

# RECAPP Facility Evaluation Report

## Capital Health



**University Of Alberta Hospitals - Aberhart Centre One**  
B5932A  
Edmonton



Cooling is provided via a chilled water perimeter distribution system at each floor to cooling coils in individual room induction units. The perimeter induction unit system is a change-over system with heating water provided to the coils in the heating season and chilled water provided to the coils in the cooling season.

A 100% outside air ventilation unit is provided from the basement area in vertical shafts to a perimeter air supply system at each floor to the induction units. A separate terminal reheat system is provided for the corridors. Separate ventilation units are provided for the main floor Renal Dialysis area, the Auditorium, TB Clinic and the 4th floor tissue centre.

The facility is sprinklered throughout with the pump located in the basement. Fire extinguishers are also provided throughout the facility. A halon 1301 system is provided for the basement electrical vault.

Overall, the facility is well maintained and the mechanical systems are currently in an acceptable condition. Exceptions include the original Auditorium air handling system and the main building air handling system which should be replaced and the induction units which are recommended to have their induced air ports cleaned to assure adequate ventilation is provided to the respective rooms. In addition, under the Montreal Protocol the phase-out of Halon 1301 was to be completed by 2010. This system, if used, cannot be recharged and an alternate system will be required.

**Electrical Summary:**

Service to the Centre is provided by 2 - 750 kVA transformers from an outdoor substation to a double-ended substation type Service and Distribution Switchboard, consisting entirely of industrial type Air Circuit Breakers, rated 2000A, 120/208V, 3 phase 4 wire with 2 - 2000A main breakers, tie breaker and 600A distribution breakers. 120/208V distribution and branch circuit panel boards from different construction periods make up the power distribution system. The emergency power supply is provided by a 200 kW natural gas generator to a 1000A, 120/208V Emergency Distribution Panel and various panel boards. Loads include emergency and exit lighting, heating, life safety and communication systems.

The interior lighting system is mostly fluorescent of the standard type of magnetic ballasts and T12 lamps from different periods with incandescent fixtures in some locations. Exit lights have all been changed to LED lamps. The exterior lighting in the parking lot is high pressure sodium pole lights.

The fire alarm with EVAC system, designed for a health care facility, still serves the facility adequately but may be simplified when it comes time for replacement. Alberta Health Services provides the telephone system and local area network with Wi-Fi.

The overall condition of the electrical systems is acceptable.

**Rating Guide**

<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 foundations consist of 305mm poured concrete foundation walls with pilasters under steel columns above carried on poured concrete strip footings 1960mm below finished floor level to the top of footing. The foundations are located at the perimeter and under the internal corridor walls above. There are poured concrete pad footings under internal columns.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	100	APR-12

### A1030 Slab on Grade\*

There is a poured concrete slab on grade on compacted fill in the basement corridors and service areas.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	50	APR-12

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

The 4 storey building frame consists of poured concrete slabs carried on open web steel joist at 505mm centres spanning steel I-beams carried on steel columns. There are steel I-beams spanning steel columns in the auditorium.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	100	APR-12

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

The floor decks are poured concrete originally with terrazzo topping.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	50	APR-12

### B1010.09 Floor Construction Fireproofing\*

The floor slabs are concrete and are noncombustible. Fire proofing for the open web steel joists was originally provided by plaster ceilings below.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	50	APR-12

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

Fire stopping is missing in some locations throughout the facility where conduits have been installed for renovation projects.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1952	50	APR-12

**Event: Replace fire stopping in 6 locations****Concern:**

Fire stopping is missing in several locations including the main floor reception area.

**Recommendation:**

Replace missing fire stopping.

**Consequences of Deferral:**

Fire spread risk will persist in a fire event.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Repair	2012	\$1,500	Medium

**Updated:** APR-12

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

The roof structural frame consists of poured concrete slabs carried on open web steel joist at 505mm centres spanning steel I-beams carried on steel columns. There are steel I-beams spanning steel columns in the auditorium.

The pent house elevator machine room consists of three levels of concrete slabs carried on a steel frame. There is also a roof top gathering area enclosed by sealed units in aluminum frames with a poured concrete roof carried on steel pipe columns.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

**B1020.03 Roof Decks, Slabs, and Sheathing\***

The roof decks are poured trowelled concrete.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	50	APR-12

**B1020.04 Canopies\***

There are poured concrete cantilevered canopies over entrances with built up roofing and metal parapet and fascia.

There is also a wood structure canopy and shelter for patients waiting for pick up with a corrugated plastic roof system at the south entrance.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

The floor slabs are concrete and are noncombustible. Fire proofing for the open web steel joists is provided by plaster ceilings below.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	50	APR-12

**B1020.07 Roof Construction Firestopping\***

There was no missing fire stopping observed nor reported during the building audit.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	50	APR-12

**S2 ENVELOPE****B2010.01.09 Expansion Control: Ext. Wall\***

There are vertical control joints in the brick facing with flexible caulking.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

Vertical masonry control joints have flexible caulking and at window and door frames.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1973	20	APR-12

**Event: Replace 3000m caulking**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$90,000	Unassigned

**Updated:** APR-12

**B2010.02.03 Masonry Units: Ext. Wall Const.\* - Brick**

Exterior walls consist of facing brick on a back wall of hollow clay blocks with an overall thickness of 380mm with an interior finish of plaster.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

**B2010.02.03 Masonry Units: Ext. Wall Const.\* - Glass block**

There are glass block exterior walls to stair wells and wash rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

**B2010.03 Exterior Wall Vapour Retarders, Air Barriers, and Insulation\***

No insulation or vapour barrier in the exterior wall construction are indicated on original construction drawings. Buildings of this vintage relied on the voids in the clay block for insulation and plaster finish for vapour barrier protection.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	50	APR-12

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

Exterior louvres are aluminum and are located on walls of mechanical rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12



**B2020.01.01.05 Wood Windows (Glass & Frame)\*\***

Original wood sash windows are still in place. Some on the west side of the building have been clad with aluminum.

Windows have deteriorated, are no longer operable and require replacement.

Replace 1500m2 wood windows with aluminum \$1500000

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	35	APR-12

**Event: Replace 1500m2 wood windows with aluminum**

**Concern:**

Windows have deteriorated, are no longer operable and require replacement.

Replace 1500m2 wood windows with aluminum \$1500000

**Recommendation:**

Replace wood windows with aluminum windows with sealed units.

**Consequences of Deferral:**

Windows will deteriorate further.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2011	\$1,500,000	Medium

**Updated:** APR-12

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

Doors at the east entrance and the south entrance are glazed aluminum store front doors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1990	30	APR-12

**Event: Replace double & single aluminum store front doors**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2020	\$10,000	Unassigned

**Updated:** APR-12



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

Utility doors at secondary entrances and stairs are hollow metal with glazed upper panels at stair wells.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	40	APR-12

**Event: Replace 8 utility doors**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$8,000	Unassigned

**Updated:** APR-12

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

There is a motorized prefinished insulated sectional steel door into the north side carpenter shop.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	0	APR-12

**B3010.04.01 Built-up Bituminous Roofing (Asphalt & Gravel)\*\***

All roofs are built up membrane with gravel finish laid on the concrete roof slab.

