

# **RECAPP Facility Evaluation Report**

## **Northern Lights Health Region**



**Northern Lights Regional Health Centre**  
B1056A  
Fort McMurray



interior walls throughout the hospital are either painted concrete block or gypsum board walls on metal frame.

The majority of the ceilings in the corridors & labs and administration areas consist of a suspended acoustical tile ceiling. The ceilings in the main entrance area, patient rooms including support areas have a sprayed textured plaster finish. The structure was exposed in the interstitial area, storage area and utility areas. The ceilings in the main vestibule, elevator lobbies and executive areas have a suspended linear metal ceiling.

The interior swing doors are a combination of solid core wood doors in aluminum frames or painted steel doors in a pressed metal frame. The utility rooms, stairwells & corridor have a painted steel door and frame assembly.

Overall, the interior finishes are in acceptable condition.

### **Mechanical Summary:**

Mechanical Summary (September 2008)

Building heating is provided by hot water from four gas fired hot water heating boilers which can also operate on fuel oil. Hot water is used directly in some of the air handling unit coils and is used to produce hot glycol for use in some of the air handling unit coils. Hot water is also used in the building hydronic terminal units (finned tube radiation cabinets, unit heaters, and fan coils). Building cooling is provided by chilled water cooling coils in the air handling units which are provided with chilled water from the chiller plant (consisting of two centrifugal water chillers and two evaporative cooling towers). Steam is used in the building for the kitchen and laundry areas and for the air handling unit steam humidifiers. Steam is provided from two steam boilers.

There are seven original main air handling units for the building (AS1 through AS7), as well as seven original smaller units and three newer units (RTU1, RTU2 and 04-AS-1). Most of the air handling units are equipped for heating and cooling. There are numerous exhaust fans which provide exhaust air for the building (in addition to the building air exhausted by the air handling units). Original HVAC controls and actuators are pneumatic, and a building management and control system (BMCS) provides monitoring and control functions for the major HVAC equipment.

The building domestic water supply provides water for use in the fixtures in the washroom, laboratory and other facilities in the building. Domestic hot water for this building is supplied from two domestic hot water storage tanks equipped with internal heat exchangers.

Fire protection for the building is provided by automatic sprinklers in all areas of the building, as well as by a standpipe system feeding standard fire hose cabinets. Wall mounted fire extinguishers are located throughout the building, and fire extinguishers are located in the building fire hose cabinets as well. There are automatic fire extinguishing systems for the kitchen cooking hoods, and a Halon system is used for the main electrical room.

Mechanical components in the building requiring attention include: the domestic hot water recirculation piping; upgrading of the building backflow prevention systems; the domestic hot water heaters; the cast iron sanitary drainage piping; the chillers; the cooling towers; the main air handling unit dampers; the hot water heating system valves and fittings; the chilled water system valves; the humidifiers; and the main electrical room halon fire extinguishing system. Generally, the building mechanical components and systems are in acceptable condition.

### **Electrical Summary:**

The Northern Lights Regional Health Centre (NLRHC) is fed from the ATCO transformer vault at 347/600V. There are two 1500kVA H.V., oil filled transformers for the building. The two main switchboards (Normal and Emergency) are rated at 347/600V and have air circuit breakers for the main and branch breakers. The air circuit breakers are being replaced in 2008. The mechanical loads within the building are typically fed from one of the five MCC's within the building. There are two 750kW diesel emergency generators for the building.

Information from the 2006 Mechanical & Electrical Assessment report by FSC consulting has been included in the description fields.

The wiring in the building is typically standard wiring in conduit.

The interior fluorescent lighting fixtures in the original building are typically recessed T8 fluorescent fixtures. The original exit lighting fixtures in the building typically have Incandescent lamps. The exterior lighting consists primarily of wall mounted H.P.S. wallpack fixtures and H.I.D. downlights.

The building has an Edwards EST addressable EVAC fire alarm system. Detection and end devices include, smoke and heat detectors, strobes, speakers and pull stations.

The various communications and security systems within the building include structured wiring systems for the

telephone (VOIP) and data systems. There is a Dukane clock system in the building. The building has a Dukane nurse call system, a security access system, video surveillance system and patient monitoring system.

It is recommended, as routine maintenance, that a program for annual examination of major electrical components be instituted. Maintenance should include thermographic scans for hot spots and power shut down to allow examination of interior components for accumulated debris and signs of corrosion.

Studies are recommended for the emergency generators, the power quality and the medical gas storage area.

Overall the electrical elements for the Northern Lights Regional Health Centre are in acceptable condition.

<b>Rating Guide</b>	
<b>Condition Rating</b>	<b>Performance</b>
1 - Critical	Unsafe, high risk of injury or critical system failure.
2 - Poor	Does not meet requirements, has significant deficiencies. May have high operating/maintenance costs.
3 - Marginal	Meets minimum requirements, has significant deficiencies. May have above average operating maintenance costs.
4 - Acceptable	Meets present requirements, minor deficiencies. Average operating/maintenance costs.
5 - Good	Meets all present requirements. No deficiencies.
6 - Excellent	As new/state of the art, meets present and foreseeable requirements.

## S1 STRUCTURAL

### A1010 Standard Foundations\*

The foundation and substructure is a combination of reinforced concrete foundation walls, reinforced concrete pad and strip foundations.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

### A1030 Slab on Grade\*

Reinforced concrete slabs on grade throughout the sub-basement & basement area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

### A2020 Basement Walls (& Crawl Space)\*

The basement walls consist of either poured in place concrete or concrete block wall assembly.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

### B1010.01 Floor Structural Frame (Building Frame)\*

The majority of the floor assembly consists of a composite floor slab (structural steel framing consisting of steel sections (columns and beams), wide flange post and beams, open web steel joists, steel girders in large span areas. Concrete flat slab construction supported by poured in place concrete columns & beams and structural steel framing are located in the large open areas throughout the basement & sub-basement areas. Metal grate walkways are located throughout the interstitial area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

### B1010.02 Structural Interior Walls Supporting Floors (or Roof)\*

Structural reinforced concrete block walls, steel column & beams.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

### B1010.03 Floor Decks, Slabs, and Toppings\*

Steel deck and concrete topping throughout. Metal grate walkways are located throughout the interstitial area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

**B1010.05 Mezzanine Construction\***

A small wood framed mezzanine is located in the carpentry room for storage.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

**B1010.07 Exterior Stairs\***

Poured in place concrete stairs are located from the lower parking area to the main building entrance. An exterior painted steel exit stair is located from the lab area on the main floor level.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**B1010.09 Floor Construction Fireproofing\***

Sprayed mineral fibre fireproof coatings was observed on the steel structure in the interstitial floor area and in several exposed area of the building. Exposed structures are protected with sprinklers.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

**B1010.10 Floor Construction Firestopping\***

In visible areas, fire-stopping appeared to have been provided in the original construction.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

**B1010.11 Other Floor Construction\* Catwalks**

All catwalks in the interstitial area have steel grating floor, steel pipe railings which may no longer meet current code requirements.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	0	DEC-08

**B1020.01 Roof Structural Frame\***

Roof structure is metal deck on open web steel joists, positively sloped to drains. Exposed structures are protected with sprinklers.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

**B1020.06 Roof Construction Fireproofing\***

In visible areas, fire-stopping appeared to have been provided in the original construction.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

## S2 ENVELOPE

### B2010.01.06.03 Metal Siding\*\*

Large horizontal panel sections on the tower are preformed metal panels located above the window assembly. Metal panels and siding are located at the emergency entrance and above the imaging (radiology) section of the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**Event:** Replace all metal panels

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2021	\$1,200,000	Unassigned

**Updated:** DEC-08

### B2010.01.08 Cement Plaster (Stucco): Ext. Wall\*

The majority of the exterior wall has a mineral aggregate coating (cement plaster) on two sub-base coats with metal lath, insulation and exterior gypsum board.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
2 - Poor	1981	75	DEC-08

**Event:** Repair and/or replace several wall sections

**Concern:**

Several studies have been conducted of the last 10 years, the last was conducted by Building Sciences Engineering Ltd on March 21, 2008. The intrusive testing of the wall assembly indicated by the previous report indicated that the wall is not air tight. Several sections of the exterior finish have cracked and fallen off the face of the assembly.

**Recommendation:**

Several previous repairs have been conducted, however extensive repairs and or replacement is recommended. Repairs to coincide with windows replacement.



Missing finish coat on exterior wall assembly observed in several locations. Smoke test was conducted in this area.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Repair	2009	\$1,200,000	High

**Updated:** DEC-08

### B2010.01.09 Expansion Control: Exterior Wall Skin\*

Expansion and control joints are located throughout the exterior stucco wall assembly. See B2010.01.08 Cement Plaster (stucco) for details

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	75	DEC-08

**B2010.01.11 Joint Sealers (caulking): Ext. Wall\*\***

Sealant is located around all window, door and exterior cladding assemblies.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	20	DEC-08

**Event: Replace sealant around windows & doors**

**Concern:**

The sealant is missing and brittle around several windows and doors.

**Recommendation:**

Replace sealant during the window replacement. (See B2020.01.01.02 Aluminum Windows)

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2009	\$200,000	Low

**Updated:** DEC-08

**B2010.02.04 Load-Bearing-Metal Studs: Ext. Wall\***

Non-loadbearing 140mm steel stud backup wall. Back-up structure for exterior walls consist of intermediate vertical & horizontal steel channels.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	100	DEC-08

**B2010.05 Parapets\***

Parapet walls along the exterior perimeter walls are between 300mm - 1200mm in height and consist of steel studs or concrete block back-up walls with preformed metal panel fascia and prefinished and galvanized flashings. The roof top terrace on the 4th floor has a painted steel structure with tempered glass enclosure.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08

**B2010.06 Exterior Louvers, Grilles, and Screens\***

A large number of louvers and grilles on exterior walls around Mechanical rooms and Penthouses. Louvres and grilles are pre-finished aluminum, colour matches the metal panels.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08



**B2010.09 Exterior Soffits\***

Continuous pre-finished metal soffit are located above the window assembly at each floor level. The exterior soffits at main hospital entrance have a linear metal ceiling and appears to be in acceptable condition.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1981	50	DEC-08

**Event:** Repair and replace all damaged & missing soffits above the window assembly.

**Concern:**

Several of the soffits are missing and damaged around the perimeter of the building. Some of the soffits were removed by contractors, however not replaced.

**Recommendation:**

Repair and replace all missing and damaged metal soffits above the window assembly.



Missing metal soffits above windows.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Repair	2009	\$30,000	Medium

**Updated:** DEC-08

**B2020.01.01.02 Aluminum Windows (Glass & Frame)\*\***

The windows are typically continuous strip aluminum framed single glazed units with a removable inner panel containing operable horizontal blinds. Aluminum windows are caulked around the perimeter.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1981	40	DEC-08

**Event:** Replace Aluminum Strip Windows throughout the entire hospital (Area 1200m2)

**Concern:**

Several studies have been conducted by several consultants over the last 10 years. Due the fact the window assembly has removable panes of glass the units are not completely sealed. Condensation was observed between the outer and inner panes of glass. See study conducted November 2001 by Building Science Engineering Ltd for details.

**Recommendation:**

Replace all original window units throughout the hospital. The 10 window units in the new Ambulatory area were replaced in 2008.



Removable inner pane with damaged rubber gasket throughout the majority of the window units.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2009	\$2,100,000	High

**Updated:** DEC-08

**B2020.02 Storefronts: Windows\*\***

Prefinished aluminum frames with sealed double glazing - outer glazing and clear inner glazing. Typically located at the ground level walls of the main entrance to the Hospital and Emergency areas, basement level of the Cafeteria and administration areas.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event: Replace window units on main floor and basement area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$200,000	Unassigned

**Updated:** DEC-08

**B2030.01.01 Aluminum-Framed Storefronts: Doors\*\***

Aluminum framed doors with full glazed panels & commercial grade hardware are located at each pedestrian entrance. There are 16 main entrance doors ((includes sliders at the two main entrances with full glazed window sections

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1998	30	DEC-08

**Event: Replace Aluminum-Framed Storefronts: 12 doors & 4 sliders**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2028	\$120,000	Unassigned

**Updated:** DEC-08

**B2030.01.06 Automatic Entrance Doors\*\***

Automatic entrance doors are provided at the main entrance & emergency entrance (north) .

