	Gross Area (S.F.)	FCI %		2 - Response Time (2-3 yrs)		_	
B552001; Kensington CAPA	88,915	0.03	\$0.00	\$0.00	\$0.00	\$15,940.88	\$0.00
G552001;Grounds	238,300	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total:		0.03	\$0.00	\$0.00	\$0.00	\$15,940.88	\$0.00

### **Deficiencies By Priority**



#### **Executive Summary**

Building condition is evaluated based on the functional systems and elements of a building and organized according to the UNIFORMAT II Elemental Classification. The grouping of these systems and elements and applying a current replacement value to them develops a representative building cost model. Cost Models are developed for similar building types and functions. Systems and their elements are evaluated based on their current replacement values, life cycles, installation dates and next renewal dates. Systems and their elements that are within their useful lives are further evaluated to identify current deficient conditions that may have a significant impact on a system's or element's remaining service life, and to determine if they are beyond their predicted expected life. The system's or element's current replacement value is based on RS Means Commercial Cost Data.

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CAPA

85.60 %

 Gross Area (SF):
 88,915

 Year Built:
 2010

 Last Renovation:
 \$48,816,358

 Repair Cost:
 \$15,940.88

 Total FCI:
 0.03 %

#### **Description:**

Total RSLI:

Function:

#### **Attributes:**

General Attributes:Active:OpenBldg ID:B552001

Sewage Ejector: No Status: Accepted by SDP

Site ID: S552001

### **Condition Summary**

The Table below shows the CI and FCI for each major building system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

UNIFORMAT Classification	RSLI %	FCI %	Current Repair Cost
A10 - Foundations	95.00 %	0.00 %	\$0.00
A20 - Basement Construction	95.00 %	0.00 %	\$0.00
B10 - Superstructure	95.00 %	0.00 %	\$0.00
B20 - Exterior Enclosure	91.89 %	0.00 %	\$0.00
B30 - Roofing	79.59 %	0.00 %	\$0.00
C10 - Interior Construction	93.20 %	0.00 %	\$0.00
C20 - Stairs	92.10 %	0.00 %	\$0.00
C30 - Interior Finishes	72.76 %	0.00 %	\$0.00
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D30 - HVAC	80.56 %	0.00 %	\$0.00
D40 - Fire Protection	85.71 %	0.00 %	\$0.00
D50 - Electrical	74.73 %	0.31 %	\$15,940.88
E10 - Equipment	85.71 %	0.00 %	\$0.00
E20 - Furnishings	87.50 %	0.00 %	\$0.00
Totals:	85.60 %	0.03 %	\$15,940.88

#### **Condition Detail**

This section of the report contains results of the Facility Condition Assessment. The building is separated into system components based on UNIFORMAT II classification. The columns in the System Listing table below represent the following:

- 1. System Code: A code that identifies the system.
- 2. System Description: A brief description of a system present in the building.
- 3. Unit Price \$: The unit price of the system.
- 4. UoM: The unit of measure for of the system.
- 5. Qty: The quantity for the system
- 6. Life: anticipated service life for the system based on Building Owners and Managers Association (BOMA) recommendations.
- 7. Year Installed: The date of system installation.
- 8. Calc Next Renewal Year: The date of system expiration based on the life, NR stands for non renewable.
- 9. Next Renewal Year: The suggested system expiration date by the assessor based on visual inspection.
- 10. CI: The Condition Index of the system.
- 11. FCI: The Facility Condition Index of the system.
- 12. RSL: Remaining Service Life.
- 13. eCR: eCOMET Condition Rating (not used).
- 14. Deficiency \$: The financial investment to repair/replace system.

### **System Listing**

The System Listing table below lists each of the systems organized by their UNIFORMAT II classification. The assessment team was tasked with recording the most recent replacement year of each system, determining the remaining service life based on the theoretical life, and evaluating the condition to confirm the forecast next replacement year. The system listing is the basis for all data contained in the Building Assessment Report.

Additionally, a condition rating (eCR) based on the following guidelines is provided as observed at the time of the assessment.

- Excellent (E) No noticeable distress or damage. The entire system is free from observable defect.
- Very Good (VG) Overall no serviceability reduction for the entire system. No degradation of critical components and minor distress and defect noticeable for some but not non critical components within the system.
- Good (G) Slight or no serviceability reduction for the entire system. There may be noticeable defects for some non critical components and slight noticeable degradation of the critical components.
- Fair (F) Overall serviceability is degraded but adequate. There may be moderate deterioration for very few of the critical components and few of the non critical components may have severe degradation.
- Marginal (MA) Overall serviceability and reliability loss. Most if not all of the non critical components suffer from severe degradation and a few of the critical component may have severe degradation.
- Moderate (MO) Overall a significant serviceability loss. Most if not all the components have severe degradation with the reminder of the component showing visible distress.
- Very Poor (VP) Overall the system is barely functional. All of the components are severely degraded.
- Non-Functional (NF) Overall the system does not function with all the components having no serviceability and suffer from severe degradation.

System	Sustain Bookinston	Huit Brian d	UoM	Ob.	Life	Year	Calc Next Renewal	Next Renewal	DCI TO/	FCT0/	BCI	-CD	Deficiency	Replacement
Code A1010	System Description Standard Foundations	Unit Price \$ \$27.30		<b>Qty</b> 88,915	100	Installed 2010	<b>Year</b> 2110	Year	<b>RSLI%</b> 95.00 %	FCI% 0.00 %	<b>RSL</b> 95	eCR	Deficiency \$	Value \$
		· · · · · · · · · · · · · · · · · · ·												\$2,427,380
A1030	Slab on Grade	\$5.17		88,915	100	2010	2110		95.00 %	0.00 %	95			\$459,691
A2010	Basement Excavation	\$4.36	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$387,669
A2020	Basement Walls	\$9.91	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$881,148
B1010	Floor Construction	\$85.34	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$7,588,006
B1020	Roof Construction	\$14.39	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$1,279,487
B2010	Exterior Walls	\$43.20	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$3,841,128
B2020	Exterior Windows	\$27.52	S.F.	88,915	40	2010	2050		87.50 %	0.00 %	35			\$2,446,941
B2030	Exterior Doors	\$1.16	S.F.	88,915	25	2010	2035		80.00 %	0.00 %	20			\$103,141
B3010105	Built-Up	\$37.76	S.F.	22,200	20	2010	2030		75.00 %	0.00 %	15			\$838,272
B3010120	Single Ply Membrane	\$38.73	S.F.		20	2010	2030		75.00 %	0.00 %	15			\$0
B3010125	Green Roof	\$59.06	S.F.	25,400	25	2010	2035		80.00 %	0.00 %	20			\$1,500,124
B3010130	Preformed Metal Roofing	\$54.22	S.F.	15,900	30	2010	2040		83.33 %	0.00 %	25			\$862,098
B3010140	Shingle & Tile	\$38.73	S.F.		20				0.00 %	0.00 %				\$0
B3020	Roof Openings	\$0.06	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$5,335
C1010	Partitions	\$21.05	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$1,871,661
C1020	Interior Doors	\$3.76	S.F.	88,915	40	2010	2050		87.50 %	0.00 %	35	, and the second		\$334,320
C1030	Fittings	\$2.90	S.F.	88,915	40	2010	2050		87.50 %	0.00 %	35			\$257,854