There are ongoing roof leaks where roof top mechanical units are carried steel beams carried on built up sections of roof.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1952	25	APR-12

**Event: Replace 2500m2 roof with SBS & replace roof curbs**

**Concern:**

There are ongoing roof leaks where roof top mechanical units are carried steel beams carried on built up sections of roof. The detail of the steel beams carrying roof top mechanical equipment contributes to the leaking.

**Recommendation:**

Replace built up membrane roof with SBS and extend the height of the roofing and curb carrying the roof top mechanical equipment.

**Consequences of Deferral:**

Roof will deteriorate further.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$450,000	Medium

**Updated:** APR-12

**B3020.02 Other Roofing Openings (Hatch, Vent, etc)\***

The roof is accessible from the roof top enclosed area. Roof top fan units and vent pipe penetrations have galvanized flashings.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	0	APR-12

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

Interior fixed partitions are typically hollow clay block with gypsum plaster finish both sides. Renovated areas such as the Comprehensive Tissue Centre (CTC) on the fourth floor and the Renal Dialysis unit on the main floor have gypsum board finishes on strapping over the plaster on clay block walls.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

There are aluminum grilles and shutters enclosing the unused reception areas at the centre of each floor.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1990	0	APR-12

**C1010.05 Interior Windows\***

There are interior windows from the corridor into the clean rooms in the fourth floor CTC with clear glass in pressed steel frames and in the reception area on the fourth floor with clear glass in an aluminum frame.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2002	0	APR-12

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

There is missing partition fire stopping in services rooms where conduits have been installed for renovation.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1952	0	APR-12

**Event: Install missing fire stopping in 6 locations****Concern:**

There is missing fire stopping to partitions.

**Recommendation:**

Replace missing fire stopping.

**Consequences of Deferral:**

Fire spread will be a risk in a fire event.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Repair	2012	\$1,500	Medium

**Updated:** APR-12

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

Interior swinging doors are painted solid core wood doors in pressed steel frames.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1990	0	APR-12

**C1020.02 Interior Entrance Doors\***

Interior entrance doors at the main south and east entrances are glazed aluminum store front doors.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1990	0	APR-12

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

Interior doors to mechanical rooms are hollow metal in pressed steel frames. Fire doors in corridors are hollow metal with wired glass upper panels in pressed steel frames with hold open devices tied into the fire alarm.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

There is a vinyl concertina door dividing the offices where the Human Organ Procurement and Exchange (HOPE) program is located on the ground floor

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	0	APR-12

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

There are metal fabricated toilet compartments in wash rooms on all floors.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1990	30	APR-12

**Event: Replace 40 fabricated partitions**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2020	\$40,000	Unassigned

**Updated:** APR-12

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

There are plastic room number and room designations on wall adjacent to doors.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	0	APR-12

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

There are prefinished metal lockers in the staff change areas and staff rooms throughout the facility.

<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	APR-12

**Event: Replace 100 lockers**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2028	\$50,000	Unassigned

**Updated:** APR-12

**C1030.12 Storage Shelving\***

There are wood shelving units throughout the facility for stationary and supplies storage.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1998	0	APR-12

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

Wash rooms are equipped with soap and paper towel dispensers, Microsan dispensers, toilet roll holders and mirrors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1998	0	APR-12

**C2010 Stair Construction\***

The east entrance stairs are poured reinforced concrete with terrazzo treads, stringers and risers. The main east entrance stair has wood hand rails with steel uprights. The secondary stairs are also poured concrete with steel pipe handrails and rubber treads and risers and vinyl tiles on landings.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	0	APR-12

**Event: Modify steel handrails to 5 four storey stairs**

**Concern:**

The hand rails do not comply with Code.

**Recommendation:**

Modify steel handrails to 5 four storey stairs.

**Consequences of Deferral:**

Stairs will continue to be noncompliant with Code.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Code Upgrade	2012	\$15,000	Low

**Updated:** APR-12

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

There is plywood wall paneling in the second floor auditorium.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	30	APR-12

**Event: Replace 300m2 veneered plywood panelling**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$15,000	Unassigned

**Updated:** APR-12

**C3010.04 Gypsum Board Wall Finishes (Unpainted)\***

Renovated areas such as the Comprehensive Tissue Centre (CTC) on the fourth floor and the Renal Dialysis unit on the main floor have gypsum board wall finishes much of which is strapped to the original plaster on clqay block walls.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	0	APR-12

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

There are glazed ceramic tile walls in wash rooms and kitchens on all levels of the building.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1952	40	APR-12

**Event: Replace 1000m2**

**Concern:**

Tiles are damaged and mismatched.

**Recommendation:**

Replace wall tiles.

**Consequences of Deferral:**

Wall tiles will deteriorate further.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$250,000	Medium

**Updated:** APR-12

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

Plaster and gypsum board walls are painted throughout the facility.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	0	APR-12

**C3010.14 Other Wall Finishes\***

The clean rooms where tissue work is carried out have smooth plastic wall coverings.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2002	0	APR-12

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

Concrete floors are painted in mechanical rooms and basement areas.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
3 - Marginal	1973	0	APR-12

**Event: Repaint 500m2 concrete floors**

**Concern:**

Painted concrete floors are worn and paint damaged.

**Recommendation:**

Repainting of concrete floors is recommended.

**Consequences of Deferral:**

Painted concrete floors will deteriorate further.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Failure Replacement	2012	\$10,000	Low

**Updated:** APR-12

**C3020.02 Tile Floor Finishes\*\***

There are ceramic tiles on floors in some wash rooms and kitchen areas. There are also quarry tiles on floors in on the main floor in corridors and service areas.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1973	50	APR-12

**Event: Replace 150m2 floor tiles**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2023	\$35,000	Unassigned

**Updated:** APR-12



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

There are terrazzo floor finishes in kitchen and wash rooms areas and terrazzo covers in corridors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	0	APR-12

**Event: Replace 500m2 terrazzo flooring**

**Concern:**

Terrazzo is damaged and requires replacing in several locations throughout the facility in wash rooms and corridors.

**Recommendation:**

Replaced damaged terrazzo floor.

**Consequences of Deferral:**

Terrazzo will deteriorate further.

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

**Updated:** APR-12

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

There is a maple floor on the wood frame stage in the second floor auditorium.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	30	APR-12

**Event: Replace 100m2 maple floor**

**Concern:**

The stage floor is damaged, scratched and unsightly.

**Recommendation:**

Replace stage floor.

**Consequences of Deferral:**

Wood stage floor will deteriorate further.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$20,000	Low

**Updated:** APR-12

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

There is resilient flooring throughout the facility including sheet vinyl and linoleum in corridors, vinyl tiles in the auditorium, carpenter shop, staff change area, day care, TB clinic areas.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1998	20	APR-12

**Event: Replace 200m2 resilient tiles.**

**Concern:**

There are sections of resilient tiles which have deteriorated and require replacement.