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace Automatic Entrance Doors - 4 doors**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$40,000	Unassigned

**Updated:** DEC-08

**B2030.02 Exterior Utility Doors\*\***

Insulated hollow metal exterior doors in pressed steel frames are single leaf, complete with closures, panics, thresholds, push plates pull handles, locksets and weatherstripping.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2000	40	DEC-08

**Event: Replace Exterior Utility Doors - 20 door**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2040	\$80,000	Unassigned

**Updated:** DEC-08

**B2030.03 Large Exterior Special Doors (Overhead)\***

Shipping & Receiving area - Insulated sectional metal overhead doors -There are 4 large overhead doors. Most doors are electrically operated (motorized) and located on the north elevation. Doors are complete with weatherstripping, locking, viewing panels and galvanized steel tracks. Steel channel door frames. Door panels are prefinished and door frames are painted.

Emergency/Ambulatory Doors - sectional transparent overhead doors -There are 2 large overhead doors. Both doors are electrically operated (motorized) and located on the south-west elevation. Doors are complete with weatherstripping, locking, viewing panels and galvanized steel tracks. Steel channel door frames. Door panels are prefinished and door frames are painted.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2000	30	DEC-08

**B3010.04.04 Modified Bituminous Membrane Roofing (SBS)\*\***

Roof section H2 has a sloped SBS roof assembly

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1991	25	DEC-08

**Event: Replace SBS roof section H2 - (Area - 100m2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$12,000	Unassigned

**Updated:** DEC-08

**B3010.04.08 Membrane Roofing (Inverted/ Protected)\*\***

The roof including the mechanical penthouse has an inverted membrane roof system. The majority of the roof have been replaced in phases over the last 14 years. Concrete pavers are located throughout roof section M1 and around the perimeter of most roof sections. Roof Section D1 (enclosed patio) has rubber pavers above the inverted roof assembly.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1998	30	DEC-08

**Event:** Replace inverted roof assembly (Area - 11000m2)

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2028	\$2,100,000	Unassigned

**Updated:** DEC-08

**B3010.05 Traffic Coatings: Exterior\*\***

Roof sections A2 & A3 have an elastomeric coating on the sloped surfaces.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	15	DEC-08

**Event:** Remove and replace elastomeric coating on roof section A3.

**Concern:**

The elastomeric coating has deteriorated from the sloped roof sections.

**Recommendation:**

Remove and replace elastomeric coating on roof section A3.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2009	\$10,000	Medium

**Updated:** DEC-08



Deteriorated elastomeric coating on sloped roof section A3.

**B3010.07 Sheet Metal Roofing\*\***

A sloped metal roof is located on roof section F2.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event:** Replace sloped metal roofing - Section F2

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$90,000	Unassigned

**Updated:** DEC-08

**B3020.01 Skylights\*\***

Four prefabricated pyramid shaped (6x8) skylight units are located above the main entrance waiting area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	20	DEC-08

**Event: Replace 4 pyramid shaped skylights**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$16,000	Unassigned

**Updated:** DEC-08

**S3 INTERIOR****C1010.01 Interior Fixed Partitions\***

Poured concrete walls at elevator shafts and lower level stairwells. Concrete block walls are located throughout the utility area i.e. loading area, mechanical rooms, large storage areas, workshops, locker rooms, lower level washrooms, kitchen and engineering areas. Interior brick walls are located in the cafeteria & isolated basement corridor area. Steel stud walls are located throughout the upper level corridors, patient rooms, administration areas, laboratory areas, ancillary spaces, washrooms and small storage spaces.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**C1010.03 Interior Operable Folding Panel Partitions\*\***

Metal screen folding partitions are located in the cafeteria concession area, nurses stations & main floor shop area.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**C1010.04 Interior Balustrades and Screens, Interior Railings\***

The interstitial floor catwalks have pipe rails and balustrades.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**C1010.05 Interior Windows\***

Interior punched or continuous strip metal framed windows are located throughout various corridors and viewing areas in the building. The windows have either a tempered or GWG insert.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	80	DEC-08

**C1010.06 Interior Glazed Partitions and Storefronts\***

Interior glazed partitions in metal frames are located in the isolated corridors and several office areas. Glass block infills are located in several corridors on the main floor level.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	80	DEC-08

**C1010.07 Interior Partition Firestopping\***

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08

**C1020.01 Interior Swinging Doors (& Hardware)\***

The patient rooms & office areas have solid core wood doors, single or double leaf, clear stained on pressed steel frames, painted. The utility areas, corridors & lab areas have painted steel & frames. Doors are labeled at fire separation locations. Several office doors contain sidelights. All doors have push plates, pull bars, kick-plates, closers, panics and locksets, as required to satisfy individual door function. Controlled card access is provided to various parts of the building; doors at these locations have electronic strikes.

Two sets of double doors at the main entrance vestibule are aluminum framed fully glazed, complete with stainless steel push and pull bars and hinges., door closures on stainless steel frames with sidelights and transoms. Staff and other secondary entrance doors are aluminum frame, fully glazed double doors with sidelights and transoms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**C1020.03 Interior Fire Doors\***

Hollow metal rated doors, single or double leaf on rated pressed steel frames - painted. Doors are equipped with closures, latch or locksets, weather-stripping and panic sets, as required. These doors are typically located at firewalls and fire separations.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

**C1020.04 Interior Sliding and Folding Doors\***

Fully glazed, frameless sliding doors are located throughout the emergency & ambulatory area. Top and bottom rails are metal and track mounted overhead.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1981	25	DEC-08

**C1030.01 Visual Display Boards\*\***

Tackboard, porcelain-enamel surfaced boards in office and meeting areas, complete with aluminum framing.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	20	DEC-08

**Event: Replace Visual Display Boards**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2018	\$100,000	Unassigned

**Updated:** DEC-08

**C1030.02 Fabricated Compartments(Toilets/Showers)\*\***

The public washrooms & locker room showers on the main, basement and sub-basement have prefinished steel cubicles, floor mounted with top rails.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event:** Replace fabricated compartments - Toilets & Showers - (main, basement & sub-basement levels)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$80,000	Unassigned

**Updated:** DEC-08

**C1030.05 Wall and Corner Guards\***

Stainless steel & rubber corner guards, 1200mm high are located throughout the service and public circulation areas.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	15	DEC-08

**C1030.06 Handrails\***

Rubber and/or wood wall mounted guard rails are located throughout the main circulation corridors.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**C1030.08 Interior Identifying Devices\***

Signage panels are located above & on the interior doors & attached to the corridor walls. A directory signage panel is located on the elevator cab wall. Signage panels are located at each department entry.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	20	DEC-08

**C1030.10 Lockers\*\***

Full height steel lockers, complete with fixed wooden benches are provided in the men's & women's locker rooms and change rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event:** Replace prefinished metal lockers (800units)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$400,000	Unassigned

**Updated:** DEC-08



**C1030.12 Storage Shelving\***

Heavy duty large steel storage shelving is located in the storage and workshop areas.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**C1030.14 Toilet, Bath, and Laundry Accessories\***

The washrooms are equipped with typical washroom accessories: Paper towel dispensers, toilet paper dispensers, hand-soap dispensers, waste bins diaper change tables and mirrors. Stainless steel hand bars are located throughout most of the washrooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	20	DEC-08

**C2010 Stair Construction\***

All interior stairs are framed in steel with open treads and intermediate landings. The treads and landings in the main stairwells have concrete topping to receive a floor finishes. Several of the secondary stairs have a painted open steel treads. The stairs in the theatre & loading area are poured in place concrete. One wood framed stair is located in a workshop to a mezzanine storage area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	100	DEC-08

**C2020.02 Terrazzo Stair Finishes\***

The main central stairwell has a quartzite floor finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	60	DEC-08

**C2020.05 Resilient Stair Finishes\*\***

The stairwell on the main floor lab area has a rubber floor finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2006	20	DEC-08

**Event: Replace rubber finish on main floor lab stairwell**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2026	\$15,000	Unassigned

**Updated:** DEC-08

**C2020.06 Carpet Stair Finishes\*\***

The stairs in the tiered theatre have a carpet floor finish.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	10	DEC-08

**Event: Replace carpeting on the main theatre stairs**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$30,000	Unassigned

**Updated:** DEC-08

**C2020.08 Stair Railings and Balustrades\***

All stairwells incorporate pipe railings and balustrades (painted). The stairs in the theatre have a solid wall mounted wood railing.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**C2020.11 Other Stair Finishes\***

The concrete treads are exposed with no finish in the two end stairwells of the tower.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	0	DEC-08

**C3010.02 Wall Paneling\*\***

Wood paneling is located in the executive office areas in the basement level and on the main floor theatre & ambulatory area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event: Replace wood paneling in the executive offices, emergency & theatre**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$150,000	Unassigned

**Updated:** DEC-08

**C3010.06 Tile Wall Finishes\*\***

Glazed ceramic tiles and bases are located throughout the majority of the public & patient room washrooms and kitchen servery. The majority of the original wall tiles have been replaced over the last 15 years. ( Approximately 160 washroom, shower & bathing areas)

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1998	40	DEC-08

**Event:** **Replace ceramic wall tile (160 washrooms/shower areas) + cafeteria servery**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$1,800,000	Unassigned

**Updated:** DEC-08

**C3010.08 Stone Facing Wall Finishes: Interior\***

A natural stone wall is located opposite the medicine wheel on the 4th floor.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	100	DEC-08

**C3010.11 Interior Wall Painting\***

Most concrete block, gypsum wall surfaces and exposed steel framing are painted.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1981	10	DEC-08

**C3010.12 Wall Coverings\***

Vinyl wallcoverings are glued on the lower portion of the gypsum board walls throughout the 4th floor corridor.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1998	15	DEC-08

**C3020.01.02 Paint Concrete Floor Finishes\***

Concrete floors with paint or hardener in the penthouse, kitchen, basement, sub-basement service spaces and mechanical rooms.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	10	DEC-08

**C3020.02 Tile Floor Finishes\*\* - Quarry tile**

The majority of the cafeteria, portions of the administrative office area in the basement, elevator lobby and main entrance area have a quarry tile floor finish.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08

**Event: Replace quarry tile flooring ( Area 2000m2**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2031	\$325,000	Unassigned

**Updated:** DEC-08

**C3020.03 Terrazzo Floor Finishes\***

Terrazzo flooring is located throughout the 3rd floor, portions of the patient rooms on the 2nd floor and the corridors on the main floor level.. Quartzite (aggregate and epoxy mixture troweled) flooring and bases are located throughout several washrooms, locker rooms and in the laundry area located in the sub-basement.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	75	DEC-08

**C3020.04 Wood Flooring\*\***

A hardwood floor platform is locate in the main floor theatre.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace hardwood flooring in the theatre**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$10,000	Unassigned

**Updated:** DEC-08

**C3020.07 Resilient Flooring\*\***

Sheet vinyl flooring is located throughout the majority of the hospital support areas, emergency, imaging area, patient recovery areas, labs, and several administration areas. The majority of the flooring has been replaced over the last 10 years.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1998	20	DEC-08

**Event: Replace sheet vinyl flooring (9000m2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2018	\$1,350,000	Unassigned

**Updated:** DEC-08

**C3020.07 Resilient Flooring\*\* New ambulatory area**

Sheet vinyl is located throughout the new ambulatory area

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	20	DEC-08

**Event: Replace sheet vinyl in new ambulatory area (Area-1000m2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2028	\$120,000	Unassigned

**Updated:** DEC-08

**C3020.08 Carpet Flooring\*\***

Carpet is located throughout several upper level corridors, long term care patient rooms, office areas, lounges, theatre and conference rooms. The carpeting in some isolated office areas has recently been replaced.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	15	DEC-08

**Event: Replace Carpet Flooring (7500m2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$650,000	Unassigned

**Updated:** DEC-08

**C3030.04 Gypsum Board Ceiling Finishes\***

Gypsum board ceilings with a sprayed texture are located throughout the patient rooms, chapel, theatre, several patient lounge areas and in the main entrances.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	60	DEC-08

**C3030.06 Acoustic Ceiling Treatment (Susp.T-Bar)\*\***

The majority of the ceiling has either a 2'x2' and/or 2'x4' suspended acoustical tile ceiling grid. Suspended ceilings are located throughout the corridors, offices, patient rehab areas and all hospital support areas. Some ceilings have been replaced, however the majority appears original.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**Event: Replace suspended acoustical tile ceiling - Area 16000m2**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$1,800,000	Unassigned

**Updated:** DEC-08

**C3030.07 Interior Ceiling Painting\***

Painted gypsum ceilings with and without a sprayed textured finish are located throughout the patient rooms, chapel, theatre, several patient lounge areas and in the main entrances. All exposed concrete & steel structures in the service and utility areas have a paint finish.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	20	DEC-08