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System Code	System Description	Unit Price \$	UoM	Qty	Life	Year Installed	Calc Next Renewal Year	Next Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency \$	Replacement Value \$
C2010	Stair Construction	\$1.18	S.F.	88,915	100	2010	2110		95.00 %	0.00 %	95			\$104,920
C2020	Stair Finishes	\$0.39	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$34,677
C3010230	Paint & Covering	\$13.21	S.F.	88,915	10	2010	2020		50.00 %	0.00 %	5			\$1,174,567
C3010231	Vinyl Wall Covering	\$0.97	S.F.	88,915	15	2010	2025		66.67 %	0.00 %	10			\$86,248
C3010232	Wall Tile	\$2.63	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$233,846
C3020411	Carpet	\$7.30	S.F.	6,000	10	2010	2020	2030	150.00 %	0.00 %	15			\$43,800
C3020412	Terrazzo & Tile	\$75.52	S.F.	4,400	50	2010	2060		90.00 %	0.00 %	45			\$332,288
C3020413	Vinyl Flooring	\$9.68	S.F.	44,400	20	2010	2030		75.00 %	0.00 %	15			\$429,792
C3020414	Wood Flooring	\$22.27	S.F.	6,000	25	2010	2035		80.00 %	0.00 %	20			\$133,620
C3020415	Concrete Floor Finishes	\$0.97	S.F.	14,800	50	2010	2060		90.00 %	0.00 %	45			\$14,356
C3030	Ceiling Finishes	\$20.97	S.F.	88,915	25	2010	2035		80.00 %	0.00 %	20			\$1,864,548
D1010	Elevators and Lifts	\$1.28	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$113,811
D2010	Plumbing Fixtures	\$13.52	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$1,202,131
D2020	Domestic Water Distribution	\$1.68	S.F.	88,915	25	2010	2035		80.00 %	0.00 %	20			\$149,377
D2030	Sanitary Waste	\$2.32	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$206,283
D2040	Rain Water Drainage	\$1.90	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$168,939
D3020	Heat Generating Systems	\$18.67	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$1,660,043
D3030	Cooling Generating Systems	\$24.48	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$2,176,639
D3040	Distribution Systems	\$42.99	S.F.	88,915	25	2010	2035		80.00 %	0.00 %	20			\$3,822,456
D3050	Terminal & Package Units	\$11.60	S.F.	88,915	20	2010	2030		75.00 %	0.00 %	15			\$1,031,414
D3060	Controls & Instrumentation	\$13.50	S.F.	88,915	20	2010	2030		75.00 %	0.00 %	15			\$1,200,353
D4010	Sprinklers	\$7.05	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$626,851
D4020	Standpipes	\$1.01	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$89,804
D5010	Electrical Service/Distribution	\$9.70	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$862,476
D5020	Lighting and Branch Wiring	\$34.68	S.F.	88,915	20	2010	2030		75.00 %	0.00 %	15			\$3,083,572
D5030	Communications and Security	\$12.99	S.F.	88,915	15	2010	2025		66.67 %	1.38 %	10		\$15,940.88	\$1,155,006
D5090	Other Electrical Systems	\$1.41	S.F.	88,915	30	2010	2040		83.33 %	0.00 %	25			\$125,370
E1020	Institutional Equipment	\$4.82	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$428,570
E1090	Other Equipment	\$11.10	S.F.	88,915	35	2010	2045		85.71 %	0.00 %	30			\$986,957
E2010	Fixed Furnishings	\$2.13	S.F.	88,915	40	2010	2050		87.50 %	0.00 %	35			\$189,389
		<u></u>						Total	85.60 %	0.03 %			\$15,940.88	\$48,816,358

### **System Notes**

The facility description in the site executive summary contains an overview of each system. The notes listed below provide additional information on select systems found within the facility.

**System:** B3010125 - Green Roof This system contains no images

**Note:** Single-ply membrane includes vegetative (green) roof

**System:** C3020 - Floor Finishes This system contains no images

Note: VCT 60%

Ceramic tile 4% Hardwood 8% Carpet 8% Concrete 20%

**System:** C3030 - Ceiling Finishes This system contains no images

**Note:** Acoustical ceiling 60%

Exposed ceiling 33%

Drywall 7%

### **Renewal Schedule**

eCOMET forecasts future Capital Renewal funding needed to address expiring systems based on the Next Renewal year found in the Cost Models. A 3% annual inflation factor is applied to the costs for systems expiring in future years. The table below reflects recommended Capital Renewal funding needs over the next 10 years. Note: Cells with a zero value indicate systems for which renewal is not scheduled in that year.

Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	\$15,941	\$0	\$0	\$0	\$0	\$1,497,810	\$0	\$0	\$0	\$0	\$1,834,954	\$3,348,705
* A - Substructure	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
* A10 - Foundations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A1010 - Standard Foundations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A1030 - Slab on Grade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
* A20 - Basement Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A2010 - Basement Excavation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
A2020 - Basement Walls	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B - Shell	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B10 - Superstructure	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B1010 - Floor Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B1020 - Roof Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B20 - Exterior Enclosure	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B2010 - Exterior Walls	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B2020 - Exterior Windows	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B2030 - Exterior Doors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B30 - Roofing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3010 - Roof Coverings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3010105 - Built-Up	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3010120 - Single Ply Membrane	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3010125 - Green Roof	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3010130 - Preformed Metal Roofing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3010140 - Shingle & Tile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B3020 - Roof Openings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C - Interiors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C10 - Interior Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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C1010 - Partitions	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C1020 - Interior Doors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C1030 - Fittings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C20 - Stairs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C2010 - Stair Construction	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C2020 - Stair Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C30 - Interior Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3010 - Wall Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3010230 - Paint & Covering	\$0	\$0	\$0	\$0	\$0	\$1,497,810	\$0	\$0	\$0	\$0	\$0	\$1,497,810
C3010231 - Vinyl Wall Covering	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$127,500	\$127,500
C3010232 - Wall Tile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020 - Floor Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020411 - Carpet	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020412 - Terrazzo & Tile	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020413 - Vinyl Flooring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020414 - Wood Flooring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3020415 - Concrete Floor Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
C3030 - Ceiling Finishes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D - Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D10 - Conveying	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D1010 - Elevators and Lifts	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D20 - Plumbing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D2010 - Plumbing Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D2020 - Domestic Water Distribution	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D2030 - Sanitary Waste	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D2040 - Rain Water Drainage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D30 - HVAC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3020 - Heat Generating Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3030 - Cooling Generating Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3040 - Distribution Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3050 - Terminal & Package Units	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D3060 - Controls & Instrumentation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D40 - Fire Protection	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

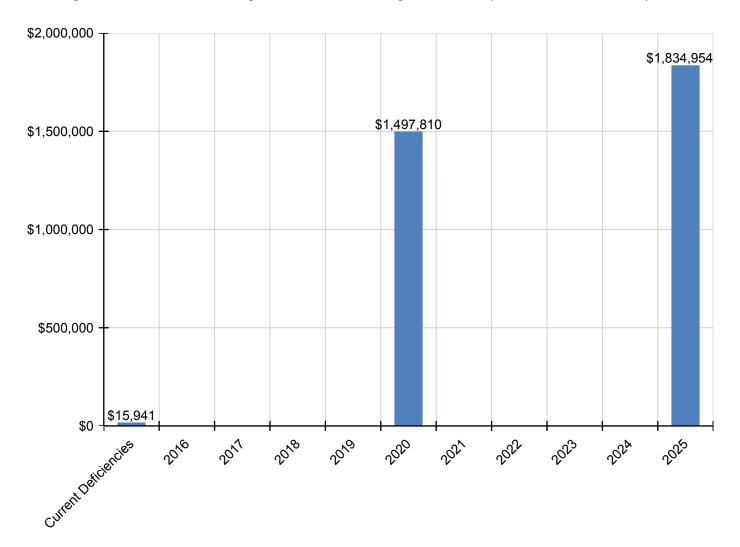
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D4010 - Sprinklers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D4020 - Standpipes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D50 - Electrical	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D5010 - Electrical Service/Distribution	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D5020 - Lighting and Branch Wiring	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
D5030 - Communications and Security	\$15,941	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,707,454	\$1,723,395
D5090 - Other Electrical Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E - Equipment & Furnishings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E10 - Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E1020 - Institutional Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E1090 - Other Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E20 - Furnishings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E2010 - Fixed Furnishings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

<sup>\*</sup> Indicates non-renewable system

### **Forecasted Sustainment Requirement**

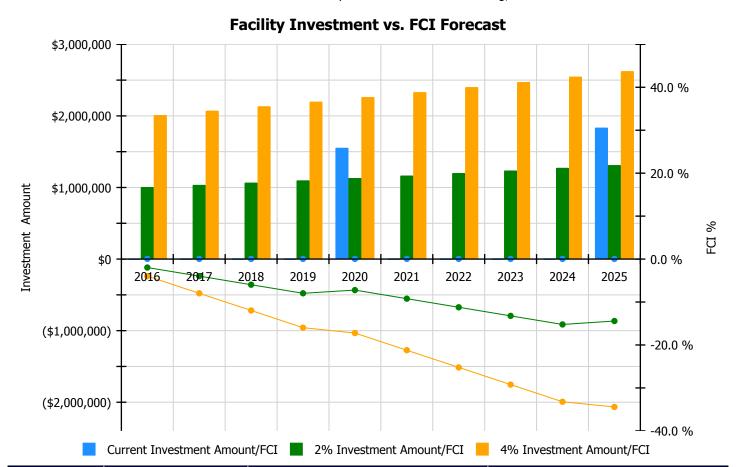
The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



### 10 Year FCI Forecast by Investment Scenario

The chart below illustrates the effect of various investment levels on the building FCI for the next 10 years. The levels of investment shown below include:

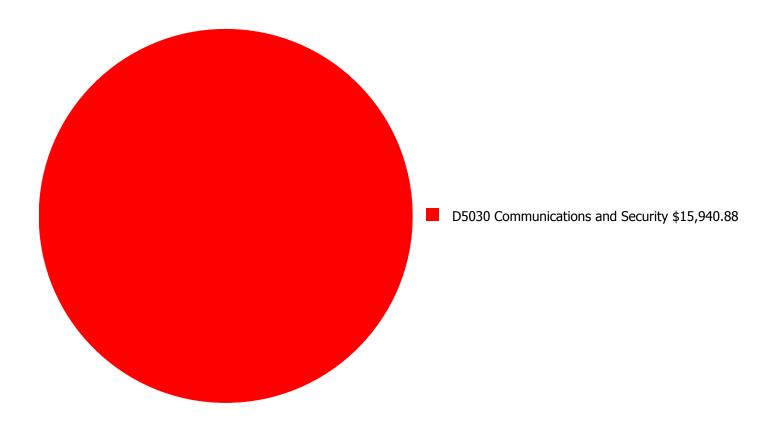
- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value of the building, escalated for inflation



	Investment Amount	2% Investm	ent	4% Investment				
Year	Current FCI - 0.03%	Amount	FCI	Amount	FCI			
2016	\$0	\$1,005,617.00	-1.97 %	\$2,011,234.00	-3.97 %			
2017	\$0	\$1,035,785.00	-3.97 %	\$2,071,571.00	-7.97 %			
2018	\$0	\$1,066,859.00	-5.97 %	\$2,133,718.00	-11.97 %			
2019	\$0	\$1,098,865.00	-7.97 %	\$2,197,730.00	-15.97 %			
2020	\$1,553,664	\$1,131,831.00	-7.22 %	\$2,263,662.00	-17.22 %			
2021	\$0	\$1,165,786.00	-9.22 %	\$2,331,571.00	-21.22 %			
2022	\$0	\$1,200,759.00	-11.22 %	\$2,401,519.00	-25.22 %			
2023	\$0	\$1,236,782.00	-13.22 %	\$2,473,564.00	-29.22 %			
2024	\$0	\$1,273,885.00	-15.22 %	\$2,547,771.00	-33.22 %			
2025	\$1,834,954	\$1,312,102.00	-14.42 %	\$2,624,204.00	-34.42 %			
Total:	\$3,388,618	\$11,528,271.00		\$23,056,544.00				