**Recommendation:**

Replace damaged resilient tiles.

**Consequences of Deferral:**

Tiles will deteriorate further.

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

**Updated:** APR-12

**Event: Replace 8000m2 resilient flooring**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2018	\$550,000	Unassigned

**Updated:** APR-12

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

There is carpet in offices, second floor corridor, meeting rooms, reception areas throughout the facility.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1998	15	APR-12

**Event: Replace 3000m2 carpet**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2013	\$300,000	Unassigned

**Updated:** APR-12

**Event: Replace 500m2 carpet**

**Concern:**

There are sections of carpet including Clinical Services, HOPE offices, main floor offices which have deteriorated and require replacement.

**Recommendation:**

Replace deteriorated carpet.

**Consequences of Deferral:**

Carpet will deteriorate further.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$50,000	Medium

**Updated:** APR-12

**C3030.03 Plaster Ceiling Finishes (Unpainted)\***

There are plaster ceiling finishes in wash rooms throughout the facility consisting of 19mm acoustic plaster on metal lath on metal furrings.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	0	APR-12

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

There are acoustic tiles in a T-bar grid ceilings throughout the facility including corridors and office 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	25	APR-12

**Event: Replace 9000m2 acoustic tiles**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2023	\$400,000	Unassigned

**Updated:** APR-12

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

There are painted concrete ceilings in the basement.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

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

There is a duplex Dover passenger traction elevator rated at 1800kg or 24 passengers located at the centre of the east west corridor.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1995	30	APR-12

**Event: Refurbish duplex elevator**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2025	\$260,000	Unassigned

**Updated:** APR-12

**D1090 Other Conveying Systems\***

There is a dumb waiter located in the west section and a freight elevator located in the north section of the facility. Both are unused and abandoned.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	0	APR-12

**Event: Remove elevator and dumb waiter and convert shaft space to storage**

**Concern:**

The dumb waiter and freight elevator are no longer in use.

**Recommendation:**

Remove elevator and dumb waiter and convert shaft space to storage.

**Consequences of Deferral:**

Space occupied by the freight elevator and dumb waiter will continue to be wasted.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Preventative Maintenance	2012	\$20,000	Medium

**Updated:** APR-12

**S4 MECHANICAL****D2010.04 Sinks\*\* - 1973**

There are 15 single compartment stainless steel sinks, 1 single compartment porcelain steel sink, 3 double compartment stainless steel sinks, 3 mop service basins and 1 plastic laundry tub installed in the original building.

Some of the sinks are from the original 1952 building and were reused in the 1973 renovation.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1973	30	APR-12

**Event: Replace 23 Sinks**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$35,000	Unassigned

**Updated:** APR-12

**D2010.04 Sinks\*\* - 1998**

There are 7 single compartment stainless steel sinks installed in the main floor Daycare Centre area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	30	APR-12

**Event: Replace 7 Sinks**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2028	\$11,000	Unassigned

**Updated:** APR-12

**D2010.04 Sinks\*\* - 2002**

There are 4 single compartment stainless steel sinks, 1 wall hung stainless steel sink and 1 bed pan washing sink installed in the main floor Renal area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2002	30	APR-12

**Event: Replace 5 Sinks**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2032	\$11,000	Unassigned

**Updated:** APR-12

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

There are 3 institutional type showers installed. The showers currently are not used.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	30	APR-12

**Event: Replace 3 Showers**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$5,000	Unassigned

**Updated:** APR-12

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

There are 11 standard bathtubs with showers installed in the facility. The bathtubs currently are not being used.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	30	APR-12

**Event: Replace 11 Bathtubs**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$22,000	Unassigned

**Updated:** APR-12

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

There is one stainless steel refrigerated drinking fountain installed.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2000	35	APR-12

**Event: Replace One Drinking Fountain**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2035	\$3,500	Unassigned

**Updated:** APR-12



**D2010.10 Washroom Fixtures (WC, Lav, Urnl)\*\* - 1973**

There are 57 floor mounted flush valve water closets, 59 ceramic wall hung lavatories (2 with bubblers) and 1 enamel steel lavatory installed. Some of the fixtures are from the original building and refurbished and relocated during the 1973 renovation.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	35	APR-12

**Event: Replace 117 Washroom Fixtures**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$240,000	Unassigned

**Updated:** APR-12

**D2010.10 Washroom Fixtures (WC, Lav, Urnl)\*\* - 1998**

There are 4 baby type floor mounted flush valve waterclosets and 3 enamel steel lavatories installed in the main floor Daycare Centre.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1995	35	APR-12

**Event: Replace 7 Washroom Fixtures**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2030	\$12,000	Unassigned

**Updated:** APR-12

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

Copper domestic water lines are used throughout the facility.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

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

Isolation valves are provided throughout as required.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	40	APR-12

**Event: Replace 400 1/2" to 2" Valves**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$105,000	Unassigned

**Updated:** APR-12

**D2020.01.03 Piping Specialties (Backflow Preventers)\*\***

Backflow preventors are provided for the domestic make-up water feeds to the heating system and at the domestic connections to the fire 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	1973	20	APR-12

**Event: Replace 4 Backflow Preventors**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$6,000	Unassigned

**Updated:** APR-12

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

There are two Bell & Gosset in-line Model PA-014 domestic hot water recirculation pumps with 1/12 HP motors

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	20	APR-12

**Event: Replace 2 DHW Recirculation Pumps**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$2,000	Unassigned

**Updated:** APR-12

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

Anhh insulated domestic hot water tank with a low pressure steam heating coil is provided in the south basement area to provide domestic hot water to the facility.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1972	20	APR-12

**Event: Replace Domestic Hot Water Heater**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$20,000	Unassigned

**Updated:** APR-12

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

Where observed, waste piping is bell & spigot or mechanical joint cast iron, vent piping is copper.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	0	APR-12

**D2030.02.04 Floor Drains\***

Floor drains with brass trims are located provided throughout as required including wash rooms.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

There are four pumped sump pits in the basement area to pump the sanitary waste from the basement floor drains to the sanitary waste lines at the basement crawl space upper area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

Cast iron bell & spigot rain water leaders are provided throughout the facility from the roof drains to the storm drainage system.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

**D2040.02.04 Roof Drains\***

Cast iron roof drains with dome strainers are provided throughout the roof of the structure.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

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

A self contained water treatment system consisting of reverse osmosis units and carbon filtration is provide at the east end of the main floor to serve the adjacent Renal Dialysis area.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	2002	30	APR-12

**Event: Replace RO system**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2032	\$15,000	Unassigned

**Updated:** APR-12

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

A steel natural gas branch line from the municipal service in the street south of the facility enters the crawlspace under the south face of the east wing of the facility where it is metered and distributed to natural gas fired equipment on the roof of the facility.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

**D3010.04 Steam, Hot & Chilled Water Supply System\***

Steel High pressure 150# steam and chilled water supply and return service lines are provided from the University of Alberta system. Services enter the north portion 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	1973	0	APR-12

**D3020.05 Auxiliary Equipment: Heat Generation\* - Steam Pressure Reducing Station**

High Pressure Steam (150#) from the University system enters the north portion of the basement area. A two stage pressure reducing station in Room 9014 provides 10# low pressure steam to serve the steam to hot water and steam to hot glycol water converters for the primary hydronic distribution systems.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1972	0	APR-12

**D3020.05 Auxiliary Equipment: Heat Generation\* - Steam to Heating Water Converters**

There are three steam to heating water converters in the basement area:

Glycol Converter #1 is an Armstrong Model 126 - 4 pass steam to heating glycol converter rated for 3,400,000 btuh on 2# steam. This unit provides 200 gpm of heated glycol to serve the ventilation unit heating coils in the facility.