**C3030.09 Other Ceiling Finishes\* - Linear Metal Ceilings**

Suspended prefinished linear metal ceilings are located in the elevator lobby areas, main entrance and in the executive boardroom located in the basement area.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08

**D1010.01.01 Electric Traction Passenger Elevators\*\***

Elevators 1-6: Otis/Armor geared traction type, 5,000 lb capacity, 7 stops.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Refurbish elevators 1-6**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$2,280,000	Unassigned

**Updated:** DEC-08

**D1010.01.02 Hydraulic Passenger Elevators\*\***

Elevators 7-8: Otis/Armor hydraulic type, 4,000 lb. capacity, 2 stops.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Refurbish Hydraulic Passenger Elevators 7 & 8**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$252,000	Unassigned

**Updated:** DEC-08

**D1010.02 Lifts\*\***

Elevator 9 (dumbwaiter): Matot Inc. model 111. Elevator 10 (dumbwaiter): Currently not being used.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	25	DEC-08

**Event: Refurbish Elevator 9 (dumbwaiter) & 10**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$150,000	Unassigned

**Updated:** DEC-08

**S4 MECHANICAL****D2010.04 Sinks\*\***

This element covers the building sinks, including general purpose stainless steel sinks, scrub sinks, and janitor mop sinks. There are 91 sinks in the building (26 of which are mop sinks).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event:** Replace the 91 sinks in the building (including 26 mop sinks)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$195,000	Unassigned

**Updated:** DEC-08

**D2010.05 Showers\*\***

There are 179 shower stalls in the building, including 160 in patient rooms. The shower stalls generally have architectural finishes for the walls and floors (painted concrete block, ceramic tiles, etc.), and this element covers only the shower trim (shower controls and shower heads).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event:** Replace the shower trim (shower controls and shower heads) in the building shower stalls (179)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$251,000	Unassigned

**Updated:** DEC-08

**D2010.06 Bathtubs\*\***

There are bathtubs located in the bathing rooms on the patient floors (20) and in the crib area on the fourth floor (5).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event:** Replace the building bathtubs (25)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$88,000	Unassigned

**Updated:** DEC-08



**D2010.08 Drinking Fountains / Coolers\*\***

Wall mounted refrigerated stainless steel drinking fountains are located throughout the building (17 total).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	35	DEC-08

**Event: Replace the building drinking fountains (17)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2016	\$72,000	Unassigned

**Updated:** DEC-08

**D2010.09 Other Plumbing Fixtures\***

There are emergency showers and emergency eyewash stations located in some areas in the sub-basement and on the main floor (6 total).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	0	DEC-08

**D2010.10 Washroom Fixtures (WC, Lav, Urnl)\*\***

This element covers the washroom plumbing fixtures including toilets, urinals and lavatories. There are 260 toilets in the building (including 165 in patient rooms), 510 lavatories (including 330 in patient rooms), and 15 urinals. There are various types of washroom plumbing fixtures including counter mounted vitreous china and enameled steel lavatories, pedestal type vitreous china lavatories, wall mounted vitreous china and stainless steel lavatories, wall mounted vitreous china flush valve type toilets, floor mounted vitreous china flush valve type toilets, floor mounted vitreous china flush valve type urinals, and wall mounted vitreous china flush valve type urinals.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	35	DEC-08

**Event: Replace the washroom plumbing fixtures including toilets (260), lavatories (510) and urinals (15)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2016	\$1,850,000	Unassigned

**Updated:** DEC-08

**D2020.01.01 Pipes and Tubes: Domestic Water\***

The domestic water supply to the building (200 mm diameter) feeds the building domestic water system which supplies hot and cold domestic water to the building plumbing fixtures. There is only one domestic water supply system (i.e. separate potable and non-potable water distribution systems do not exist). Water piping in the building is generally steel in larger diameters and copper in smaller diameters.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	40	DEC-08

**Event: Replace the domestic hot water recirculation lines including piping insulation and valves**

**Concern:**

The domestic hot water recirculation lines are in poor condition, probably due to erosion, and water leaks are common on the recirculation lines. The frequency of piping leaks and required repairs is accelerating.

**Recommendation:**

Replace the domestic hot water recirculation lines, including piping insulation and valves.

**Consequences of Deferral:**

Increased maintenance and repair expense, the need for shutting down sections of the domestic water distribution system when repairs are required, and potential water damage from leaking piping.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2010	\$600,000	Low

**Updated:** DEC-08

**D2020.01.02 Valves: Domestic Water\*\***

Domestic water distribution system valves include zone isolation valves and fixture isolation valves on the hot and cold domestic water pressure piping. This element covers the valves associated with the domestic cold water lines and the domestic hot water lines excluding the domestic hot water recirculation lines.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the valves for the domestic hot and cold water distribution systems excluding the valves for the domestic hot water recirculation lines**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$625,000	Unassigned

**Updated:** DEC-08

**D2020.01.03 Piping Specialties (Backflow Preventors)\*\* - Chilled Water Make-Up**

There is a backflow prevention device for the chilled water make-up system located in the sixth floor penthouse (50 mm diameter).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
2 - Poor	1981	20	DEC-08

**Event:** **There is a backflow prevention device for the chilled water make-up system located in the sixth floor penthouse (50 mm diameter)**

**Concern:**

The backflow prevention device is leaking, indicating that it is not providing adequate protection.

**Recommendation:**

Replace the backflow prevention device for the chilled water make-up system located in the sixth floor penthouse (50 mm diameter).

**Consequences of Deferral:**

Potential contamination of the building domestic water system with chemically treated chilled water.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2008	\$3,000	Low

**Updated:** DEC-08

**D2020.01.03 Piping Specialties (Backflow Preventors)\*\* - MRI Cooling System**

There is a backflow prevention device for the domestic water supply to the MRI cooling system.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2007	20	DEC-08

**Event:** **Replace the backflow prevention device for the MRI cooling system**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2027	\$2,000	Unassigned

**Updated:** DEC-08

**D2020.01.03 Piping Specialties (Backflow Preventors)\*\*- Fire Protection**

There is one domestic water distribution system for the building which supplies all building plumbing fixtures. The domestic water supply to the building is not protected from backflow from the building. There is a backflow prevention device on the fire protection systems water supply (200 mm diameter).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	2005	20	DEC-08

**Event: Install backflow protection on the domestic water supply to the building, and provide local backflow protection for high hazard areas**

**Concern:**

There is only one domestic water distribution system for the building, and contamination of the domestic water distribution system could result from backflow from sinks located in high hazard areas. In addition, the domestic water supply to the building is not protected from backflow from the building.

**Recommendation:**

Install backflow protection on the domestic water supply to the building to protect the domestic water supply from potential backflow from the building. Within the building, provide local backflow protection for all domestic water supplies in high hazard areas.

**Consequences of Deferral:**

Potential contamination of the domestic water supply caused by backflow from the building, and potential contamination of the building domestic water distribution system caused by backflow from sinks located in high hazard areas.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Code Upgrade	2009	\$300,000	Low

**Updated:** DEC-08

**Event: Replace the 200 mm diameter backflow prevention device for the fire protection systems**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2025	\$20,000	Unassigned

**Updated:** DEC-08

**D2020.02.02 Plumbing Pumps: Domestic Water\*\***

Plumbing pumps include the circulation pump P22 for domestic hot water, circulation pump P23 for soft domestic hot water, and the domestic cold water booster pump, all located in the main sub-basement room (room SB1040).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	20	DEC-08

**Event:** **Replace the domestic cold water booster pump and the domestic hot water circulation pumps (P22 and P23) in room SB1040**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$16,000	Unassigned

**Updated:** DEC-08

**D2020.02.04 Domestic Water Conditioning Equipment\*\***

Three water softeners in mechanical room SB1040 provide soft water to the soft water domestic hot water heater.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	20	DEC-08

**Event:** **Replace the three water softeners in mechanical room SB1040**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2025	\$90,000	Unassigned

**Updated:** DEC-08

**D2020.02.06 Domestic Water Heaters\*\***

There are two domestic hot water heaters located in mechanical room SB1040. One domestic hot water heater consists of tank TK5 with internal heat exchanger HE1 and this system supplies domestic hot water to the tower floors. The second domestic hot water heater consists of tank TK6 with internal heat exchanger HE2 and this system supplies softened domestic hot water to the sub-basement, basement and main floors. The internal heat exchangers are water to water type heat exchangers which are supplied from the primary hot water loop.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	20	DEC-08

**Event:** **Replace the two domestic hot water heaters (tank TK5 with internal heat exchanger HE1 and tank TK6 with internal heat exchanger HE2) located in room SB1040**

**Concern:**

The domestic hot water heaters are in poor condition due to deterioration of the cement lining in the tanks, corrosion of the steel tank shells, and wear of the internal water to water heat exchangers.

**Recommendation:**

Replace the two domestic hot water heaters (tank TK5 with internal heat exchanger HE1 and tank TK6 with internal heat exchanger HE2) located in room SB1040.

**Consequences of Deferral:**

Continued deterioration of the storage tanks and heat exchangers, increased maintenance and repair requirements, and potential contamination of the domestic hot water if the heat exchangers fail.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2009	\$225,000	Medium

**Updated:** DEC-08

**D2020.02.06 Domestic Water Heaters\*\* - Laundry**

Tempered water for the laundry is produced by a steam to hot water shell and tube type heat exchanger. Water from the tempered water storage tank is circulated through the heat exchanger by pumps P37 and P38. Make-up water supplied to the tempered water storage tank is supplied through a heat exchanger which preheats the make-up water using laundry waste water which is pumped through the reclaim heat exchanger to sewer by pump P35.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	20	DEC-08

**Event:** **Replace the laundry tempered water supply system including the heat recovery system**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$315,000	Unassigned

**Updated:** DEC-08

**D2020.03 Water Supply Insulation: Domestic\***

Water supply insulation includes thermal insulation on the hot and cold domestic water pressure piping.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**D2030.01 Waste and Vent Piping\***

The sanitary (non-lab) drainage system serves the building floor drains and the building plumbing fixtures excluding the lab area sinks (see D2090.14 Acid Waste Systems\*\* for lab sink drainage). The sanitary drainage and vent piping is generally copper in smaller diameters and cast iron in larger diameters. Some of the original cast iron sanitary drainage piping has been replaced with PVC sanitary drainage piping.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1981	50	DEC-08

**Event: Replace the cast iron sanitary drainage piping with PVC sanitary drainage piping**

**Concern:**

The cast iron sanitary sewer drainage piping is failing prematurely via cracking of the piping and fittings, resulting in leakage of sanitary waste and accelerated corrosion of the piping.

**Recommendation:**

Replace the cast iron sanitary drainage piping with PVC sanitary drainage piping.