### **Deficiency Summary by System**

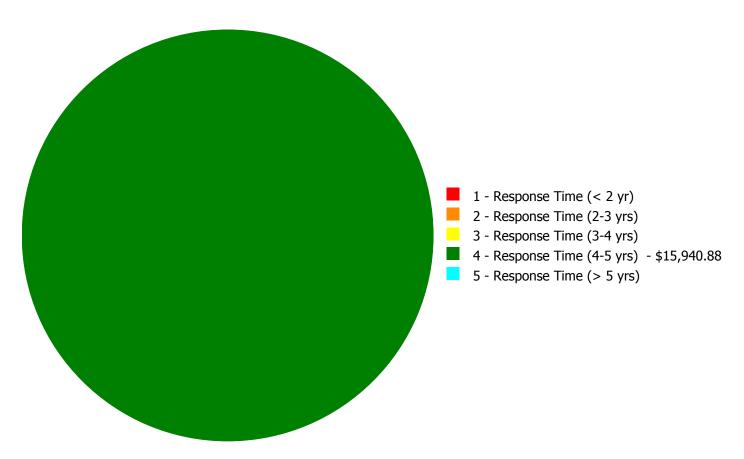
Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart lists all current deficiencies associated with this facility.



**Budget Estimate Total: \$15,940.88** 

### **Deficiency Summary by Priority**

The following chart shows the total repair costs broken down by priority. Assessors assigned deficiencies within eCOMET to one of the following priority categories:



**Budget Estimate Total: \$15,940.88** 

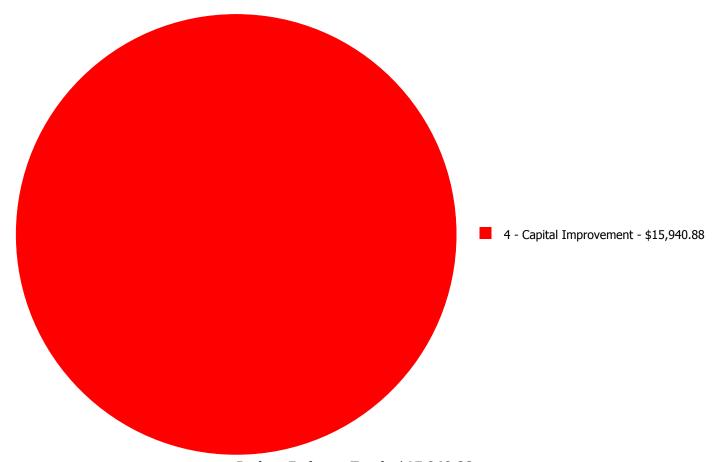
### **Deficiency By Priority Investment Table**

The table below shows the current investment cost grouped by deficiency priority and building system.

System Code	System Description		2 - Response Time (2-3 yrs)			5 - Response Time (> 5 yrs)	Total
D5030	Communications and Security	\$0.00	\$0.00	\$0.00	\$15,940.88	\$0.00	\$15,940.88
	Total:	\$0.00	\$0.00	\$0.00	\$15,940.88	\$0.00	\$15,940.88

# **Deficiency Summary by Category**

The following chart shows the total repair costs broken down by deficiency categories. Assessors assigned deficiencies to one of the following categories:



**Budget Estimate Total: \$15,940.88** 

### **Deficiency Details by Priority**

The deficiency detail notes listed below provide additional information on identified deficiencies found within the facility.

### **Priority 4 - Response Time (4-5 yrs):**

#### **System: D5030 - Communications and Security**



**Location:** Interiors (corridors)

**Distress:** Inadequate

**Category:** 4 - Capital Improvement

**Priority:** 4 - Response Time (4-5 yrs)

**Correction:** Add/Replace Video Surveillance System

**Qty:** 4.00

Unit of Measure: Ea.

**Estimate:** \$15,940.88

Assessor Name: Ben Nixon

**Date Created:** 08/10/2015

**Notes:** • Install additional security cameras to cover blind spots.

# **Equipment Inventory**

The following table represents the inventory details of the inventory found in the building, which fall under the following subsystems:

Subsystem	Inventory	Qty	UoM	Location	Manufacturer	Model Number	Serial Number	Barcode	Life	Install Date	Next Renewal	Raw Cost	Inventory Cost
D3040 Distribution Systems	Pump, general utility, centrifugal, end suction, horizontal base mounted, horizontal split case, rated @ 100' head, single stage, 1000 GPM, 40 H.P., 5" discharge, includes drip proof motor	2.00	Ea.	Mechanical Room	Bell & Gossett	1510	C094092-03- 390		25	2010	2035	\$19,380.00	\$42,636.00
D3040 Distribution Systems	Pump, general utility, centrifugal, end suction, horizontal base mounted, horizontal split case, rated @ 100' head, single stage, 1000 GPM, 40 H.P., 5" discharge, includes drip proof motor	2.00	Ea.	Mechanical Room	Bell & Gossett	1510	C094092-02- 390		25	2010	2035	\$19,380.00	\$42,636.00
D4010 Sprinklers	Fire pumps, electric, 750 GPM, 50 psi, 44 HP, 1770 RPM, 5" pump, including controller, fittings and relief valve	1.00	Ea.	Mechanical Room	Aurora	Series 912			35	2010	2045	\$23,934.80	\$26,328.28
D5010 Electrical Service/Distribution	Switchboards, distribution section, aluminum bus bars, 4 W, 120/208 or 277/480 V, 1600 amp, excl breakers	1.00	Ea.	electrical room					30	2010	2040	\$7,358.85	\$8,094.74
D5010 Electrical Service/Distribution	Switchboards, no main disconnect, 4 wire, 120/208 V, 800 amp, incl CT compartment, excl CT's or PT's	4.00	Ea.	electrical room					30	2010	2040	\$7,638.30	\$33,608.52
D5090 Other Electrical Systems	Generator set, diesel, 3 phase 4 wire, 277/480 V, 125 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	1.00	Ea.	Electrical room					30	2010	2040	\$50,797.80	\$55,877.58
		·										Total:	\$209,181.12

#### **Executive Summary**

Building condition is evaluated based on the functional systems and elements of a building and organized according to the UNIFORMAT II Elemental Classification. The grouping of these systems and elements and applying a current replacement value to them develops a representative building cost model. Cost Models are developed for similar building types and functions. Systems and their elements are evaluated based on their current replacement values, life cycles, installation dates and next renewal dates. Systems and their elements that are within their useful lives are further evaluated to identify current deficient conditions that may have a significant impact on a system's or element's remaining service life, and to determine if they are beyond their predicted expected life. The system's or element's current replacement value is based on RS Means Commercial Cost Data.