Hot Water Converter #2 and Emergency Hot water Converter #3 are Armstrong Model 127 - 2 pass steam to heating water converters each rated for 3,260,000 btuh on 2# steam. Each unit provides 327 gpm of heating water to serve the perimeter radiation, radiant panels, and perimeter induction unit coils.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1972	0	APR-12

**D3040.01.01 Air Handling Units: Air Distribution\*\* - 1952**

Air supply unit SA-A-002 serves the Auditorium area. The unit is manufactured by Excel Systems and consists of a mix air plenum, 2" disposable filter section, a steam heating coil, a cooling coil (added in 1973), and a Sirocco Type V size 215 supply air fan rated for approximately 5900 cfm.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	30	APR-12

**Event: Replace Auditorium Air Handling Unit**

**Concern:**

The Auditorium air handling system has reached its life expectancy, is providing inadequate service and is in need of replacement.

**Recommendation:**

Replacement is recommended.

**Consequences of Deferral:**

Inadequate air handling for the auditorium will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$15,000	Low

**Updated:** APR-12

**D3040.01.01 Air Handling Units: Air Distribution\*\* - 1973**

A new central heating and ventilation air handling unit SA-A-003 was provided as part of the 1973 renovation to the facility. This unit provides 3 zones of conditioned heated or cooled air to serve the perimeter induction units and corridor air distribution systems. This unit consists of a 100% outdoor air intake, 2" disposable filter section, 4 primary glycol preheat coils, 4 primary chilled water cooling coils, a high pressure primary induction unit air supply fan rated for 27,700 cfm at 7.5" S.P. with a 50 HP motor, 2 primary heating coils for the N.W. Induction zone, 2 primary heating coils for the N.E. Induction zone, and 4 primary heating coils for the south induction zone, and 2 Woods Model 25J2 axial supply air fans (in series) from the intake plenum for the terminal reheat corridor air systems rated for 5250 cfm at 3.5" S.P. with 3 HP motors.

It has been reported that the main supply unit SA-A-0003 is undersized based on the current building occupancy and that space temperatures are not being maintained. The unit operates on 100% outside air to provide conditioned fresh air to the perimeter induction units throughout the facility. There appears to be sufficient outside air provided to the facility and it could be that the perimeter induction units are failing to induce sufficient air to the space which could be caused by clogged or dirty nozzles on these units. Whether it is the induction units or the main air supply system, both have reached their life expectancy and replacement is recommended for the air handling system along with upgrading to digital controls within the next 5 years.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1973	30	APR-12

**Event: Replace Main Air Handling Unit**

**Concern:**

The main air handling system has reached its life expectancy and is in need of replacement. There are continual complaints of lack of adequate ventilation air and space temperature control.

**Recommendation:**

Replacement is recommended.

**Consequences of Deferral:**

Comfort conditions will continue to deteriorate for the occupants of the space.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$150,000	Medium

**Updated:** APR-12

**D3040.01.01 Air Handling Units: Air Distribution\*\* - 1998**

A make-up air unit for the TB Clinic in the north west portion of the second floor was installed in the first floor Mechanical Room 9141B in 1998. This unit consists of a 100% outside air intake damper section, a 2" disposable pre-filter section (summer/winter positions) a glycol pre-heat coil, a 2" disposable final filter section, a glycol reheat coil, a chilled water cooling coil and a supply air fan with a variable frequency drive (interlocked to the roof-mounted exhaust fan).

There are 5 circa 1995 natural gas fired make-up air units one the roof of the facility. Four units are for the stairwell smoke evacuation systems and one unit is for the kitchen make-up air (which has been abandoned). The size of the units are unknown.

<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	APR-12

**Event: Replace TB Clinic Air Handling Unit & 4 Roof Mounted Make-Up Air Units**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2028	\$70,000	Unassigned

**Updated:** APR-12

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

An air handling system was installed in 2002 in the east wing of the Basement area to serve the main floor Renal Dialysis Clinic. The unit consists of an axial flow belt driven return air fan, a mixing plenum, a 2" disposable filter section, a glycol heating coil, a chilled water cooling coil and a vane axial 5.0 HP belt driven supply air fan.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2002	30	APR-12

**Event: Replace Renal Dialysis Air Handling Unit**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$15,000	Unassigned

**Updated:** APR-12

**D3040.01.01 Air Handling Units: Air Distribution\*\* - 2006**

An air supply unit for the 4th floor Tissue Centre was installed in 2006 in the fourth floor Mechanical Room 7431. The unit consists of a 1.5 HP return air fan, mixing section, a 2" disposable filter section, a glycol heating coil, a 2" disposable filter section, a charcoal filter section, a chilled water cooling coil and a 5 HP supply air fan.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2006	30	APR-12

**Event: Replace Tissue Centre Air Supply Unit**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2036	\$15,000	Unassigned

**Updated:** APR-12

**D3040.01.04 Ducts: Air Distribution\***

Galvanized sheet metal duct risers from the basement area provide fresh air via a perimeter supply air system to serve the induction units on the 1st to the 4th floors and the corridor terminal reheat ceiling mounted system. Ceiling mounted supply air systems are provided for the main floor east Renal Dialysis Clinic and the 4th floor Tissue Centre.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

**D3040.01.06 Air Terminal Units: Air Distribution (VAV/CV Box)\*\***

Constant volume terminal reheat boxes are provided for the corridor air supply system. There are 7 velocity reduction terminal reheat boxes in the corridor ceiling spaces providing 500 to 1450 cfm each of tempered outdoor air.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12

**Event: Replace 7 Terminal Reheat Boxes**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$9,000	Unassigned

**Updated:** APR-12

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

Where ceiling ventilation is provided there are square cone ceiling diffusers. For the Tissue Centre clean rooms a stainless steel laminar flow ceiling is provided in each of the three rooms.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

**D3040.01.08 Other Air Distribution Equipment\***

High velocity silencers are provided for each duct run downstream of the main 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	1973	0	APR-12