**Consequences of Deferral:**

Continued deterioration and failure of the cast iron drainage piping resulting in leakage of sanitary waste.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2010	\$2,300,000	Medium

**Updated:** DEC-08

**D2030.02.04 Floor Drains\***

Floor drains are used at various locations in the building. The floor drains generally discharge to the sanitary drainage system.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

**D2030.03 Waste Piping Equipment\***

There is a sanitary sump pit in mechanical room SB1040. This sump pit is equipped with three self-priming trash type sanitary pumps (P24, P25 and P26).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2007	30	DEC-08

**D2040.01 Rain Water Drainage Piping Systems\***

Storm water drainage is via roof drains (54) and internal drainage piping (generally cast iron).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08

**D2040.02.04 Roof Drains\***

Storm water drainage is via roof drains (54) and internal drainage piping. The roof drains are 75 mm diameter (13) and 100 mm diameter (41) and are equipped with metal strainers.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**D2090.01 Compressed Air Systems (Non Controls)\*\***

There are two process air compressors located in mechanical rooms SB1040 and B1057. In mechanical room SB1040, the compressed air system includes a receiver mounted air compressor with an associated air dryer and some distribution piping within the mechanical room. In mechanical room B1057, the compressed air system includes a receiver mounted air compressor.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the process compressed air systems in mechanical rooms SB1040 and B1057**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$46,000	Unassigned

**Updated:** DEC-08

**D2090.01 Compressed Air Systems (Non Controls)\*\* - Laundry Compressors**

In mechanical room B1075 there is a compressed air system for the laundry. The compressed air system includes two air compressors mounted on an air receiver tank and two refrigerated air dryers. This element covers the two air compressors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	30	DEC-08

**Event: Replace the two air compressors for the laundry compressed air system (located in room B1075)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2035	\$35,000	Unassigned

**Updated:** DEC-08



**D2090.01 Compressed Air Systems (Non Controls)\*\* - Laundry Distribution System**

In mechanical room B1075 there is a compressed air system for the laundry. The compressed air system includes two air compressors mounted on an air receiver tank and two refrigerated air dryers. This element covers the air receiver tank, the two air dryers and the compressed air distribution system. The compressed air distribution system includes the compressed air piping, valves and piping specialties (pressure reducing valves, filters, etc.).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the laundry compressed air system located in room B1075 including the air receiver tank, the two air dryers and the compressed air distribution system (excluding the two air comprssors)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$55,000	Unassigned

**Updated:** DEC-08

**D2090.10 Nitrous Oxide Gas Systems\*\* - Distribution System**

Nitrous oxide is delivered to the operating rooms on the main floor from high pressure storage bottles located in the medical gas room in the sub-basement (room SB1003). Nitrous oxide is supplied from a four cylinder manifold (99-MG-NO) equipped with automatic controls. This element covers the nitrous oxide distribution system (copper piping, valves, piping specialties, etc.) but excludes the nitrous oxide manifold and controls.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the nitrous oxide distribution system (excluding the manifold and controls in room SB1003)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$230,000	Unassigned

**Updated:** DEC-08

**D2090.10 Nitrous Oxide Gas Systems\*\* - Manifold and Controls**

Nitrous oxide is delivered to the operating rooms on the main floor from high pressure storage bottles located in the medical gas room in the sub-basement (room SB1003). Nitrous oxide is supplied from a four cylinder manifold (99-MG-NO) equipped with automatic controls. This element covers the nitrous oxide manifold and controls, but excludes the nitrous oxide distribution system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1999	30	DEC-08

**Event: Replace the nitrous oxide supply system manifold and controls located in room SB1003**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2029	\$60,000	Unassigned

**Updated:** DEC-08

**D2090.11 Oxygen Gas Systems\*\***

Oxygen is delivered throughout the building (in most areas of the main floor and in the patient rooms on floors two through five of the tower) from a bulk oxygen storage tank located outside the building. In addition, high pressure oxygen storage bottles are located in the medical gas room in the sub-basement (room SB1003) for emergency use. The oxygen distribution system includes the copper distribution piping, valves, piping specialties, etc.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the oxygen supply and distribution system (bulk storage tank and distribution piping system)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$1,300,000	Unassigned

**Updated:** DEC-08

**D2090.12 Reverse Osmosis Systems\*\***

A reverse osmosis system provides pure water for process uses in the basement area. The RO system has duplex trains, each including an RO unit, filters, a storage tank and a distribution pump. The RO system is located in mechanical room B1075.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	30	DEC-08

**Event: Replace the RO system in mechanical room B1075**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$260,000	Unassigned

**Updated:** DEC-08

**D2090.13 Vacuum Systems (Medical)\*\* - Pumps and Controls**

Medical vacuum is provided throughout the building (in most areas of the main floor and in the patient rooms on floors two through five of the tower) from a medical vacuum system located in mechanical room SB1040. The medical vacuum distribution system includes the copper distribution piping, valves, piping specialties, etc. This element covers the packaged medical vacuum pumps, receiver tank and controls located in mechanical room SB1040 (99-MG-A), but excludes the medical vacuum distribution system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1999	30	DEC-08

**Event: Replace the packaged medical vacuum pumps, receiver tank and controls located in mechanical room SB1045 (excluding the medical vacuum distribution system)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2029	\$200,000	Unassigned

**Updated:** DEC-08

**D2090.13 Vacuum Systems (Medical)\*\* -Distribution System**

Medical vacuum is provided throughout the building (in most areas of the main floor and in the patient rooms on floors two through five of the tower) from a medical vacuum system located in mechanical room SB1040. The medical vacuum distribution system includes the copper distribution piping, valves, piping specialties, etc. This element covers the medical vacuum distribution system but excludes the packaged medical vacuum pumps, receiver tank and controls located in mechanical room SB1040 (MG-99-A).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the medical vacuum distribution system (including copper piping, valves, piping specialties, etc.)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$1,400,000	Unassigned

**Updated:** DEC-08

**D2090.14 Acid Waste Systems\*\***

The acid waste drainage system for the sinks in the lab area on the main floor consists of PVC drainage piping which leads to a dilution tank located below the floor level. From the dilution tank, the acid waste is discharged into the building sanitary sewer drainage system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the acid waste drainage system serving the main floor lab area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$275,000	Unassigned

**Updated:** DEC-08

**D2090.16 Medical Air System\* - Compressors and Controls**

Medical compressed air is provided throughout the building (in most areas of the main floor and in the patient rooms on floors two through five of the tower) from a medical compressed air system located in mechanical room SB1040. The medical compressed air distribution system includes the copper distribution piping, valves, piping specialties, etc. This element covers the packaged medical air compressors, receiver tank and controls located in mechanical room SB1040 (99-MG-1), but excludes the medical compressed air distribution system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1999	0	DEC-08

**D2090.16 Medical Air System\* - Distribution System**

Medical compressed air is provided throughout the building (in most areas of the main floor and in the patient rooms on floors two through five of the tower) from a medical compressed air system located in mechanical room SB1040. The medical compressed air distribution system includes the copper distribution piping, valves, piping specialties, etc. This element covers the medical compressed air distribution system but excludes the packaged medical air compressors, receiver tank and controls located in mechanical room SB1040 (99-MG-1).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**D2090.17 Nitrogen System\* - Distribution System**

Nitrogen is delivered to the operating rooms on the main floor from high pressure storage bottles located in the medical gas room in the sub-basement (room SB1003). Nitrogen is supplied from a four cylinder manifold (99-MG-N) equipped with automatic controls. This element covers the nitrogen distribution system (copper piping, valves, piping specialties, etc.) but excludes the nitrogen manifold and controls.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**D2090.17 Nitrogen System\* - Manifold and Controls**

Nitrogen is delivered to the operating rooms on the main floor from high pressure storage bottles located in the medical gas room in the sub-basement (room SB1003). Nitrogen is supplied from a four cylinder manifold (99-MG-N) equipped with automatic controls. This element covers the nitrogen manifold and controls, but excludes the nitrogen distribution system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1999	0	DEC-08

**D3010.01 Oil Supply Systems (Fuel, Diesel)\* - Distribution System**

Fuel oil (diesel fuel) is used in the building for the boilers (most of which can also operate on natural gas) and for the standby generators. There were originally four underground fuel oil storage tanks, three dedicated for the boilers and one dedicated for the standby generators, but these tanks were removed in c.1992 and replaced with a single FRP double walled storage tank. From the fuel oil storage tank, pump P28 transfers fuel to the boiler day tank (tank TK8), and pump P27 transfers fuel to the generator day tank (tank TK9). From the day tanks, fuel oil is supplied to the individual boilers and generators by gravity. This element covers all of the fuel oil supply system components except the main storage tank.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	60	DEC-08

**D3010.01 Oil Supply Systems (Fuel, Diesel)\* - Storage Tank**

Fuel oil (diesel fuel) is used in the building for the boilers (most of which can also operate on natural gas) and for the standby generators. There were originally four underground fuel oil storage tanks, three dedicated for the boilers and one dedicated for the standby generators, but these tanks were removed in c.1992 and replaced with a single FRP double walled storage tank. From the fuel oil storage tank, pump P28 transfers fuel to the boiler day tank (tank TK8), and pump P27 transfers fuel to the generator day tank (tank TK9). From the day tanks, fuel oil is supplied to the individual boilers and generators by gravity. This element covers the main fuel oil storage tank.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1992	60	DEC-08

**D3010.02 Gas Supply Systems\***

Natural gas is supplied to the building in the sub-basement gas meter room. Natural gas is used for the building boilers and for make-up air unit MUA1 for the paint spray booth. Natural gas is also used for some of the kitchen equipment and for the laundry area dryers.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	60	DEC-08

**D3020.01.01 Heating Boilers & Accessories: Steam\*\* - Boiler B6**

Steam boiler B6 in mechanical room SB1040 provides high pressure steam to the building. Boiler B6 is a Cleaver Brooks model CB200-250 with an input heating capacity of 6,000,000 Btu/h (1,758.6 kW).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	35	DEC-08

**Event: Replace high pressure steam boiler B6 in mechanical room SB1040**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$200,000	Unassigned

**Updated:** DEC-08

**D3020.01.01 Heating Boilers & Accessories: Steam\*\* - Boiler B7**

Steam boiler B7 in mechanical room SB1040 provides high pressure steam to the building. Boiler B7 is a Cleaver Brooks model M5P-6000 with an input heating capacity of 6,000,000 Btu/h (1,758.6 kW).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2001	35	DEC-08

**Event: Replace high pressure steam boiler B7 in mechanical room SB1040**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2036	\$150,000	Unassigned

**Updated:** DEC-08

**D3020.01.02 Feedwater Equipment\***

Steam condensate from the building is returned to feedwater tank TK7 located in mechanical room SB1040. Softened make-up water is added to the feedwater tank as necessary. From feedwater tank TK7, feedwater is pumped to the two steam boilers. Duplex feedwater pumps P18 and P19 feed boiler B7 and duplex feedwater pumps P20 and P21 feed boiler B6.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**D3020.01.03 Chimneys (&Comb. Air) : Steam Boilers\*\***

The combustion exhaust gases from the steam boilers (B6 and B7) discharge into a common chimney which also serves the four hot water heating boilers (B1, B2, B3 and B4). This element covers the breeching for the two steam boilers from the boilers to the common chimney. See D3020.02.02 Chimneys (&Comb. Air): H.W. Boiler\*\* for the common chimney.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	35	DEC-08

**Event: Replace the breeching for steam boilers B6 and B7 from the boilers to the common chimney**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$11,000	Unassigned

**Updated:** DEC-08

**D3020.01.04 Water Treatment: Steam Boilers\***

There is a chemical feed system for treatment of the boiler feedwater going to the steam boilers B6 and B7 (one chemical feed system for each boiler). Each chemical feed system consists of a chemical mixing tank and a chemical feed pump.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	35	DEC-08

**D3020.02.01 Heating Boilers and Accessories: H.W.\*\***

Four hot water heating boilers are located in mechanical room SB1040 (B1, B2, B3 and B4). The hot water heating boilers are Cleaver Brooks model CB200-500 with an input heating capacity of 20,922,000 Btu/h (6,132.2 kW) each.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	35	DEC-08

**Event: Replace the hot water heating boilers (B1, B2, B3 and B4) in mechanical room SB1040**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$1,800,000	Unassigned

**Updated:** DEC-08

**D3020.02.02 Chimneys (&Comb. Air): H.W. Boiler\*\***

The combustion exhaust gases from the four hot water heating boilers (B1, B2, B3 and B4) discharge into a common chimney which also serves the two steam boilers (B6 and B7) ). This element covers the breeching for the four hot water boilers from the boilers to the common chimney, as well as the common chimney.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	30	DEC-08

**Event:** **Remove and cap the incinerator chimney below the roof level and replace the metal housing around the boiler chimney**

**Concern:**

At the roof level where the boiler chimney and the unused incinerator chimney terminate, the metal housing around the chimneys is corroding. Also, the open incinerator chimney is corroding.

**Recommendation:**

Remove and cap the incinerator chimney below the roof level and replace the metal housing around the boiler chimney.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Repair	2009	\$20,000	Low

**Updated:** DEC-08

**Event:** **Replace the boiler chimney**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$275,000	Unassigned

**Updated:** DEC-08

**D3020.02.03 Water Treatment: H. W. Boiler\***

Water treatment for the closed loop hot water heating system is provided by a chemical feed system consisting of a chemical feed pump mounted on a chemical drum.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**D3030.02 Centrifugal Water Chillers\*\***

There are two Trane Centravac centrifugal chillers located in mechanical room SB1040. The chillers use R11 refrigerant and each chiller has a capacity of approximately 500 tons of cooling.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	25	DEC-08

**Event: Replace the two centrifugal chillers**

**Concern:**

The chillers are original and utilize R11 refrigerant.

**Recommendation:**

Replace the two centrifugal chillers.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2010	\$1,400,000	Medium

**Updated:** DEC-08

**D3030.05 Cooling Towers\*\***

Two Baltimore Air Coil model VST-375-D evaporative type cooling towers are located on the fifth floor roof. Each cooling tower has a capacity of approximately 500 tons of cooling.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	25	DEC-08

**Event: Replace the two evaporative cooling towers**

**Concern:**

The cooling towers are in poor condition due to corrosion, baffle deterioration and wear.