Following are the cost model's system details for this facility. The Replacement Value is the amount needed to replace the property of the same present value. The Current Repair Amount, also known as Condition Needs, represents the budgeted contractor installed costs plus owner's soft costs for the repair, replacement or renewal for a component or system level deficiency. It excludes contributing costs for other components or systems that might also be associated with the corrective actions due to packaging the work. Facility Condition Index (FCI) FCI is an industry-standard measurement of facility condition calculated as the ratio of the costs to correct a facility's deficiencies to the facility's Current Replacement Value. It ranges from 0% (new) to 100% (very poor). Condition Index (CI) is calculated as the sum of a renewable system's Remaining Service Life (RSL) divided by the sum of a system's Replacement Value (both values exclude soft-cost to simplify calculation updates) expressed as a percentage ranging from 100% (new) to 0% (expired).

Function:

 Gross Area (SF):
 238,300

 Year Built:
 2010

Last Renovation:

Replacement Value: \$3,319,249
Repair Cost: \$0.00
Total FCI: 0.00 %
Total RSLI: 79.33 %

#### **Description:**

#### Attributes:

 General Attributes:
 S552001
 Site ID:
 S552001

### **Condition Summary**

The Table below shows the CI and FCI for each major building system shown at the UNIFORMAT classification Level II. Note that Systems with lower FCIs require less investment than systems with higher FCIs.

UNIFORMAT Classification	RSLI %	FCI %	Current Repair Cost
G20 - Site Improvements	77.52 %	0.00 %	\$0.00
G40 - Site Electrical Utilities	83.33 %	0.00 %	\$0.00
Totals:	79.33 %	0.00 %	\$0.00

#### **Condition Detail**

This section of the report contains results of the Facility Condition Assessment. The building is separated into system components based on UNIFORMAT II classification. The columns in the System Listing table below represent the following:

- 1. System Code: A code that identifies the system.
- 2. System Description: A brief description of a system present in the building.
- 3. Unit Price \$: The unit price of the system.
- 4. UoM: The unit of measure for of the system.
- 5. Qty: The quantity for the system
- 6. Life: anticipated service life for the system based on Building Owners and Managers Association (BOMA) recommendations.
- 7. Year Installed: The date of system installation.
- 8. Calc Next Renewal Year: The date of system expiration based on the life, NR stands for non renewable.
- 9. Next Renewal Year: The suggested system expiration date by the assessor based on visual inspection.
- 10. CI: The Condition Index of the system.
- 11. FCI: The Facility Condition Index of the system.
- 12. RSL: Remaining Service Life.
- 13. eCR: eCOMET Condition Rating (not used).
- 14. Deficiency \$: The financial investment to repair/replace system.

### **System Listing**

The System Listing table below lists each of the systems organized by their UNIFORMAT II classification. The assessment team was tasked with recording the most recent replacement year of each system, determining the remaining service life based on the theoretical life, and evaluating the condition to confirm the forecast next replacement year. The system listing is the basis for all data contained in the Building Assessment Report.

Additionally, a condition rating (eCR) based on the following guidelines is provided as observed at the time of the assessment.

- Excellent (E) No noticeable distress or damage. The entire system is free from observable defect.
- Very Good (VG) Overall no serviceability reduction for the entire system. No degradation of critical components and minor distress and defect noticeable for some but not non critical components within the system.
- Good (G) Slight or no serviceability reduction for the entire system. There may be noticeable defects for some non critical components and slight noticeable degradation of the critical components.
- Fair (F) Overall serviceability is degraded but adequate. There may be moderate deterioration for very few of the critical components and few of the non critical components may have severe degradation.
- Marginal (MA) Overall serviceability and reliability loss. Most if not all of the non critical components suffer from severe degradation and a few of the critical component may have severe degradation.
- Moderate (MO) Overall a significant serviceability loss. Most if not all the components have severe degradation with the reminder of the component showing visible distress.
- Very Poor (VP) Overall the system is barely functional. All of the components are severely degraded.
- Non-Functional (NF) Overall the system does not function with all the components having no serviceability and suffer from severe degradation.

							Calc Next	Next						
System Code	System Description	Unit Price \$	UoM	Qty	Life	Year Installed		Renewal Year	RSLI%	FCI%	RSL	eCR	Deficiency \$	Replacement Value \$
G2010	Roadways	\$11.52	S.F.		30	2010	2040		83.33 %	0.00 %	25			\$0
G2020	Parking Lots	\$7.65	S.F.	38,000	30	2010	2040		83.33 %	0.00 %	25			\$290,700
G2030	Pedestrian Paving	\$11.52	S.F.	25,300	40	2010	2050		87.50 %	0.00 %	35			\$291,456
G2040	Site Development	\$4.36	S.F.	238,300	25	2010	2035		80.00 %	0.00 %	20			\$1,038,988
G2050	Landscaping & Irrigation	\$3.78	S.F.	175,000	15	2010	2025		66.67 %	0.00 %	10			\$661,500
G4020	Site Lighting	\$3.58	S.F.	238,300	30	2010	2040		83.33 %	0.00 %	25			\$853,114
G4030	Site Communications & Security	\$0.77	S.F.	238,300	30	2010	2040		83.33 %	0.00 %	25			\$183,491
								Total	79.33 %					\$3,319,249

### **System Notes**

The facility description in the site executive summary contains an overview of each system. The notes listed below provide additional information on select systems found within the facility.