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

High pressure (150#) steam enters the north portion of the building from the University of Alberta and provides steam to the steam to hot water and steam to glycol converters in the Basement Mechanical Room. Steam is distributed also to hot water or glycol converters servicing the heating coils in the Auditorium, TB Clinic and Tissue Center air handling units.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	40	APR-12

**Event: Replace 150m Steam Lines & 5 Condensate Units**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$90,000	Unassigned

**Updated:** APR-12



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

A hot water distribution system is provided for the radiation in the perimeter wash room and storage areas, the radiant panels in the Tissue Centre, TB Clinic and Renal Areas. Hot water and heated glycol systems are also provided from steam converters to the preheat and primary heating coils in the HVAC units. There are four 1973 base mounted heating pumps in the main Basement Mechanical Room. Two are rated for 335 gpm with 5 HP motors for the perimeter heating system and two are rated for 200 gpm with 3 HP motors to serve the primary air handling unit heating coils. There are two circa 1998 5 HP in-line glycol pumps to serve the TB Clinic ventilation unit coils, two in-line 3 HP heating pumps to serve the TB Clinic radiant panels, and two circa 2006 in-line 1-1/2 HP glycol pumps to serve the Tissue Centre HVAC unit.

<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	APR-12

**Event: Replace Hot Water Distribution System and Pumps (500 m2 gfa)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2038	\$90,000	Unassigned

**Updated:** APR-12

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

A chilled water distribution system is provided along the perimeter of each floor to serve the perimeter induction units. This system is a change-over system and is used to provide perimeter heating to the induction unit coils in the heating season. Chilled water is also distributed to the cooling coils in the ventilation units. There is one in-line Taco Model KV1507A 1-1/2 HP pump installed in 2002 for the basement east Mechanical Room for the Renal ventilation unit chilled water coil and one circa 2000 in line 1/3 HP chilled water circulation pump for the Auditorium ventilation unit. In the main Basement Mechanical Room there is one 1973 base mounted chilled water supply pump for the induction units rated for 450 gpm with a 20 HP motor and one 1973 base mounted chilled water circulation pump for the main chilled water coils in the ventilation unit rated for 350 gpm with a 7-1/2 HP motor.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	40	APR-12

**Event: Replace Chilled Water Distribution Piping (13465 m2 gfa)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$700,000	Unassigned

**Updated:** APR-12

**D3040.03.04 Glycol Systems\***

Steel glycol distribution piping is provided from the steam to glycol converters to the respective preheat and reheat coils on the ventilation units.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

**D3040.04.01 Fans: Exhaust\*\***

There are five dome type exhaust fans on the roof of the facility serving the east wing exhaust (10,600 cfm, 3 HP), the west wing exhaust (10,900 cfm, 3 HP), the north wing exhaust (5,300 cfm, 1 HP), Soiled Utility exhaust (1200 cfm, 1/4 HP), and the Mechanical Room exhaust (1180 cfm, 1/4 HP). Also on the roof is the TB exhaust fans 1 & 2. Exhaust fans for the old Nursing Stations and Kitchen are located in the Penthouse and are no longer used.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12

**Event: Replace 7 Roof Mounted Exhaust Fans**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$25,000	Unassigned

**Updated:** APR-12

**D3040.04.01 Fans: Exhaust\*\* - Fume Hoods**

There are three Biological Fume Hoods installed in Room 7429 in the 4th floor Tissue Centre. Each unit is a Microzone Model 3K-2-6 rated for 502 - 552 cfm airflow with 1/2 HP motors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2002	30	APR-12

**Event: Replace 3 Biological Fume Hoods**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$35,000	Unassigned

**Updated:** APR-12

**D3040.05 Heat Exchangers\*\* - 1973**

Three primary heat exchangers are located in the basement area Mechanical Room to serve steam to glycol for preheat and heating coils, and steam to hot water to serve the induction units in the heating season and the radiation and radiant panels.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12

**Event: Replace 3 Heating Converters**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$60,000	Unassigned

**Updated:** APR-12

**D3040.05 Heat Exchangers\*\* - 1998 and 2006**

Steam to glycol heat exchangers are provided for the heating coils in the TB Clinic and Tissue Centre ventilation units.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1998	30	APR-12

**Event: Replace 2 Heat Exchangers**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2028	\$10,000	Unassigned

**Updated:** APR-12

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

Finned tube radiation is provided in the washroom and storage areas of the facility.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1973	40	APR-12

**Event: Replace Wall-Fin Radiation (500 m2 gfa)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$10,000	Unassigned

**Updated:** APR-12

**D3050.05.04 Induction Units\*\***

For the majority of the facility, perimeter induction units are provided in each room. There are 282 units providing 60, 100, or 120 cfm of tempered outdoor air to the various rooms.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1973	30	APR-12

**Event: Clean 282 Induction Units**

**Concern:**

There have been complaints of lack of ventilation air in some locations of the facility.

**Recommendation:**

Induction unit induced air ports may be partially clogged due to dirt build-up over the years. Cleaning of the induced air ports is recommended.

**Consequences of Deferral:**

Complaints of lack of ventilation air will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Repair	2012	\$15,000	Low

**Updated:** APR-12

**Event: Replace 282 Perimeter Induction Units**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$565,000	Unassigned

**Updated:** APR-12

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

There are 5 horizontal hot water or steam unit heaters in the facility.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12

**Event: Replace 5 Unit Heaters**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$15,000	Unassigned

**Updated:** APR-12

**D3050.05.08 Radiant Heating (Ceiling & Floor)\*\***

Radiant ceiling heating panels are installed in the 2nd floor TB Clinic and the 4th Floor Tissue Centre.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2002	35	APR-12

**Event: Replace 110 Radiant Ceiling Panels**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2037	\$92,000	Unassigned

**Updated:** APR-12

**D3060.02.02 Pneumatic Controls\*\***

Pneumatic controls are used throughout for the 1973 main air supply system controllers, and the terminal room controllers throughout the facility with the exception to the TB Clinic and Tissue Centre.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	40	APR-12

**Event: Replace pneumatic controls (12000m2 gfa)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$80,000	Unassigned

**Updated:** APR-12

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

Digital controllers are provided for the Tissue Centre, TB Clinic and Renal Dialysis mechanical systems. Monitoring is also provided for some of the points on the original pneumatic system.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2002	20	APR-12

**Event: Replace Digital Controls (400 m2 gfa)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2022	\$18,000	Unassigned

**Updated:** APR-12

**D4010 Sprinklers: Fire Protection\***

The facility was fully sprinklered circa 1990. There is a main sprinkler valve, Darling 20 HP water pump, and a Commander Electric Fire Pump Controller located in the north area of the Basement in Room 9021.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1990	0	APR-12

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

Fire extinguishers are provided throughout the facility as required.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	0	0	APR-12

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

A single cylinder Halon 1301 system is provided in the north basement area to serve the Electrical Vault.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
1 - Critical	1990	40	APR-12

**Event: Replace the Halon 1301 System**

**Concern:**

Under the Montreal Protocol, Halon 1301 systems are to be phased out by 2010. This system cannot be refilled if used as Halon 1301 is not available.