**Recommendation:**

Replace the two cooling towers.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2010	\$600,000	Medium

**Updated:** DEC-08



**D3030.06.01 Refrigeration Compressors\*\* - CT and MRI Cooling**

There are two refrigeration cooling systems dedicated to the hospital CT and MRI imaging machines. The packaged compressor/condenser unit for the MRI machine cooling unit is located on the main floor roof on the west side of the tower. The compressor unit for the CT machine cooling system is located in the first floor penthouse and the associated condenser unit is located on the main floor roof on the east side of the penthouse.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2007	25	DEC-08

**Event: Replace the two refrigeration cooling systems dedicated to the hospital CT and MRI imaging machines**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$350,000	Unassigned

**Updated:** DEC-08

**D3030.06.01 Refrigeration Compressors\*\* - Kitchen Coolers**

There are four refrigeration compressors with integral water cooled condensers located in mechanical room SB1057. These compressor/condenser units serve cooler No. 1, cooler No. 2, cooler No. 4, and cooler No. 5. The condensers use municipal water for cooling.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**Event: Replace the four refrigeration compressor/condenser units located in mechanical room SB1057 (serving coolers No. 1, No. 2, No. 3 and No. 4)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$44,000	Unassigned

**Updated:** DEC-08

**D3030.06.01 Refrigeration Compressors\*\* - Kitchen Freezers**

There are two refrigeration compressor/condenser units which provide refrigeration for freezer No. 3 and freezer No. 6 in the kitchen area. The compressor/condenser units are located on the basement level roof on the east side of the tower.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	25	DEC-08

**Event: Replace the two refrigeration compressor/condenser units which provide refrigeration for freezer No. 3 and freezer No. 6 in the kitchen area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2035	\$28,000	Unassigned

**Updated:** DEC-08

**D3040.01.01 Air Handling Units: Air Distribution\*\* - c.1981**

There are 11 original main air handling systems providing ventilation for the building. System AS1 serves the tower west wing, system AS2 serves the tower east wing, system AS3 serves the main floor operating room area, system AS4 serves the main floor medical records and diagnostic imaging areas, system AS5 serves the main floor circulation, family clinic and operating room support areas, system AS6 serves the main floor emergency area, system AS7 serves the basement and sub-basement levels, system AS8 serves the kitchen, system AS9 serves the laundry, system AS10 serves the main mechanical room and system AS11 also serves the main mechanical room. Smaller original air handling systems include AS12 serving the intensive care unit, AS13 serving the auditorium, AS14 serving the paint area, and the elevator machine rooms air system. The main air systems AS1 through AS7 are dual duct hot deck/cold deck constant volume type systems. The units include prefilters, final filters, glycol preheat coils, hot deck hot water heating coils, cold deck chilled water cooling coils, direct injection steam humidifiers, and supply air fans. Main air handling units AS8 through AS11 are constant volume single deck 100% make-up air units equipped with prefilters and final filters, glycol preheat coils, hot water or glycol heating coils, chilled water cooling coils (except for AS11 which is heating only), and supply air fans. AS12 provides heating only using an electric heating coil, AS13 provides heating only using a hot water heating coil, AS14 does not provide heating or cooling (it functions for purging only), and the elevator machine rooms air system provides cooling only using a chilled water cooling coil.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace air handling units AS1 through AS13 and the elevator machine rooms unit**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$5,600,000	Unassigned

**Updated:** DEC-08

**Event: Replace the dampers for air handling units AS1 through AS7**

**Concern:**

The dampers for air handling units AS1 through AS7 are deteriorating due to wear and corrosion, resulting in poor operation and control.

**Recommendation:**

Replace the dampers for air handling units AS1 through AS7.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2011	\$725,000	Medium

**Updated:** DEC-08

**D3040.01.01 Air Handling Units: Air Distribution\*\* - c.2002**

Packaged air handling unit RTU1 was installed for the main floor lab area when this area was renovated. RTU1 is located on the main floor roof west of the penthouse. RTU 1 is equipped with a run around glycol loop for heat recovery and preheating, a glycol heating coil, a chilled water cooling coil, a supply air fan, a direct injection steam humidifier, prefilters and final filters.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2002	30	DEC-08

**Event: Replace RTU1 serving the main floor lab area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$475,000	Unassigned

**Updated:** DEC-08

**D3040.01.01 Air Handling Units: Air Distribution\*\* - c.2004**

Air handling unit 04-AS-1 is located in mechanical room B1075 and serves the Computer Information Systems area. The Engineered Air packaged single deck mixed air unit provides heating, cooling, and humidification.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2004	30	DEC-08

**Event: Replace air handling unit 04-AS-1 located in mechanical room B1075**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2034	\$175,000	Unassigned

**Updated:** DEC-08

**D3040.01.01 Air Handling Units: Air Distribution\*\* - c.2008**

Packaged air handling unit RTU2 was installed for the main floor ambulatory care area when this area was renovated. RTU2 is located on the east side of the tower. RTU 2 is equipped with a glycol preheat coil, a heat recovery wheel, a glycol heating coil, a chilled water cooling coil, a direct injection steam humidifier, a supply air fan, an exhaust fan, prefilters and final filters.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	30	DEC-08

**Event: Replace RTU2 serving the main floor ambulatory care area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$575,000	Unassigned

**Updated:** DEC-08

**D3040.01.02 Fans: Air Distribution (Remote from AHU)\***

Air distribution fans remote from the air handling units include the return air fans for the main mixed air type air handling units (air handling units AS1 through AS7). The seven return air fans include fans F12 through F18.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**D3040.01.04 Ducts: Air Distribution\* - c.1981**

Air distribution ducts include the fresh air, supply air, return air and exhaust air duct systems, as applicable, for the various air handling units (see D3040.01.01 Air Handling Units: Air Distribution\*\*). In addition to the air distribution ducts, the duct systems include components not specifically listed elsewhere, including duct insulation, turning vanes, dampers, mixing boxes, etc., as applicable. The original air distribution systems for air handling systems AS1 through AS7 are dual duct systems utilizing terminal boxes (mixing boxes) with pneumatic actuators (approximately 40% to 50% of the original terminal boxes have been upgraded to electric actuators). For the remaining original air handling units, the distribution systems are single duct constant volume systems. Air handling units AS1 through AS6 have ducted return air systems.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

**D3040.01.04 Ducts: Air Distribution\* - c.2002**

For the rooftop air handling unit serving the lab area (RTU1), the air distribution system is a variable volume type system and the VAV boxes are equipped with terminal reheat coils.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2002	50	DEC-08

**D3040.01.04 Ducts: Air Distribution\* - c.2008**

For the rooftop air handling unit serving the ambulatory care area (RTU2), the air distribution system is a variable volume type system and the VAV boxes are equipped with terminal reheat coils.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2008	50	DEC-08

**D3040.01.06 Air Terminal Units: Air Distribution (VAV Box)\*\* - c.2002**

The supply air distribution system for the rooftop air handling unit serving the lab area (RTU1) is a variable volume type system utilizing VAV boxes equipped with terminal reheat coils. The ducted return air system also utilizes variable air volume boxes.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2002	30	DEC-08

**Event: Replace the VAV boxes in the the lab area (served by RTU1)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2032	\$40,000	Unassigned

**Updated:** DEC-08

**D3040.01.06 Air Terminal Units: Air Distribution (VAV Box)\*\* - c.2008**

The supply air distribution system for the rooftop air handling unit serving the ambulatory care area (RTU2) is a variable volume type system utilizing VAV boxes equipped with terminal reheat coils. The ducted return air system also utilizes variable air volume boxes.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	30	DEC-08

**Event: Replace the VAV boxes in the the ambulatory care area (served by RTU2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$45,000	Unassigned

**Updated:** DEC-08

**D3040.01.07 Air Outlets & Inlets:Air Distribution\***

Air outlets and inlets include supply air diffusers and return air grilles.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**D3040.02 Steam Distribution Systems: Piping/Pumps\*\***

Low pressure steam is used for humidification in the air handling units, medium pressure steam is used in the kitchen, and high pressure steam is used in the laundry area and throughout the building for sterilization. The low pressure and medium pressure steam is generated from the high pressure steam via pressure reducing valves. This element includes the steam distribution piping, condensate collection piping, piping insulation, traps, valves, piping specialties, and condensate tanks and pumps. Steam condensate return systems include the tower penthouse return system (tank TK25 and pumps P66 and P67), the main floor penthouse return system (tank TK24 and pumps P64 and P65), the return system in mechanical room B1075 (tank TK19 and pumps P53 and P54), and the return system in mechanical room B1057 (tank TK15 and pumps P45 and P46). The condensate return systems return the steam condensate to the steam boiler feedwater tank (TK7).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the building steam and condensate distribution systems (including condensate return systems)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$900,000	Unassigned

**Updated:** DEC-08

**D3040.03.01 Hot Water Distribution Systems\*\***

The building has primary and secondary hot water heating loops. The primary hot water loop feeds the glycol heat exchangers for the air handling unit glycol coils, and also feeds the air handling unit hot water heating coils. The primary loop return supplies the secondary loop in a staged flow configuration. The secondary heating loop supplies the building hot water terminal units. There are two primary loop hot water pumps (P1 and P2) and two secondary loop hot water pumps (P3 and P4). The hot water heating loops also include the hot water distribution piping, piping insulation, valves, expansion tanks (TK31), and piping specialties.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the heating system piping Victaulic couplings with welded fittings and replace the hot water heating system valves**

**Concern:**

The hot water heating system piping utilizes grooved Victaulic type joints and couplings which leak when the system temperature drops too low, and the coupling gaskets have been replaced once since the original installation. In addition, the hot water system valves are deteriorating due to stem and seat wear, resulting in poor isolation and control.

**Recommendation:**

Replace the heating system piping Victaulic couplings with welded fittings and replace the hot water heating system valves.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2011	\$1,600,000	Medium

**Updated:** DEC-08

**Event: Replace the primary and secondary hot water circulation pumps P1, P2, P3 and P4 including upgrading to variable speed drives**

**Concern:**

The primary and secondary circulation pumps are original and are in poor condition due to wear.

**Recommendation:**

Replace the primary and secondary hot water circulation pumps P1, P2, P3 and P4 including upgrading to variable speed drives.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2011	\$350,000	Medium

**Updated:** DEC-08

**Event: Replace the primary and secondary hot water heating loops (excluding system valves and pumps P1, P2, P3 and P4)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$3,200,000	Unassigned

**Updated:** DEC-08

**D3040.03.01 Hot Water Distribution Systems\*\* - Glycol Loop - c.2002**

There is a glycol loop which provides hot glycol for the heating coil for rooftop air handling unit RTU1. The glycol loop is located in the main floor penthouse and includes a shell and tube type heat exchanger which is supplied from the primary hot water system (02-XC-1), a glycol circulation pump (02-GP-1), and an expansion tank (02-TK-1), and a dedicated or shared glycol fill tank. The glycol heating system also includes the glycol distribution piping, piping insulation, valves, and piping specialties. The glycol loop associated with the packaged rooftop air handling unit RTU2 is included with the air handling unit.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2002	40	DEC-08

**Event:** **Replace the glycol heating loop for rooftop air handling unit RTU1**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2042	\$150,000	Unassigned

**Updated:** DEC-08

**D3040.03.01 Hot Water Distribution Systems\*\* - Glycol Loops - c.1981**

There are ten glycol loops which provide hot glycol for the air handling unit preheat coils and for some of the air handling unit and stairwell pressurization unit heating coils. Each glycol loop has a shell and tube type heat exchanger which is supplied from the primary hot water system, one or more glycol circulation pumps, an expansion tank, and a dedicated or shared glycol fill tank. The glycol heating systems also include the glycol distribution piping, piping insulation, valves, and piping specialties. The glycol loops include heat exchangers HE3 through HE12; glycol pumps P9 through P14, P39, P41, P47, P49, P55, P57, P59, P68 and P70; expansion tanks TK10, TK12, TK14, TK16, TK18, TK20, TK22, TK23, TK26 and TK28; and fill tanks TK11, TK13, TK17, TK21, TK27 and TK29. The glycol loop associated with the packaged rooftop air handling unit RTU2 is included with the air handling unit.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event:** **Replace the ten glycol loops for the air handling unit preheat and heating coils**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$1,200,000	Unassigned

**Updated:** DEC-08

**D3040.03.02 Chilled Water Distribution Systems\*\***

Chilled water for building cooling is supplied from the chilled water plant to the air handling unit cooling coils. The chilled water system includes the chilled water distribution piping, piping insulation, valves, piping specialties, and circulation pumps. The main chilled water circulation pumps are P5 and P6, and there are also chilled water coil circulation pumps for the main air handling unit cooling coils (pumps P15, P43, P44, P51, P52, P61, P62, P63, P72 and P73).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the chilled water distribution system (excluding valves)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$1,100,000	Unassigned

**Updated:** DEC-08

**Event: Replace the chilled water distribution system valves**

**Concern:**

The chilled water distribution system valves are deteriorating due to stem and seat wear, resulting in poor isolation and control.