No data found for this asset

### **Renewal Schedule**

eCOMET forecasts future Capital Renewal funding needed to address expiring systems based on the Next Renewal year found in the Cost Models. A 3% annual inflation factor is applied to the costs for systems expiring in future years. The table below reflects recommended Capital Renewal funding needs over the next 10 years. Note: Cells with a zero value indicate systems for which renewal is not scheduled in that year.

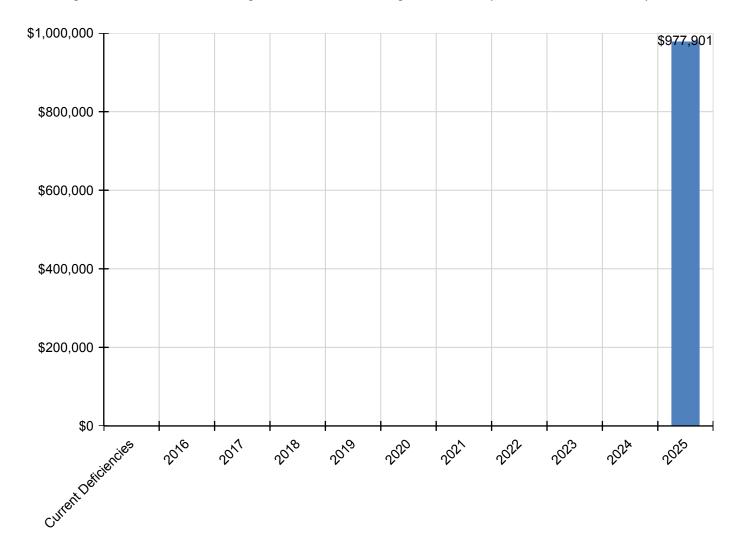
Inflation Rate: 3%

System	Current Deficiencies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Total:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$977,901	\$977,901
G - Building Sitework	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G20 - Site Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G2010 - Roadways	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G2020 - Parking Lots	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G2030 - Pedestrian Paving	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G2040 - Site Development	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G2050 - Landscaping & Irrigation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$977,901	\$977,901
G40 - Site Electrical Utilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G4020 - Site Lighting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G4030 - Site Communications & Security	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

<sup>\*</sup> Indicates non-renewable system

### **Forecasted Sustainment Requirement**

The following chart shows the current building deficiencies and forecasting sustainment requirements over the next ten years.



### 10 Year FCI Forecast by Investment Scenario

The chart below illustrates the effect of various investment levels on the building FCI for the next 10 years. The levels of investment shown below include:

- Current FCI: a variable investment amount based on renewing expired systems to maintain the current FCI for the building
- 2% Investment: an annual investment of 2% of the replacement value of the building, escalated for inflation
- 4% Investment: an annual investment of 4% of the replacement value of the building, escalated for inflation

### **Facility Investment vs. FCI Forecast** \$1,000,000 40.0 % \$500,000 20.0 % Investment Amount % $\Xi$ \$0 0.0 % 2025 2016 2017 2018 2019 2020 2021 2022 2023 2024 -20.0 % (\$500,000) -40.0 % Current Investment Amount/FCI 2% Investment Amount/FCI 4% Investment Amount/FCI

	Investment Amount	2% Investm	ent	4% Investment				
Year	Current FCI - 0%	Amount	FCI	Amount	FCI			
2016	\$0	\$68,377.00	-2.00 %	\$136,753.00	-4.00 %			
2017	\$0	\$70,428.00	-4.00 %	\$140,856.00	-8.00 %			
2018	\$0	\$72,541.00	-6.00 %	\$145,081.00	-12.00 %			
2019	\$0	\$74,717.00	-8.00 %	\$149,434.00	-16.00 %			
2020	\$0	\$76,958.00	-10.00 %	\$153,917.00	-20.00 %			
2021	\$0	\$79,267.00	-12.00 %	\$158,534.00	-24.00 %			
2022	\$0	\$81,645.00	-14.00 %	\$163,290.00	-28.00 %			
2023	\$0	\$84,095.00	-16.00 %	\$168,189.00	-32.00 %			
2024	\$0	\$86,617.00	-18.00 %	\$173,235.00	-36.00 %			
2025	\$977,901	\$89,216.00	1.92 %	\$178,432.00	-18.08 %			
Total:	\$977,901	\$783,861.00		\$1,567,721.00				

## **Deficiency Summary by System**

Current deficiencies included assemblies that have reached or exceeded their design life or components of the assemblies that are in need of repair. Assemblies that have reached their design life are identified as current deficiencies and assigned the distress 'Beyond Useful Life'. The following chart lists all current deficiencies associated with this facility.

No data found for this asset

## **Deficiency Summary by Priority**

The following chart shows the total repair costs broken down by priority. Assessors assigned deficiencies within eCOMET to one of the following priority categories:

No data found for this asset

## **Deficiency By Priority Investment Table**

The table below shows the current investment cost grouped by deficiency priority and building system.

No data found for this asset

## **Deficiency Summary by Category**

The following chart shows the total repair costs broken down by deficiency categories. Assessors assigned deficiencies to one of the following categories:

No data found for this asset

## **Deficiency Details by Priority**

The deficiency detail notes listed below provide additional information on identified deficiencies found within the facility.

No data found for this asset

# **Equipment Inventory**

The following table represents the inventory details of the inventory found in the building, which fall under the following subsystems:

No data found for this asset

#### Glossary

ABMA American Boiler Manufacturers Association http://www.abma.com/

ACEEE American Council for an Energy-Efficient Economy

ACGIH American Council of Governmental and Industrial Hygienists

AEE Association of Energy Engineers

AFD Adjustable Frequency Drive

AFTC After Tax Cash Flow

AGA American Gas Association

AHU Air Handling Unit

Amp Ampere

ANSI American National Standards Institute

ARI Air Conditioning and Refrigeration Institute

ASD Adjustable Speed Drive

ASHRAE American Society of Heating Refrigerating and Air-Conditioning Engineers Inc.

ASME American Society of Mechanical Engineers

Assessment Visual survey of a facility to determine its condition. It involves looking at the age of systems

reviewing information from local sources and visual evidence of potential problems to assign a condition rating. It does not include destructive testing of materials or testing of systems or

equipment for functionality.

ATS After Tax Savings

AW Annual worth

BACNET Building Automation Control Network

BAS Building Automation System

BCR Benefit Cost Ratio

BEP Business Energy Professional (AEE)

BF Ballast Factor

BHP Boiler Horsepower (boilers)

BHP Brake Horsepower (motors)

BLCC Building Life Cycle Cost analysis program (FEMP)

BOCA Building Officials and Code Administrators

BTCF Before Tax Cash Flow

BTS Before Tax Savings

Btu British thermal unit

Building Addition An area space or component of a building added to a building after the original building's year

built date.