**Recommendation:**

Replace system with an alternate fire protection system.

**Consequences of Deferral:**

Code non-compliance will persist for the Halon system.

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Code Repair	2012	\$15,000	Unassigned

**Updated:** APR-12

**S5 ELECTRICAL****D5010.01.01 Main Electrical Transformers (Facility Owned)\*\***

2 oil-filled, naturally aspirated, fin-cooled, outdoor service transformers, located on either side of the outdoor sub-station, northeast of the building. Each is rated 750 kVA, 13.8 kV - 120/208V, delta-wye connected. The first one was installed in 1973 with the sub-station, the other (on the north side of the sub-station) 4 years later, so as to provide the facility with two sources of power supply.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1973	0	APR-12

<u>Capacity Size</u>	<u>Capacity Unit</u>
750	kVA

**Event:** Replace Oil-filled Transformers (2 - 750 kVA, 13.8 kV - 120/208V)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2023	\$240,000	Unassigned

**Updated:** APR-12

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

Located in the Electrical Room, this floor mounted, dry type transformer, rated 225 kVA, 208V - 347/600V, 3 phase, 4 wire, is used to raise the voltage of a feeder to the parking lot at the corner of University Avenue and 114 Street.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
5 - Good	1991	40	APR-12

<u>Capacity Size</u>	<u>Capacity Unit</u>
225	kVA

**Event:** Replace Dry type Transformer (225 kVA, 208V - 600/347V)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2031	\$25,000	Unassigned

**Updated:** APR-12

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

The main switchboard is a double-ended sub-station type Service and Distribution Switchboard (by FPE), consisting entirely of industrial type air circuit breakers with mechanical over current relays. It is a free standing, front and rear access switchboard, rated 2000A, 120/208V, 3 phase, 4 wire, with 2 - 2000A main breakers, 2000A tie breaker and 8 - 600A distribution breakers.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1973	40	APR-12

<u>Capacity Size</u>	<u>Capacity Unit</u>
2000A, 120/208V	N/A

**Event:** Replace Main Switchboard - 2000A, 120/208V Double-Ended Substation (3 - 2000A, 8 - 600A ACB's)

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$300,000	Unassigned

**Updated:** APR-12



**D5010.05 Electrical Branch Circuit Panelboards (Main Distribution)\*\***

Coming off the transfer switch, this Distribution Panel board (by FPE) is for the emergency power supply, rated 1000A, 120/208V, 3 phase, 4 wire, with 3 pole distribution breakers 70A - 400A.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1991	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	1000A, 120/208V	N/A	

**Event: Replace Distribution Panelboard - 1000A, 120/208V**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$12,000	Unassigned

**Updated:** APR-12

**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 1973**

Branch circuit panel boards are surface or flush mounted panel boards (by FPE), 100A or 225A, 120/208V, 3 phase, 4 wire, 30 or 42 circuit (one with 72) capacity, single or double panels - some of them are reusing the tubs from the original construction. There are also panel boards installed in 1976 & 1982 by Westinghouse and Square D.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	Varies	N/A	

**Event: Replace Branch Circuit Panelboards (12)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$65,000	Unassigned

**Updated:** APR-12

**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 1991**

Branch circuit panel boards are surface or flush mounted panel boards, 100A or 225A, 120/208V, 3 phase, 4 wire by FPE with 30 and 42 circuit capacity, single and double panels. Included in this group is a distribution panel board by FPE, 400A, 120/208V, 3 phase, 4 wire, in 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	1991	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	Varies	N/A	

**Event: Replace Branch Circuit Panelboards (26) & Distribution Panelboard (1)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$127,000	Unassigned

**Updated:** APR-12

**D5010.05 Electrical Branch Circuit Panelboards (Secondary Distribution)\*\* - 2002**

Branch circuit panel boards for this period of construction include panel boards by Square D and Siemens, rated 225A, 120/208V, 3 phase, 4 wire, 42 circuit capacity, flush mounted in the corridors.

<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	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	Varies	N/A	

**Event: Replace Branch Circuit Panelboards (3)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$13,500	Unassigned

**Updated:** APR-12

**D5010.07 Motor Control Centers\*\* - 1973**

The motor control center is a free-standing sectionalized, custom designed Motor Control Center (MCC) manufactured by GCE with 5 sections consisting of combination magnetic starters and a control terminal section.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Motor Control Center (5 sections c/w 17 Starters & control Terminal Section)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$60,000	Unassigned

**Updated:** APR-12

**D5010.07 Motor Control Centers\*\*- 2002**

This motor control centre is a wall mounted MCC, 4-Plex by Siemens, with 4 combination magnetic starters for the control of the new supply and return air fans and the pumps.

<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	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace wall mounted Motor Control Center - 4-Plex**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$12,000	Unassigned

**Updated:** APR-12

**D5010.07.02 Motor Starters and Accessories\*\* - 1950**

There are magnetic starters by Canadian General Electric with overload protection for the control (via relays) of the circulating pumps and a supply fan.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Magnetic Starters (3)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$4,500	Unassigned

**Updated:** APR-12

**D5010.07.02 Motor Starters and Accessories\*\* - 1991**

Individual combination magnetic starters by Klockner Moeller, with overload relays, pilot lights and HOA switches, are used for the control of 3 phase motors. Manual starters with overload protection are used for single phase motors. The Allen Bradley combination magnetic starter was added a few years later but is included in this group.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1991	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Combination Magnetic Starters (7)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2021	\$17,500	Unassigned

**Updated:** APR-12

**D5010.07.02 Motor Starters and Accessories\*\* - 2002**

Magnetic Starters (by Telemecanique), with overload relays, pilot lights, and HOA switches are used. Manual starters are used for small single phase equipment.

<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	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Magnetic Starters (4) and Manual Starters (2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$7,000	Unassigned

**Updated:** APR-12

**D5010.07.03 Variable Frequency Drives\*\***

Variable Frequency Drives for the Supply and Return Fan motors are Hitachi J300 controllers using IGBT Inverter technology.

<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	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Variable Frequency Drives (2)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2032	\$20,000	Unassigned

**Updated:** APR-12

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

Wiring is cables in conduits throughout the facility, concealed in finished areas and surface mounted in utility areas. Conductors are copper.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

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

The interior lighting system is controlled locally using line voltage switches.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5020.02.02.01 Interior Incandescent Fixtures\* - 1950**

Recessed incandescent lights at the entrances and alcoves are from the original construction. Other original fixtures include the pendant lights with wire guards in the Auditorium and porcelain lamp holders in the crawl spaces.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5020.02.02.01 Interior Incandescent Fixtures\* - 1991**

Recessed pot lights with PAR lamps in the corridors are used as emergency lights.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1991	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5020.02.02.02 Interior Fluorescent Fixtures\*\* - 1973**

The fluorescent fixtures that remain from this period are the magnetic ballasts and T12 type, surface mounted and industrial strip lights in the work shops and utility rooms, and surface mounted fixtures with acrylic lenses in the basement corridors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Fluorescent Fixtures (200)**

**Concern:**

The existing fluorescent lighting system is inefficient. Parts are no longer available and these fixtures will have to be replaced within the next few years.