**Recommendation:**

Replace the chilled water distribution system valves.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2010	\$300,000	Medium

**Updated:** DEC-08

**D3040.03.03 Condenser Water Distribution Systems Pumps\***

The condenser water system circulates water from the condenser side of the chillers to the cooling towers. The condenser water system includes the condenser water distribution piping, piping insulation, valves, piping specialties, and circulation pumps. The condenser pumps are P7 and P8 located in mechanical room SB1040.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08



**D3040.04.01 Fans: Exhaust\*\* - c.1981**

There are 19 original exhaust fans for the building including fans F19 through F28, fans F38 through F45, and fan EF1 which is interlocked to make-up air unit MAU1.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the 19 original building exhaust fans**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$280,000	Unassigned

**Updated:** DEC-08

**D3040.04.01 Fans: Exhaust\*\* - c.2003**

There are three rooftop exhaust fans which were installed as part of the main floor lab area renovation (03-F-2, 03-F-3 and 03-F-4).

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2003	30	DEC-08

**Event: Replace rooftop exhaust fans 03-F-2, 03-F-3 and 03-F-4**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2033	\$21,000	Unassigned

**Updated:** DEC-08

**D3040.04.03 Ducts: Exhaust\***

The building exhaust fans have associated duct systems for the collection of air from single or multiple source locations and/or for the conveyance of air to the discharge point.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	50	DEC-08

**D3040.04.05 Air Outlets and Inlets: Exhaust\***

Exhaust outlets and inlets include collection grilles and diffusers (including hoods), as well as stacks or discharge ducts where applicable.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**D3040.05 Heat Exchangers\*\* - c.1981**

There are ten original shell and tube type hot water to glycol heat exchangers which provide glycol for the air handling unit preheat coils and for some of the air handling unit heating coils (heat exchangers HE3 through HE12). There is also a steam to hot water heat exchanger which can provide hot water for building heating using steam from the steam boilers if none of the hot water boilers is operating.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace heat exchangers HE3 through HE12 and the emergency steam to hot water heat exchanger**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$1,150,000	Unassigned

**Updated:** DEC-08

**D3040.05 Heat Exchangers\*\* - c.2002**

There is a shell and tube type hot water to glycol heat exchanger which provides glycol for the rooftop air handling unit RTU1 heating coil (heat exchanger 02-XC-1 located in the main floor mechanical penthouse).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2002	30	DEC-08

**Event: Replace heat exchanger 02-XC-1 in the main floor mechanical penthouse**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$100,000	Unassigned

**Updated:** DEC-08

**D3050.01.01 Computer Room Air Conditioning Units\*\* - c.2005**

In addition to a dedicated air handling unit for the basement server room (air handling unit 04-AS-1), there are two Liebert computer room air conditioning units (AC1 and AC2) and three split ductless direct expansion type air conditioners (04-AC-1, 04-AC-2 and 04-AC-3). This element covers the three split ductless direct expansion type air conditioners (04-AC-1, 04-AC-2 and 04-AC-3).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	30	DEC-08

**Event: Replace the three split ductless direct expansion type air conditioners (04-AC-1, 04-AC-2 and 04-AC-3) for the basement server room**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2035	\$50,000	Unassigned

**Updated:** DEC-08

**D3050.01.01 Computer Room Air Conditioning Units\*\* - c.2007**

In addition to a dedicated air handling unit for the basement server room (air handling unit 04-AS-1), there are two Liebert computer room air conditioning units (AC1 and AC2) and three split ductless direct expansion type air conditioners (04-AC-1, 04-AC-2 and 04-AC-3). This element covers the two Liebert computer room air conditioning units (AC1 and AC2).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2007	30	DEC-08

**Event: Replace the two Liebert computer room air conditioning units (AC1 and AC2) for the basement server room**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2037	\$230,000	Unassigned

**Updated:** DEC-08

**D3050.01.02 Packaged Rooftop Air Conditioning Units (& Heating Units)\*\***

Make-up air unit MAU1 located in mechanical room SB1040 is a packaged gas fired unit which provides make-up air for the paint spray booth.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace make-up air unit MAU1 located in mechanical room SB1040**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$120,000	Unassigned

**Updated:** DEC-08

**D3050.02 Air Coils\*\* - c.2002**

Reheat coils were not utilized in the original construction, but were installed for the lab area served by RTU1 when the lab area was renovated.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2002	30	DEC-08

**Event: Replace the terminal reheat coils associated with the supply air distribution system for RTU1 serving the main floor lab area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$125,000	Unassigned

**Updated:** DEC-08

**D3050.02 Air Coils\*\* - c.2008**

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	30	DEC-08

**Event:** **Replace the terminal reheat coils associated with the supply air distribution system for RTU2 serving the main floor ambulatory care area**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$140,000	Unassigned

**Updated:** DEC-08

**D3050.03 Humidifiers\*\* - c.1981**

The main air handling units AS1 through AS7 are equipped with direct injection steam humidifiers. This element covers humidifiers HU1 and HU2 for AS1, humidifiers HU3 and HU4 for AS2, humidifier HU7 for AS4, humidifier HU8 for AS5, humidifier HU9 for AS6, and humidifiers HU10 and HU11 for AS7.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1981	25	DEC-08

**Event:** **Replace humidifiers HU1 through HU4 and HU7 through HU11**

**Concern:**

The humidifiers are in poor condition due to corrosion and wear.

**Recommendation:**

Replace humidifiers HU1 through HU4 and HU7 through HU11

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2009	\$225,000	Medium

**Updated:** DEC-08

**D3050.03 Humidifiers\*\* - c.2005**

The main air handling units AS1 through AS7 are equipped with direct injection steam humidifiers. This element covers humidifiers HU5 and HU6 for air handling unit AS3.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2005	25	DEC-08

**Event:** **Replace humidifiers HU5 and HU6**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2030	\$50,000	Unassigned

**Updated:** DEC-08

**D3050.05.02 Fan Coil Units\*\***

There are 20 fan coil units used in the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the hot water fan coil units (20)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$200,000	Unassigned

**Updated:** DEC-08

**D3050.05.03 Finned Tube Radiation\*\***

Finned tube radiation cabinets are used to provide perimeter heating in most areas of the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the finned tube radiation cabinets providing perimeter heating**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2021	\$1,250,000	Unassigned

**Updated:** DEC-08

**D3050.05.06 Unit Heaters\*\***

There are 29 hot water unit heaters in the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event: Replace the hot water unit heaters (29)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$230,000	Unassigned

**Updated:** DEC-08

**D3060.02.01 Electric and Electronic Controls\*\* - c.2000**

The original building HVAC system controls were pneumatic (thermostats, control valves, damper actuators, etc.). In c.1995, a digital building management and control system was installed which interfaced to the pneumatic controls through pneumatic/electric interface devices. Since c.1995, the pneumatic controls have been upgraded to digital controls whenever renovations have been completed. Currently (2008), approximately 50% of the original pneumatic controls have been upgraded to digital controls.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2000	30	DEC-08

**Event: Replace the digital HVAC controls (50% of the building HVAC controls)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2030	\$400,000	Unassigned

**Updated:** DEC-08

**D3060.02.02 Pneumatic Controls\*\* - c.1981**

The original building HVAC system controls were pneumatic (thermostats, control valves, damper actuators, etc.). The control air supply system is located in mechanical room SB1040 and consists of two control air compressors, two air receiver tanks, and two control air dryers. This element includes the pneumatic distribution lines and related components. In c.1995, a digital building management and control system was installed which interfaced to the pneumatic controls through pneumatic/electric interface devices. Since c.1995, the pneumatic controls have been upgraded to digital controls whenever renovations have been completed. Currently (2008), approximately 50% of the original pneumatic controls have been upgraded to digital controls.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the remaining pneumatic HVAC controls with digital controls (50% of the building HVAC controls)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$400,000	Unassigned

**Updated:** DEC-08

**D3060.02.05 Building Systems Controls (BMCS, EMCS)\*\***

In c.1995, a Delta Systems Building Management and Control System (BMCS) was installed. The BMCS interfaced to the original pneumatic controls through pneumatic/electric interface devices.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1995	25	DEC-08

**Event:** **Replace the Delta Systems building management and control system**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2020	\$800,000	Unassigned

**Updated:** DEC-08

**Event:** **Upgrade the existing BMCS (when it is replaced) to provide terminal unit control (coordinate with upgrading the remaining pneumatic controls to digital controls)**

**Concern:**

The existing BMCS does not incorporate terminal unit control for most of the building.

**Recommendation:**

Upgrade the existing BMCS (when it is replaced) to provide terminal unit control (coordinate with upgrading the remaining pneumatic controls to digital controls).

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Operating Efficiency Upgrade	2020	\$700,000	Medium

**Updated:** DEC-08

**D4010 Sprinklers: Fire Protection\***

The building is fully sprinklered for fire protection. Most of the the sprinkler system is a wet type system. Preaction systems are installed for the server room and for the MRI area.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	60	DEC-08

**D4020 Standpipes\***

The building is equipped with a wet standpipe system feeding standard fire hose cabinets.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	60	DEC-08

**D4030.01 Fire Extinguisher, Cabinets and Accessories\***

Fire extinguishers are located throughout the facility in the fire hose cabinets, in wall mounted fire extinguisher cabinets and on wall mounted brackets.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**D4090.04 Dry Chemical Fire Extinguishing Systems (Kitchen Hood)\*\***

There are three automatic fire extinguishing systems for cooking hoods in the kitchen area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2007	40	DEC-08

**Event: Replace the three kitchen cooking hood automatic fire suppression systems**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2021	\$75,000	Unassigned

**Updated:** DEC-08

**D4090.05 Halon Extinguishing Systems\*\***

The main electrical room is protected with a Halon 1301 system.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the Halon 1301 system for the main electrical room with an inert gas system**

**Concern:**

Halon type fire protection systems are no longer acceptable.

**Recommendation:**

Replace the Halon 1301 system for the main electrical room with an inert gas system.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$200,000	Unassigned

**Updated:** DEC-08



**D4090.06 Smoke Protection & Exhaust Fans\*\***

Smoke protection fans include the three tower stairwell pressurization fans (F32, F33 and F34), and the three lower level stairwell pressurization fans (F29, F30 and F31). Stairwell pressurization fans F32, F33 and F34 are each equipped with a glycol heating coil.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**Event: Replace the six stairwell pressurization fans (F29 through F34)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2021	\$275,000	Unassigned

**Updated:** DEC-08

**D4090.07 Fire Pumps & Water Storage Tanks\***

There is a fire pump for the sprinkler and standpipe systems. The fire pump has a capacity of 500 usgpm at 75 psi.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	2005	40	DEC-08

## **S5 ELECTRICAL**

### **D5010.01 Main Electrical Transformers\*\***

There are two main transformers each rated 1500 kVA with a 347/600V secondary service to the hospital. The main transformers are oil filled, ONAN type transformers, that are located in the outdoor ATCO underground transformer vault.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**Event: Replace Main Electrical Transformers**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2021	\$280,000	Unassigned

**Updated:** DEC-08

### **D5010.02 Secondary Electrical Transformers (Interior)\*\* - 1981**

The majority of the 600V-120/208V transformers are fed from 600V distribution panel located in mechanical or electrical rooms. The original transformers are all dry type (ANN) transformers.