CAA Clean Air Act

CAAA-90 Clean Air Act Amendments of 1990

CABO Council of American Building Officials

CAC Conventional Air Conditioning

CADDET Center for the Analysis and Dissemination of Demonstrated Energy Technologies

Calculated Next Renewal The year a system or element would be expected to expire based solely on the date it was

installed and the expected useful lifetime for that kind of system.

Capital Renewal Capital renewal is condition work (excluding suitability and energy audit work) that includes the

replacement of building systems or elements (as they become obsolete or beyond their useful life) not normally included in an annual operating budget. Calculated next renewal The year a system or element would be expected to expire based solely on the date it was installed and the expected useful lifetime for that kind of system. Next renewal The assessor adjusted expected useful life

of a system or element based on on-site inspection.

CDD Cooling Degree Days

CDGP Certified Distributed Generation Professional

CEC California Energy Commission

CEM Certified Energy Manager

CEP Certified Energy Procurement Professional

CFC Chlorofluorocarbon

CFD Cash Flow Diagram

CFL Compact Fluorescent Light

CFM cfm Cubic Feet per Minute

CHP Combined Heat and Power (a.k.a. cogeneration)

CHW Chilled Water

Condition Condition refers to the state of physical fitness or readiness of a facility system or system element

for its intended use.

COP Coefficient of Performance

Cp Heat Capacity of Material

CPUC California Public Utility Commission

CRI Color Rendering Index

CRT Cathode Ray Tube VDT HMI

CTC Competitive Transition Charge

Cu Coefficient of Utilization

Current Replacement

Value (CRV)

CRV represents the hypothetical total cost of rebuilding or replacing an existing facility in current dollars to its optimal condition (excluding auxiliary facilities) under current codes and construction

standards.

Cv Value Coefficient

CWS Chilled Water System

D d Distance (usually feet)

DB Dry Bulb

DCV Demand Control Ventilation

DD Degree Day

DDB Double Declining Balance

DDC Direct Digital Controls

Deferred maintenance Deferred maintenance is condition work (excluding suitability and energy audit needs) deferred on

a planned or unplanned basis to a future budget cycle or postponed until funds are available.

Deficiency A deficiency is a repair item that is damaged missing inadequate or insufficient for an intended

purpose.

Delta Difference

Delta P Pressure Difference

Delta T Temperature Difference

DG Distributed Generation

DOE Department of Energy

DP Dew Point

DR Demand Response

DX Direct Expansion Air Conditioner

EA Energy Audit

EBITDA Earnings before Interest Taxes Depreciation and Amortization

ECI Energy Cost Index

ECM Energy Conservation Measure

ECO Energy Conservation Opportunity

ECPA Energy Conservation and Production Act

ECR Energy Conservation Recommendation

ECS Energy Control System

EER Energy Efficiency Ratio

EERE Energy Efficiency and Renewable Energy division of US DOE

EIA Energy Information Agency

EIS Energy Information System

EMCS Energy Management Computer System

EMO Energy Management Opportunity

EMP Energy Management Project

EMR Energy Management Recommendation

EMS Energy Management System

**Energy Utilization Index** 

(EUI)

EUI is the measure of total energy consumed in the cooling or heating of a building in a period

expressed as British thermal unit (BTU) per (cooled or heated) gross square foot.

EO Executive Order

EPA Environmental Protection Agency

EPACT Energy Policy Act of 1992

EPCA Energy Production and Conservation Act of 1975

EPRI Electric Power Research Institute

EREN Efficiency and Renewable Energy (Division of USDOE)

ERV Energy Recovery Ventilator

ESCO Energy Service Company

ESPC Energy Savings Performance Contract

EUI Energy Use Index

EWG Exempt Wholesale Generators

Extended Facility
Condition Index (EFCI)

EFCI is calculated as the condition needs for the current year plus facility system renewal needs

going out to a set time in the future divided by Current Replacement Value.

f Frequency

Fahrenheit

Facility A facility refers to site(s) building(s) or building addition(s) or combinations thereof that provide a

particular service.

Facility Condition Assessment (FCA) FCA is a process for evaluating the condition of buildings and facilities for programming and

budgetary purposes through an on site inspection and evaluation process.

Facility Condition Index

(FCI)

FCI is an industry-standard measurement of a facility's condition that is the ratio of the cost to correct a facility's deficiencies to the Current Replacement Value of the facilities. The higher the

FCI the poorer the condition of a facility. After an FCI is established for all buildings within a portfolio a building's condition can be ranked relative to other buildings. The FCI may also represent the condition of a portfolio based on the cumulative FCIs of the portfolio's facilities.

FC Footcandle

FCA Fuel Cost Adjustment

FEMIA Federal Energy Management Improvement Act of 1988

FEMP Federal Energy Management Program

FERC Federal Energy Regulatory Commission

FESR Fuel Energy Savings Ratio

FLA Full Load Amps

FLF Facility Load Factor (usually monthly)

FLRPM Full Load Revolutions per Minute

FMS Facility Management System

FPM fpm Feet per Minute (velocity)

FSEC Florida Solar Energy Center

Ft Foot

GPM gpm Gallons per Minute

GRI Gas Research Institute

Gross Square Feet (GSF) The size of the enclosed floor space of a building in square feet measured to the outside face of

the enclosing wall.

GUI Graphical User Interface

H h Enthalpy Btu/lb

HCFC Hydrochlorofluorocarbons

HDD Heating Degree days

HFC Hydrofluorocarbons

HHV Higher Heating Value

HID High Intensity Discharge (lamp)

HMI Human Machine Interface

HMMI Human Man Machine Interface

HO High Output (lamp)

HP Hp hp Horsepower

HPS High Pressure Sodium (lamp)

HR Humidity Ratio

Hr hr Hour

HRU Heat Recovery Unit

HVAC Heating Ventilation and Air-Conditioning

Hz Hertz

I Intensity (lumen output of lamp)

I i Interest rate or Discount rate

IAQ Indoor Air Quality

ICA International Cogeneration Alliance

ICBO International Conference of Buildings Officials

ICC International Code Council

ICP Institutional Conservation Program

IECC International Energy Conservation Code

IEEE Institute of Electrical and Electronic Engineers

IESNA Illuminating Engineering Society of North America

Install year The year a building or system was built or the most recent major renovation date (where a

minimum of 70 of the system?s Current Replacement Value (CRV) was replaced).