**Recommendation:**

Replace with the energy efficient type of electronic ballasts and T8 lamps.

**Consequences of Deferral:**

Cost and maintenance inefficiencies will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$50,000	Unassigned

**Updated:** APR-12

**D5020.02.02.02 Interior Fluorescent Fixtures\*\* - 1991**

The fluorescent fixtures in this period of renovation are the standard magnetic ballasts and T12 lamps, mostly surface mounted fixtures with wrap-around acrylic lenses and some strip lights.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1991	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace With the Energy Efficiency type (300)**

**Concern:**

The existing fluorescent lighting system is inefficient. Parts are no longer available and these fixtures will have to be replaced within the next few years.

**Recommendation:**

Replace with the energy efficient type of electronic ballasts and T8 lamps.

**Consequences of Deferral:**

Cost and maintenance inefficiencies will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$75,000	Unassigned

**Updated:** APR-12

**D5020.02.02.02 Interior Fluorescent Fixtures\*\* - 1998**

The fluorescent fixtures in this tenant improvement are still the standard magnetic ballasts and T12 lamps and include recessed 1 X 4 and 2 X 4 fixtures with framed, hinged acrylic lenses in the offices and surface mounted fixtures with wrap-around acrylic lenses.

<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	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace With the Energy Efficient Type (800)**

**Concern:**

The existing fluorescent lighting system is inefficient. Parts are no longer available and these fixtures will have to be replaced within the next few years.

**Recommendation:**

Replace with fixtures of electronic ballasts and T8 lamps.

**Consequences of Deferral:**

Cost and maintenance inefficiencies will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$240,000	Unassigned

**Updated:** APR-12

**D5020.02.02.02 Interior Fluorescent Fixtures\*\* - 2002**

The fluorescent fixtures in the Renal Dialysis and TB Clinics (and some minor renovations in subsequent years) are the recessed 1 X 4 and 2 X 4 with framed acrylic lenses and wall mounts with wrap-around lenses.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2002	30	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace with the Energy Efficient Type (400)**

**Concern:**

The existing lighting system is inefficient. Parts are no longer available and these fixtures will have to be replaced within the next few years.

**Recommendation:**

Replace with energy efficient type of electronic ballasts and T8 lamps.

**Consequences of Deferral:**

Cost and maintenance inefficiencies will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$120,000	Unassigned

**Updated:** APR-12

**D5020.02.03.02 Emergency Lighting Battery Packs\*\***

Emergency lighting battery packs are used in the electrical and mechanical rooms and in some corridors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1991	20	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Replace Emergency Lighting Battery Packs (6)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2015	\$3,000	Unassigned

**Updated:** APR-12

**D5020.02.03.03 Exit Signs\***

Exit signs are internally illuminated exit lights with metallic housing and recently replaced LED lamps.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1973	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5020.03.01.01 Exterior Incandescent Fixtures\***

Recessed incandescent fixtures with glass lenses are located at entrances and exit locations under the canopies.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1950	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5020.03.01.04 Exterior H.P. Sodium Fixtures\***

There are high pressure sodium lighting standards with medium high poles in the parking lot south of the building.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
6 - Excellent	2006	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5020.03.02 Lighting Accessories: Exterior (Lighting Controls)\***

The exterior incandescent lights at the entrances are locally switched from the original construction. The parking lot lights are photoelectric cell controlled.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1991	0	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**D5030.01 Detection and Fire Alarm\*\***

The integrated Fire Alarm and Emergency Visual and Audio Communication (EVAC) system by Siemens is a microprocessor based, hard wired, two-stage multiplex system.

Originally designed as a system for a health care facility the system has been modified and adapted for the current occupancy of the facility. Detection devices include manual stations, heat and smoke detectors and duct smoke detectors. Signaling devices are vibrating bells located throughout the building. The control panel is located at the main level entrance and a separate annunciator, with colour coded graphic, is located at the first level at the parking lot entrance.

The EVAC system includes a firemen's communication system of zoned and all page announcements originating from the main panel and Fire Command Centre, with a colour coded graphic, at the main entrance, and firemen's handsets at the previous nurses' stations and elevator lobbies.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1991	25	APR-12

<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>
N/A	N/A

**Event: Replace Fire Alarm System (Control Panel and Field Devices)**

**Recommendation:**

Redesign to suit occupancy (without EVAC).

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2016	\$45,000	Unassigned

**Updated:** APR-12

**D5030.04.01 Telephone Systems\***

The telephone system is the AHS' Centrax system. Telephone sets are by Nortel.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2002	0	APR-12

<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>
N/A	N/A

**D5030.04.05 Local Area Network Systems\***

A local area network provides the data distribution within the Centre. Switching and server equipment, backed up by a 1500W UPS, is located on Level 1. Category 6 cables are used for horizontal distribution.

Additionally, a Wi-Fi distribution is provided along the corridors on the upper floors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	2006	0	APR-12

<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>
N/A	N/A



**D5030.05 Public Address and Music Systems\*\***

The original public address system amplifiers by Citipage are located in the Penthouse Mechanical Room. The system has fallen into disuse.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1994	20	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	N/A	N/A	

**Event: Remove Public Address Systems (Headend Equipment only)**

**Concern:**

The system is no longer in use and should be decommissioned and removed.

**Recommendation:**

Ceiling loudspeakers may be left alone for later use.

**Consequences of Deferral:**

Removal will simplify future maintenance works.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Preventative Maintenance	2015	\$1,000	Unassigned

**Updated:** APR-12

**D5090.02 Packaged Engine Generator Systems (Emergency Power System)\*\***

The emergency generator is a natural gas fuelled, radiator cooled engine generator, rated 200 kW (250 kVA), 120/208V, 3 phase 4 wire. The automatic transfer switch is an ASCO Automatic Transfer Switch with bypass facilities, rated 800A, 250V, 3 pole, solid neutral, located in the Sub Electrical Room in the basement, across from the Emergency CDP. Emergency power is provided to portions of the lighting system and to essential services including the elevator, heating, fire and safety communication systems and previous patient care receptacles.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
5 - Good	1991	35	APR-12
	<b><u>Capacity Size</u></b>	<b><u>Capacity Unit</u></b>	
	200	kW	

**Event: Replace 200 kW Generator and Transfer Switch**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2026	\$150,000	Unassigned

**Updated:** APR-12

**S6 EQUIPMENT, FURNISHINGS AND SPECIAL CONSTRUCTION****E1020.08 Medical Equipment\***

There is a laboratory and X-ray department with chest X-ray unit in the TB Clinic operated by a combined lab/X-ray technician. Blood samples are collected here and taken off site for analysis.  
The medication room in this department has a medication storage cooler.