The following is a list of the transformers in the building including their rating and location:

**NORMAL POWER**

- T1 - Westinghouse, 112.5kVA, 600-120/208V located near incinerator room (Sub-Basement Level)
- T2 - Westinghouse, 112.5kVA, 600-120/208V located in Purchasing (Sub-Basement Level)
- T3 - Westinghouse, 112.5kVA, 600-120/208V located in the main electrical room (Basement Level)
- T4 - Westinghouse, 112.5kVA, 600-120/208V located in the mechanical room (Basement Level)
- T5 - Westinghouse, 300kVA, 600-120/208V located in the main electrical room (Basement Level)
- T6 - Westinghouse, 112.5kVA, 600-120/208V located in the N.E. electrical room (Interstitial Level)
- T7 - Westinghouse, 112.5kVA, 600-120/208V located in the N.W. electrical room (Interstitial Level)
- T8 - Westinghouse, 112.5kVA, 600-120/208V located in the S.W. electrical room (Interstitial Level)
- T9 - Westinghouse, 225kVA, 600-120/208V located in the S.E. electrical room (Interstitial Level)
- T10 - Federal Pioneer, 300kVA, 600-120/208V located in the N.W. electrical room (Interstitial Level)
- T11 - Federal Pioneer, 300kVA, 600-120/208V located in the N.E. electrical room (Interstitial Level)

**EMERGENCY POWER**

- T12 - Westinghouse, 112.5kVA, 600-120/208V located in the Sub-Basement Level
- T13 - Westinghouse, 45kVA, 600-120/208V located in the mechanical room (Basement Level)
- T14 - Westinghouse, 150kVA, 600-120/208V located in the N.E. electrical room (Interstitial Level)
- T15 - Westinghouse, 225kVA, 600-120/208V located in the N.W. electrical room (Interstitial Level)
- T16 - Westinghouse, 112.5kVA, 600-120/208V located in the S.E. electrical room (Interstitial Level)
- T17 - Westinghouse, 75kVA, 600-120/208V located in the S.W. electrical room (Interstitial Level)

Other transformers have been provided for the parking plugs and X-Ray and CT equipment. The transformers for the X-Ray and CT equipment typically have non-standard secondary voltages of 277/480V or 380/220V.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	40	DEC-08

**Event: Replace Original Secondary Transformers**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2021	\$450,000	Unassigned

**Updated:** DEC-08

**D5010.02 Secondary Electrical Transformers (Interior)\*\* - 1999**

Electrical distribution equipment has been installed for various renovation projects. The newer transformers include a 112.5 (for CT equipment) and 2-30kVA (For AC-1 & AC-2 in CIS), 600-120/208V Bemag transformers and a 30kVA Hammond, 600-120/208V transformer.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1999	40	DEC-08

**Event: Replace Secondary Electrical Transformers (1999)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2039	\$56,000	Unassigned

**Updated:** DEC-08

**D5010.03 Main Electrical Switchboards (Main Distribution)\*\***

There are two main 347/600V switchboards for the Hospital. The main normal power switchboard is located in the main electrical room (Basement Level) and the main emergency power switchboard is located in the main mechanical room (Basement Level). The original switchboards were installed in 1978. The switchboards are currently being refurbished. A breaker status indication panel is located in the control room.

The main normal power switchboard is a double ended FPE switchboard with breakers feeding loads as follows:

- Main Breaker # 52-2
- Main Breaker # 52-1
- Tie Breaker
- Panel 6D10
- Panel 6D5
- Panel 6D3
- Panel 6D2
- Emergency Switchboard feeder # N1
- Emergency Switchboard feeder # N2
- Panel 6D9
- Panel 6D7
- MCC #5
- Chiller #2
- Panel 6D8
- Panel 6D6
- Central Plant MCC
- Chiller #1
- Panel 6D1
- Panel 6D4

The branch breakers are all new Masterpact cradle in cradle NW1600 breakers, manually operated, 3P, 600V with Micrologic 6.0A protection relay and Neutral-Ground fault sensors. The tie and two main breakers are new Masterpact cradle in cradle NW4000 breakers. The Masterpact breakers are replacing the original Federal Pioneer breakers. The replacement is underway and is scheduled to be completed by November 2008. Two ABB power factor correction capacitor banks were installed for the main switchboard in 1999. The capacitor bank for Bus 1 is rated 390 kVAR and the capacitor bank for bus 2 is rated 130kVAR.

The main emergency power switchboard is a double ended FPE switchboard with breakers feeding loads as follows:

- Main Normal power # 52-N1
- Panel E6D1
- Panel E6D2
- Panel E6D5
- Main Emergency power # 52-E1
- Main Generator power # 52-G2
- Tie # 24-G
- Main Generator power # 52-G1
- Main Normal power # 52-N2
- Main Emergency power # 52-E2
- MCC-E1
- Panel E6D3
- Panel E6D4
- Transformer T15

The branch, main and tie breakers are all new Masterpact cradle in cradle NW1600 breakers, manually operated, 3P, 600V with Micrologic 6.0A protection relay and Neutral-Ground fault sensors. The Masterpact breakers are replacing the original Federal Pioneer breakers. The replacement is underway and is scheduled to be completed by November 2008.

An Arc Flash and coordination study are being carried out as part of the breaker replacement project.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	40	DEC-08

**Event: Harmonics Study**

**Concern:**

Harmonics in the distribution system can lead to equipment failures. Mitigating harmonics in certain points throughout the distribution system would contribute to improving the efficient use of the system's capacity. This would free some of the potentially available capacity for use in future as well.

**Recommendation:**

Performing a comprehensive harmonics and resonant frequency study for the distribution system including the existing power factor correction capacitor system.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Study	2009	\$20,000	Medium

**Updated:** DEC-08

**Event: Replace Main Electrical Switchboards**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2048	\$1,386,000	Unassigned

**Updated:** DEC-08

**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 1981**

The 347/600V emergency and normal power distribution panels are typically fed from the main emergency and normal switchboards. Each 347/600V distribution panel typically feeds one or two transformers for the 120/208V distribution panels. Branch circuit panels are fed from the distribution panels. The majority of the distribution and branch circuit panels within the hospital are located in the main electrical room or one of four electrical rooms on the interstitial level above the ground floor. There are East and West electrical riser closets in the tower containing emergency and normal 120/208V branch circuit panels. There are approximately 15 - 347/600V original distribution panels (9 Normal and 6 Emergency) and 17 - 120/208V original distribution panels (11 Normal and 6 Emergency). There are approximately 15 - 347/600V original branch circuit panels and 96 - 120/208V original branch circuit panels. The original distribution and branch circuit panels are Westinghouse panels. Operating and ICU rooms are equipped with isolated power panels. Panels are Federal Pioneer complete with isolation transformer, MicroLim series line isolation monitor, and circuit breakers.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1981	30	DEC-08

**Event: Replace Original Electrical Branch Circuit Panelboards**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2012	\$960,000	Unassigned

**Updated:** DEC-08

**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 2000**

Newer electrical distribution equipment has been provided for the ambulatory wing and various other renovation projects. The newer panels are of various manufacturers including Cutler Hammer and Square D. Distribution panel 6D10 is a 347/600V Cutler Hammer distribution panel that was installed in 2008.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2000	30	DEC-08

**Event: Replace Branch Circuit Panelboards (2000)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2030	\$60,000	Unassigned

**Updated:** DEC-08

**D5010.07.01 Motor Control Centers\*\***

Power to the major mechanical equipment is provided via 600V MCCs (Motor Control Centres) installed in the mechanical rooms. Normal and emergency powered MCCs are typically located side-by-side in mechanical rooms on different floors. MCC-1 and MCC-E1 are located in the boiler room in sub-basement floor. MCC-2 and MCC-E2, and MCC-3 and MCC-E3 are located in the basement mechanical rooms. MCC-4 and MCC-E4 are located in the main floor mechanical room in the interstitial space. MCC-5 and MCC-E5 are located in the penthouse fan room. MCC-1 is an 8-section GE MCC with 28 starter units. MCC-E1 is an 8-section GE MCC with 29 starter units. MCC-2 is a 3-section Westinghouse 5-star MCC with 12 starter units. MCC-E2 is a 1-section Westinghouse 5-star MCC with 4 starter units. MCC-3 is a 3-section Westinghouse 5-star MCC with 8 starter units. MCC-E3 is a 21-section Westinghouse 5-star MCC with 7 starter units. MCC-4 is a 3-section Westinghouse 5-star MCC with 10 starter units. MCC-E4 is a 3-section Westinghouse 5-star MCC with 8 starter units. MCC-5 is a 5-section Westinghouse 5-star MCC with 14 starter units. MCC-E5 is a 4-section Westinghouse 5-star MCC with 8 starter units. MCC-5 contains starter units for the 75HP fans F1 and F2. MCC-1 and MCC-E1 were installed in 1978 and the remainder of the MCC's were installed in 1979.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace Motor Control Centers**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$335,000	Unassigned

**Updated:** DEC-08

**D5010.07.02 Motor Starters and Accessories\*\***

There are some Allen Bradley, Cutler Hammer and Westinghouse individual motor starters in the building. The starters are provided where the motor loads are located remotely from the MCC's. A Siemens stand alone starter has been provided for each of the two chillers.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace Motor Starters and Accessories**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$100,000	Unassigned

**Updated:** DEC-08

**D5020.01 Electrical Branch Wiring\***

The majority of the cabling is standard building wire installed in EMT or rigid conduit. Service spaces have been provided for conduit risers. Cabletrays have been provided for communications cabling in some areas. Wiremold raceways for power and communications cabling have been provided for selected rooms.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	50	DEC-08

**Event: Medical Gas Storage Study**

**Concern:**

Devices, raceways and wiring, have been added to the room sometime after the initial construction, which are not suitable for hazardous areas.

**Recommendation:**

Provide a thorough study of the area classification for this room based on the current utilization parameters to update the electrical area classification and determine which type of devices, raceways and wiring are appropriate for the current utilization of the room and what needs to be done, to the existing electrical equipment.



Wiring in medical gas storage area is not rated for explosion proof area.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Study	2009	\$5,000	Medium

**Updated:** DEC-08

**D5020.02.01 Lighting Accessories (Lighting Controls)\***

GE low voltage lighting control panels are located within the interstitial space electrical rooms. The low voltage controls are 24V. The lighting panels that are controlled are 347V. Line voltage switches are also used within the hospital.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**D5020.02.01 Lighting Accessories (Lighting Controls)\* - Dimming Systems**

An NSI 2408 Dimmer pack has been provided for the auditorium.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2006	30	DEC-08

**D5020.02.02.01 Interior Incandescent Fixtures\***

Incandescent fixtures have been provided in some areas of the building. Globe style bulbs have been provided in a grid ceiling within the cafeteria. The Ron Wolff auditorium has recessed incandescent lighting fixtures.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace Incandescent Lamps**

**Concern:**

The incandescent lamps in fixtures such as the shower lights are inefficient and have a short lamp life.

**Recommendation:**

Replace incandescent lamps with equivalent output compact fluorescent spiral type bulbs.



Incandescent lighting in showers is not energy efficient.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Energy Efficiency Upgrade	2009	\$6,000	Low

**Updated:** DEC-08

**D5020.02.02.02 Interior Fluorescent Fixtures\*\***

Interior fluorescent lighting is provided generally with a combination of linear and compact fluorescent luminaires. Direct/indirect pendant mounted lighting is used in the most recent renovations. Recessed luminaires with prismatic lens are typical in the older areas. In 1992 the majority of the T12 lamps and magnetic ballasts were retrofitted with T8 lamps and electronic ballasts.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1992	30	DEC-08

**Event: Replace Interior Fluorescent Fixtures**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2022	\$1,560,000	Unassigned

**Updated:** DEC-08

**D5020.02.03.01 Emergency Lighting Built-in\***

Emergency lighting is provided from building lighting fixtures that are connected to the emergency distribution system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1992	35	DEC-08



**D5020.02.03.02 Emergency Lighting Battery Packs\*\***

Emergency lighting battery units have been provided in selected areas such as the main electrical rooms and generator room. Central Battery packs located in electrical room # 2 and remote heads are used for instant emergency lighting in the operating rooms. Batteries are replaced within the units as part of the maintenance schedule.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1995	20	DEC-08

**Event: Emergency Lighting Code Upgrade**

**Concern:**

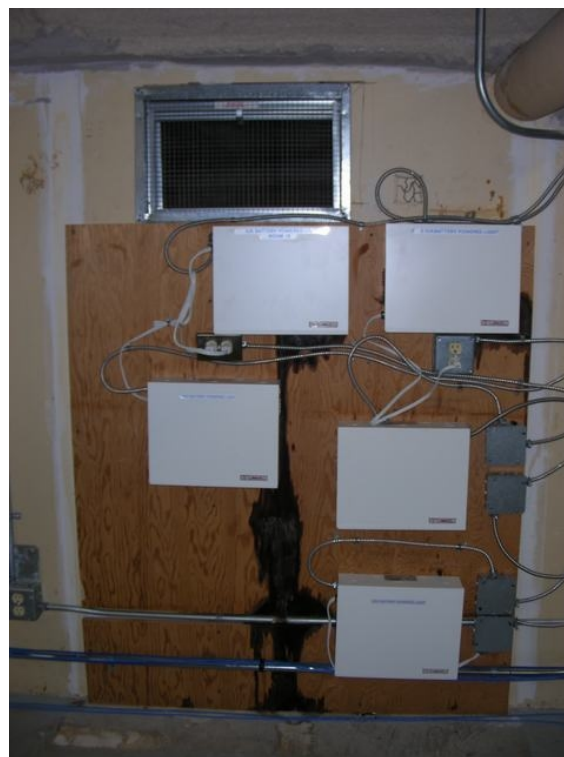
The emergency lighting battery units for the operating rooms are located in the Interstitial space electrical rooms. The emergency lighting units are not connected to the circuit which controls the lighting in the operating rooms. If there is a failure to the operating room lighting circuit but not the emergency battery unit circuit the emergency lighting will not come on.