IRP Integrated Resource Planning

IRR Internal Rate of Return

ISO Independent System Operator

ITA Independent Tariff Administrator

k Kilo multiple of thousands in SI system

K Kelvins (color temperature of lamp)

K k Thermal Conductivity of Material

KVA Kilovolt Ampere

KVAR Kilovolt Ampere Reactive

kW kiloWatt

kWh kiloWatt hour

Length (usually feet)

LCC Life Cycle Costing

LDC Local Distribution Company

LEED Leadership in Energy and Environmental Design

LEED EB LEED for Existing Buildings

LEED NC LEED for new construction

LF Load Factor

LHV Lower Heating Value

Life cycle The period of time that a building or site system or element can be expected to adequately serve

its intended function.

LPS Low Pressure Sodium (lamp)

Lumen Output of a Lamp or Fixture

M Mega multiple of millions in SI system

M&V Measurement and Verification

MACRS Modified Accelerated Cost Recovery System

MARR Minimum Attractive Rate of Return

Mbtu Thousand Btu

MCF Thousand Cubic Feet (usually of gas)

MEC Model Energy Code

Mm Multiple of Thousands in I/P System

MMBtu Million Btu

MMCS Maintenance Management Computer System

MMI Man Machine Interface

MMS Maintenance Management System

MSE 2000 Management System for Energy 2000 (ANSI Georgia Tech Univ)

MW MegaWatt

MWH MWh MegaWatt hour

NAAQS National Ambient Air Quality Standards

NAESCO National Association of Energy Service Companies

NAIMA North American Insulation Manufacturers Association

NEA National Energy Act of 1978

NECPA National Energy Conservation Policy Act

NEMA National Electrical Manufacturer's Association

NERC North American Electric Reliability Council

Next Renewal The Next Renewal date is an override of the 'Calculated Next Renewal' date and is based upon the

assessor?s visual inspection.

NFPA National Fire Protection Association

NGPA National Gas Policy Act of 1978

NLRPM No Load Revolutions per Minute (speed)

Nn Equipment or Project lifetime in economic analysis

NOPR Notice of Proposed Rule Making from FERC

NOx Nitrogen Oxide Compounds

NPV Net present value in economic analysis

NREL National Renewable Energy Laboratory

NUG Non-Utility Generator

O&M Operation and Maintenance

OA Outside Air

ODP Ozone Depletion Potential

OPAC Off-Peak Air Conditioning

P Present value in economic analysis

PBR Performance Based Rates

PEA Preliminary Energy Audit

PF Power Factor

PID Proportional plus integral plus derivative (control system)

PM Portfolio Manager in Energy Star rating system

PM Preventive Maintenance

PoolCo Power Pool Company or Organization

POU Point of Use

PQ Power Quality

PSC Public Service Commission

PSIA psia Pounds per square inch absolute (pressure)

PSIG psig Pounds per square inch gauge (pressure)

PUC Public Utility Commission

PUHCA Public Utilities Holding Company Act of 1935

PURPA Public Utilities Regulatory Policies of 1978

PV Photovotaic system

PV Present Value

PW Present Worth

PX Power Exchange

q Rate of heat flow in Btu per hour

Q Heat load due to conduction using degree days

QF Qualifying Facility

R Electrical resistance

R Thermal Resistance

RC Remote controller

RCR Room Cavity Ratio

RCRA Resource Conservation and Recovery Act

Remaining Service Life

(RSL)

RSL is the number of years service remaining for a system or equipment item. It is automatically calculated based on the difference between the current year and the 'Calculated Next Renewal'

date or the 'Next Renewal' date whichever one is the later date.

Remaining Service Life

Index (RSLI)

RSLI is defined as a percentage ratio of the remaining service life of a system. It usually ranges

from 0 to 100

REMR Repair Evaluation Maintenance Rehabilitation (REMR) is a scale used to objectively rank systems

based on their condition

Renewal Schedule A timeline that provides the items that need repair the year in which the repair is needed and the

estimated price of the renewal.

RH Relative Humidity

RLA Running Load Amps

RMS Root Mean Square

RO Reverse Osmosis

ROI Return on Investment

RPM Revolutions Per Minute

RTG Regional Transmission Group

RTO Regional Transmission Organization

RTP Real Time Pricing

SBCCI Southern Building Code Congress International

SC Scheduling Coordinator

SC Shading Coefficient

SCADA Supervisory Control and Data Acquisition Systems

SEER Seasonal Energy Efficiency Ratio

SHR Sensible Heat Ratio

Site The grounds and utilities roadways landscaping fencing and other typical land improvements

needed to support the facility.

Soft Cost An expense item that is not considered direct construction cost. Soft cost includes architectural

engineering financing legal fees and other pre-and-post construction expenses.

SOx Sulfur Oxide Compounds

SP Static Pressure

SP SPB Simple Payback

SPP Simple Payback Period

SPP Small Power Producers

STR Stack Temperature Rise

SV Specific Volume

System System refers to building and related site work elements as described by ASTM Uniformat II

Classification for Building Elements (E1557-97) a format for classifying major facility elements common to most buildings. Elements usually perform a given function regardless of the design

specification construction method or materials used. See also Uniformat II.

T Temperature

T Tubular (lamps)

TAA Technical Assistance Audit

TCP/IP Transmission Control Protocol/Internet Protocol

TES Thermal Energy Storage

THD Total Harmonic Distortion

TOD Time of Day

TOU Time of Use

TQM Total Quality Management

TransCo Transmission Company

U Thermal Conductance

UDC Utility Distribution Company

UL Underwriters Laboratories

UNIFORMAT II The ASTM UNIFORMAT II Classification for Building Elements (E1557-97) a format for classifying

major facility components common to most buildings.

USGBC US Green Building Council

v Specific Volume

V Volts Voltage

V Volume

VAV Variable Air Volume

VDT Video Display Terminal

VFD Variable Frequency Drive

VHO Very High Output

VSD Variable Speed Drive

W Watts W Width

WB Wet bulb

WH Wh Watt Hours

Year built The year that a building or addition was originally built based on substantial completion or

occupancy.

Z Electrical Impedance