The Renal Dialysis is equipped with 11 dialysis stations. Each station is enclosed by ceiling hung privacy curtains and equipped with dialyzing machines and plastic upholstered recliner chairs.

The Comprehensive Tissue Centre is equipped with sterile clean rooms with HEPA filter ceilings and stainless steel pass through cabinets to transfer tissues to the adjacent collection areas.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	0	APR-12

**E1090.03 Food Service Equipment\***

There are staff kitchens on each floor equipped with laminate counters with wood cupboards above and below, microwave ovens, stainless steel sinks and residential fridges. The kitchen in the day care area also has a range for hot meal preparation.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1973	0	APR-12

**E2010.02 Fixed Casework\*\* - Original building**

There is fixed case work throughout the facility including the Tuberculosis Clinic and kitchens with laminate counters and wood cupboards above and below.

<u>Rating</u>	<u>Installed</u>	<u>Design Life</u>	<u>Updated</u>
4 - Acceptable	1952	35	APR-12

**Event: Replace fixed casework (90000m2gfa)**

<u>Type</u>	<u>Year</u>	<u>Cost</u>	<u>Priority</u>
Lifecycle Replacement	2015	\$750,000	Unassigned

**Updated:** APR-12

**E2010.02 Fixed Casework\*\* - Renovated areas**

There is fixed case work in the renovated areas including Day Care, Renal Dialysis Unit and CTC 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	35	APR-12

**Event: Replace fixed casework (4000m2gfa)**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2033	\$350,000	Unassigned

**Updated:** APR-12

**E2010.03.01 Blinds\*\***

There are vertical vinyl blinds in offices throughout the facility and roller blinds in the Renal Dialysis unit.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1998	20	APR-12

**Event: Replace 1500m2 vertical blinds**

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Lifecycle Replacement	2018	\$150,000	Unassigned

**Updated:** APR-12

**E2010.03.06 Curtains and Drapes\*\***

There are drapes covering windows in the auditorium.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1990	30	APR-12

**Event: Replace 50m2 drapes**

**Concern:**

There drapes are worn and require replacement.

**Recommendation:**

Replace worn drapes.

**Consequences of Deferral:**

Drapes will deteriorate further.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Failure Replacement	2012	\$5,000	Low

**Updated:** APR-12

**S8 SPECIAL ASSESSMENT****K4010.01 Barrier Free Route: Parking to Entrance\***

There is barrier free access from the parking lot on the south side of the building with a curb cut in the concrete sidewalk.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2005	0	APR-12

**K4010.02 Barrier Free Entrances\***

Entrances on the north and south sides have automatic door openers with push plates.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

**K4010.03 Barrier Free Interior Circulation\***

The duplex elevators ensure barrier free circulation throughout 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	1952	0	APR-12

**K4010.04 Barrier Free Washrooms\***

There are barrier free wash rooms with extra large toilet cubicles and stainless steel grab bars on all floors.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1973	0	APR-12

**K4030.01 Asbestos\***

A February 2011 consultant report identified asbestos in pipe insulation in the basement.

See K4030.09 Other Hazardous Materials where a hazardous materials survey is recommended including a management plan for asbestos containing materials.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	0	APR-12

**Event: Remove and replace 6m of pipe insulation**

**Concern:**

A February 2011 consultant report identified asbestos in pipe insulation in the basement.

**Recommendation:**

Remove asbestos containing pipe insulation and replace with asbestos free insulation.

**Consequences of Deferral:**

Asbestos contamination potential will persist.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Hazardous Materials Abatement	2012	\$5,000	Medium

**Updated:** APR-12

**K4030.02 PCBs\***

The T-12 lamps have magnetic ballasts which contain CFCs. It is recommended that facility staff monitor the magnetic ballasts for leaking CFCs which will have to be removed under controlled conditions and disposed of appropriately in accordance with federal and provincial regulations.

See K4030.09 Other Hazardous Materials where a hazardous materials survey is recommended including a management plan for CFCs.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	0	APR-12

**K4030.04 Mould\***

There was no mould reported or observed during the building audit.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	1952	0	APR-12

**K4030.09 Other Hazardous Materials\***

A February 2011 consultant report identified asbestos in pipe insulation in the basement.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
3 - Marginal	1952	0	APR-12

**Event: Hazardous material survey**

**Concern:**

There is no comprehensive hazardous materials survey for this facility.

**Recommendation:**

It is recommended that a consultant be retained by Alberta Health Services to carry out a comprehensive hazardous material survey including identifying locations and types of asbestos containing materials in the facility, locations of PCBs and CfCs as well as radio active materials contained in smoke detectors.

It is also recommended that the consultant develop a management plan including staff training in the handling, disposal or encapsulation of the hazardous materials identified.

<b><u>Type</u></b>	<b><u>Year</u></b>	<b><u>Cost</u></b>	<b><u>Priority</u></b>
Hazardous Material Management Upgrade	2012	\$10,000	Medium

**Updated:** APR-12

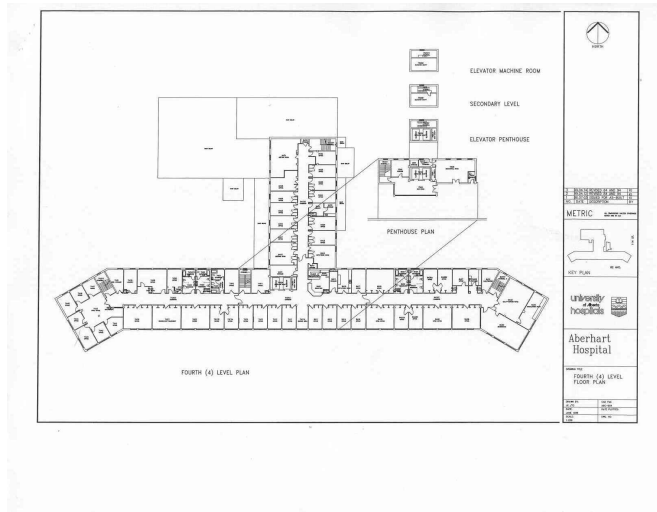
**K5010.02 Building Documentation\***

The 13645m2 Aberhart Centre is a four storey building with roof top recreational space. There is also a single storey structure on the east side with concrete roof with built up membrane and brick walls exterior with a back wall of concrete blocks. The the emergency generator and main switch gear is located in this building.

The facility was constructed in 1952 as a tuberculosis sanitarium with inpatient units. It now houses a range of programs including tuberculosis clinic, renal dialysis, tissue procurement and exchange as well as offices for the University of Alberta Hospital capital development group. In 1973 and 1998 there were major renovation projects.

This building audit was conducted by Robert Irlam Consulting Inc. on August 26, 2011.

<b><u>Rating</u></b>	<b><u>Installed</u></b>	<b><u>Design Life</u></b>	<b><u>Updated</u></b>
4 - Acceptable	2011	0	APR-12



6 Aberhart Centre Fourth Floor Plan.jpg