**Recommendation:**

Refeed the emergency lighting battery units from the same circuits as the operating room lighting.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Code Upgrade	2009	\$2,000	High

**Updated:** DEC-08



Emergency lighting battery units in Interstitial space electrical room.

**Event: Replace Emergency Lighting Battery Packs**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$10,000	Unassigned

**Updated:** DEC-08

**D5020.02.03.03 Exit Signs\***

Exit signs have been installed at building exits and along egress routes. The majority of the exit signs are incandescent type. Some of the original units have been retrofitted with LED lamps and newer renovated areas have been provided with the LED type exit signs.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Retrofit Exit Signs**

**Concern:**

The incandescent exit signs are high maintenance and unreliable due to short lamp life. Incandescent exit signs are not energy efficient.

**Recommendation:**

Replace the incandescent lamps in the exit signs with LED retrofit kits.



Incandescent exit sign is inefficient and has a short lamp life.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Energy Efficiency Upgrade	2009	\$10,000	Medium

**Updated:** DEC-08

**D5020.02.11 Operating Room Lighting\***

Operating room lighting is scheduled to be replaced in 2008.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	0	DEC-08

**D5020.03.01.04 Exterior H.P. Sodium Fixtures\***

The exterior building mounted lighting consists of wallpack fixtures around the building perimeter and some H.I.D downlights installed in the building canopies.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**D5020.03.02 Lighting Accessories: Exterior (Lighting Controls)\***

Time and photocell controls, using a conventional electromechanical type timer, are used for exterior lighting control.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**D5030.01 Detection and Fire Alarm\*\***

The original Edwards 6500 series fire alarm system was replaced with an addressable Edwards EST3 system during 2001-2002. The system control panels and event printer are located in the main telephone room (Basement level) with remote annunciators in several locations of the building including the nursing stations, ICU, control room SB 1051, and at the main entrance lobby. System consists of manual pull stations, smoke detectors, heat detectors, hornstrobes and speakers located throughout the facility. There are approximately 86 alarm and supervisory zones connected into the system. A remote annunciator with voice communication and passive graphic is located in the main entrance lobby. A fireworks graphical display and control centre has been ordered for the system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2001	25	DEC-08

**Event: Correct Fire Alarm System Deficiencies**

**Concern:**

The July 2008 annual inspection indicated some deficiencies including:

- Kitchen hoods are not tied into the fire alarm system
- The MRI pre-action system is not tied into the fire alarm system and there are problems with the low pressure switch
- Damaged firephone - Stair #2, Penthouse
- Software problem with Auto Evac cancel LED

**Recommendation:**

Correct fire alarm system deficiencies.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Code Upgrade	2008	\$7,500	High

**Updated:** DEC-08



MRI Pre-action system is not tied into fire alarm system.

**Event: Replace Fire Alarm System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2026	\$850,000	Unassigned

**Updated:** DEC-08

**D5030.02.03 Security Access\*\***

A DSX-1022 access control and alarm system is installed mainly on the 3rd floor mental health unit, 4th floor continuing care and in the elevators to alarm the nursing station of an unauthorized patient's attempt to leave the area. System consists of magnetic door locks and control mechanism, wandguard receivers by the doors and in elevator cars, card readers and indicating stations at the doors. The majority of the system cabinets are located in the Interstitial space electrical rooms.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2000	25	DEC-08

**Event: Replace Security Access System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2025	\$200,000	Unassigned

**Updated:** DEC-08

**D5030.02.04 Video Surveillance\*\***

Building is equipped with a video surveillance system with cameras located in security sensitive locations throughout the interior and exterior of the facilities. The head end equipment is located in the security office on the main floor. System is complete with recording capability, monitoring display units and other accessories. Camera systems include Lenel and Panasonic equipment.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2000	25	DEC-08

**Event: Replace Video Surveillance System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2025	\$300,000	Unassigned

**Updated:** DEC-08

**D5030.03 Clock and Program Systems\***

The original head end of the central clock system has been replaced with a new Dukane head end located in the main electrical room. Digital clocks throughout the building are the original ones installed during the construction. Some of the digital display units have LED segments that no longer illuminate.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1996	25	DEC-08

**D5030.04.01 Telephone Systems\***

Telecommunications service provider terminations are installed in the main telephone room (Basement level). Copper and optical fibre cables are installed for telephone and high-speed Internet access. The NLRHC has switched from their conventional telephone system to a VOIP telephone system. The VOIP telephone system is a Cisco Catalyst 6500 series complete with powered switches and other accessories. Building is equipped with Cisco wireless transmitters to allow wireless phones to be used in the building as well.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2006	25	DEC-08

**D5030.04.03 Call Systems\*\* - Nurse Call**

The original Dukane nurse call system has been replaced with a Dukane ProCare 6000 in 1998. Rauland Responder III stations and call switches are located in the patient areas. System central unit is located in the basement control room. Unit is equipped with wireless paging capability. A number of the corridor nurse call lights are missing their cover lens, which should be provided as part of the ongoing routine maintenance of the building.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1998	25	DEC-08

**Event: Replace Nurse Call System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2023	\$840,000	Unassigned

**Updated:** DEC-08

**D5030.04.03 Call Systems\*\* - Patient Monitoring System**

The original patient monitoring system has been upgraded recently with a new Philips system complete with wireless receivers located throughout the building, new monitoring station central unit and visual display units. Line amplifiers and power supplies are located in electrical room 3 (Interstitial Level).

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2006	25	DEC-08

**Event: Replace Patient Monitoring System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2031	\$100,000	Unassigned

**Updated:** DEC-08

**D5030.04.04 Data Systems\***

Server room is located in the basement and is equipped with accessible flooring for power distribution. The new Powerware UPS provides uninterruptible power to the server room equipment. Equipment is installed in the racks and cabinets and communications wiring including copper and optical fibre runs overhead on a cable tray. Copper wiring is CAT 5E balanced twisted pair with FT4 rated insulation. Patch panels and switches are generally located in wall-mounted telecommunications cabinets, which are installed in service rooms and selected areas throughout the building. Bell supernet has been brought into the building and is located in the main telephone room.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2000	25	DEC-08

**D5030.05 Public Address and Music Systems\*\* - Overhead Paging**

A Dukane overhead paging system is used to announce codes and other all zones emergency conditions. The zone selection circuitry has been rewired to all zones only and the music broadcast is not used any more. The system amplifiers are located in the main electrical room.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**Event: Replace Overhead Paging System**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$100,000	Unassigned

**Updated:** DEC-08

**D5030.06 Television Systems\***

A system of coaxial cabling and splitters within the service shafts provides cable TV signal to selected areas.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1995	20	DEC-08

**D5030.07 Other Communications and Security Systems\***

The original relay based intercom system has been downsized to only 24 devices and replaced with an electronic system. Central intercom panel is located in the electrical room #1.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**D5090.01 Uninterruptible Power Supply Systems\*\***

A new Powerware PW 9315 - 300 Model 225 UPS has been installed in the main electrical room (Basement level). The batteries for the unit are located in the adjacent telephone room. The UPS is for the main server room.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2008	30	DEC-08

**Event: Replace Uninterruptible Power Supply Systems**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$250,000	Unassigned

**Updated:** DEC-08

**D5090.02 Packaged Engine Generator Systems (Emergency Power System)\*\***

There are two 750kW Cummins/Leroy Somer diesel generator sets, located in a separate room off of the main boiler room (Central Plant). The generators have a 347/600V output and provide power to the main emergency switchboard. An auto transfer relaying system built into the main emergency switchboard transfers power to the generators upon failure of the normal power supply.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	35	DEC-08

**Event: Replace Emergency Generator Systems**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$1,260,000	Unassigned

**Updated:** DEC-08

**D5090.06 Lightning Protection Systems\***

Building is equipped with a lightning protection system. Air termination network consists of air terminals and interconnecting bare conductors forming a mesh network on each roof level. Down conductors connect the air termination network to the earth termination network. Metal equipment such as louvers and exhaust fans have been connected via grounding straps to the lightning protection system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**S6 EQUIPMENT, FURNISHINGS AND SPECIAL CONSTRUCTION****E1010.05.01 Barber and Beauty Shop Equipment\***

A beauty parlor complete with all equipment is located in the 4th floor for the long term care patients.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**E1010.06 Commercial Laundry and Dry Cleaning Equipment\***

The main laundry facility is located in the sub-basement and is divided into two sections, the cleaned and soiled zones. The laundry facility has built-in heavy-duty washer and dryer systems complete with folding & pressing equipment, sterilizing cleaning equipment ,stainless steel working tables, roller bins, stainless steel carts,,

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**E1020.07 Laboratory Equipment\***

Laboratory workstations include sinks, fumehoods, refrigerators etc. Various prefab small environmental controlled storage units throughout.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**E1020.08 Medical Equipment\***

Clinical medical equipment is stored in the sub-basement with limited access. The medical equipment is cleaned and sterilized in this controlled area.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**E1030.03 Loading Dock Equipment\***

There are three loading zones. One bay is enclosed and holds the garbage compactor. The two loading bays are covered & have a lift and a dock leveler. The third bay is used for equipment storage.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**E1090.01.02 Window Washing Equipment\***

Window cleaning anchors and davits. It was reported that the anchors and davits have not been annually inspected and certified since the building was occupied.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08



**E1090.03 Food Service Equipment\***

Full compliment of kitchen equipment for preparation of daily hot meals. Kitchen equipment consists of built-in and movable type; for meat preparation, food preparation, cooking, baking, pot and dishwashing and storage. Walk-in freezer/cooler. Servery, tray and display counters, beverage dispensers, water heater booster, etc. The main kitchen is located on the basement. Stainless Steel fume hoods are located throughout the food prep area.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	25	DEC-08

**E1090.07 Athletic, Recreational, and Therapeutic Equipment\***

Therapeutic equipment is located throughout the occupational therapy & physiotherapy treatment areas on the 5th floor.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	15	DEC-08

**E2010.02 Fixed Casework\*\***

Each laboratory is equipped with upper metal and/or plastic laminate cabinets, lower cupboards c/w counter-top, open fixed shelving. All laboratory includes associated mechanical and electrical equipment (i.e.; supply and sanitary plumbing piping, sediment tanks, gas, compressed air and de-ionized water lines, associated fixtures, fume hoods, lighting and emergency showers, etc.).

Custom casework for self-serve cafeteria counter. Stainless steel and plastic laminate finishes. Counter with cabinets and cupboards to hold small items and condiments. Plastic laminate top. Metal & wood book shelving with display units. Plastic laminate counter, cabinets and cupboards.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	35	DEC-08

**Event: Replace millwork throughout the hospital**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$7,000,000	Unassigned

**Updated:** DEC-08

**E2010.03.01 Blinds\*\***

Interior window has a variety of blinds and located throughout the interior corridors & office areas. The exterior windows have horizontal blinds within the window assembly (see B2020.01.01.02 Aluminum Windows for additional details)

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	30	DEC-08

**Event: Replace horizontal blinds on the interior windows**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2012	\$150,000	Unassigned

**Updated:** DEC-08

**E2010.06 Fixed Interior Landscaping\***

Fixed interior planters are located in the main entrance area.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	10	DEC-08

**S8 FUNCTIONAL ASSESSMENT**

**K4010.01 Barrier Free Route: Parking to Entrance\***

Barrier free access from the main parking area is provided. Signage for designated handicap parking spaces are provided in all parking areas.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**K4010.02 Barrier Free Entrances\***

Barrier free access with power assist sliding doors are provide at the main hospital entrances.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**K4010.03 Barrier Free Interior Circulation\***

Elevator access is provided throughout the building. The majority of the building is accessible, however the interstitial spaces have restricted access.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08

**K4010.04 Barrier Free Washrooms\***

The majority of the public and private washrooms throughout the hospital accommodate barrier free accessibility.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1981	0	DEC-08