

PWGSC/TPSGC

Building Condition Report

Centre Block Ottawa P400232H



Construction Year : 1920

Gross Area (square meters) : 50,458 Square Metre

Details

Region
Province
Replacement Cost New
Construction Year (YYYY)
Gross Area (square meters)
Useable Area (square metres)
Asset Name
Date of current BCR

Values

National Capital
Ontario
165,275,894
1920
50457,8
20238
Parliamentary Buildings
12-11-06

BCR Project Team and Documents

Cleland Jardine Engineering Limited was retained by Public Works and Government Services Canada (PWGSC) to produce a Building Condition Report of the Centre Block of Parliament Hill. The study includes the Peace Tower and CBUS. The Library of Parliament was not included within this study. The Centre Block itself is divided into the House of Commons side (primarily the west half of the building) and the Senate side (on the east side of the building). Exterior components are not included within the study, rather in a separate study for the "Parliament Grounds". Such components include, but are not limited to, soft landscaping, sidewalks, paving, etc. The tunnels leading to the Centre Block are included within the study, however not all tunnels were accessible during the site review.

A major renovation project is anticipated to commence in 10 years for the Centre Block, including the Peace Tower. As such, the study's mandate is to maintain the building operation for the next 10 years for Centre Block and its Peace Tower. CBUS's term remains at 30-years.

The scope of work of this report includes site visits by Cleland Jardine Engineering Limited and its sub-consultants to visually review a selective sampling of all components of the facility including building structure, building envelope, interiors, mechanical, electrical, vertical transportation and fire & life safety. Using the PWGSC AVS tool Version 2.0, all components present within the facility are included in the report, with descriptions of current condition evaluations. Events are detailed with Class D estimates of costs, for any repairs/replacements of components over the 10-year and 30-year terms discussed above. Typically event costs less than \$5,000 or tasks done by staff as ongoing maintenance are not considered events. Digital photographs of the facility, typical components, and component deficiencies have been incorporated as part of the database files.

BCR TEAM:

The following firms participated in the preparation of this BCR:

- Building Envelop, Structural, Property, Interiors: Cleland Jardine Engineering Limited, 200-580 Terry Fox Drive, Ottawa, Ontario K2L 4B9 Tel: (613) 591-1533 Fax: (613) 591-1703 - Andre Marcoux and Bara Al-Obaidy
- Mechanical: Cima+, 110-240 Catherine Street, Ottawa, Ontario K2P 2G8 Tel: (613) 860-2462 Fax: (613) 860-1870 - John Elliott and Chris Modrak
- Electrical: Cima+, 110-240 Catherine Street, Ottawa, Ontario K2P 2G8 Tel: (613) 860-2462 Fax: (613) 860-1870 - Chris Fox and Peter Michalski
- Vertical Transportation: Rooney, Irving & Associates Limited, 101-340 MacLaren Street, Ottawa, Ontario K2P 0M6 Tel: (613) 726-2049 - Nenad Barba

LIMITATIONS IN LIABILITY:

Unless specifically noted in this report, no testing, detailed analysis, or design calculations were completed, nor were they within the scope of this review. Any comments or conclusions within this report represent the opinion of Cleland Jardine Engineering Limited and sub-consultants, and this opinion is based upon the documents provided, the field review of apparent physical conditions, specifically identified testing, and our experience. The findings herein are based on random sampling and not of a complete detailed review. Deficiencies existing but not recorded in this report were not apparent given the level of study undertaken. Components not included have not been reviewed, and further study will be required if their conditions need to be known.

Cleland Jardine Engineering Limited prepared this report for the account of PWGSC. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. No portion of this report may be used as a separate entity; it is to be read in its entirety.

The estimated life expectancy and remaining life of the various building components and systems noted throughout this report is based on a combination of AVS generated data and of accepted standards and previous experience within the industry. Numerous factors can significantly affect a system's effective service life of which proper maintenance is of primary importance. The projected replacement schedule should be viewed as a guide and the final decision to replace a building system or major component should rest solely on the assessed condition at that time.

This report addresses compliance in generality with regulations, building codes, fire codes, or safety codes. Based on information identified or provided and does not constitute a detailed code study.

Cleland Jardine Engineering Limited is not obligated to identify mistakes or insufficiencies in the information obtained from reports provided by PWGSC or to verify the accuracy of this information.

TERMINOLOGY:

Class D Estimate:

The estimated costs provided for each event are Class 'D' Estimates. A Class 'D' estimate (used by PWGSC in construction costing and building projects) provides an indication of the total cost of the project, based on the user's functional requirements to the degree known at the time. It is based on both current cost data provided by PWGSC within the AVS tool, cost data from additional sources i.e, RS Means and historical cost data for similar work, suitably adjusted for such factors as: effect of inflation, location, risk, quality, size and time. All related factors affecting cost are considered to the extent possible. Such an estimate is strictly an indication (rough order of magnitude) of the projects total cost, with an expected degree of accuracy of +/-25%. The estimated costs included within the report are in year 2012 dollars, and include the following: a General Contingency Fee of (15%), and Soft Costs related to Consultant and PWGSC fees (30%).

Event Classifications:

Events in this BCR have been classified either Capital or Repair in accordance with the definitions provided by PWGSC in Appendix II of the Capital Asset Planning System AVS Guide dated September 2005.

Sub-Classifications of Events:

Event sub-classes in this BCR have been assigned in accordance with the definitions provided by PWGSC in Appendix II of the Capital Asset Planning System AVS Guide.

Component Condition Ratings:

Component condition ratings in this BCR have been assigned using the guidelines provided on page 12 "Assessment Criteria Levels" section of the PWGSC Capital Asset Planning System AVS Guide.

Character Defining Element:

The materials, forms, locations, spacial configurations, uses, and cultural associations or meanings that contribute to the heritage value of a historic place, which must be retained in order to maintain its heritage value.

Heritage Value:

The aesthetic, historic, scientific, cultural, social or spiritual importance or significance for past, present, or future generations. The heritage value of a historic place is embodied in its character defining materials, forms, location, spatial configurations, uses and cultural associations or meanings.

Historic Place:

A structure, building, group of buildings, district, landscape, archaeological site or other place in Canada that has been formally recognized for its heritage value.

DOCUMENTATION:

The following documentation and drawings were provided by PWGSC, and reviewed as part of the process of preparing the 2012 BCR update:

- Accessibility Report, prepared by PWGSC, dated January 21, 2008
- Accessibility Program, PWGSC 2005-2009, by Architecture and Interior Design Unit, Real Property Branch, PWGSC, dated 2008.
- Asbestos Tracking Floor Plan, prepared by PWGSC, dated May 2008
- Base Building, by M. Malouin, dated September 1996
- BCR Terms of Reference - 'one pager' on Heritage Conservation, by PWGSC - HCD, dated June 2012
- Building Condition Report Centre Block of Parliament, by ZENIX Engineering Ltd., dated October 2001
- Building Envelope Screening, by PWGSC, March 2006/2008/2009/ 2010/ 2011/ 2012
- Building Envelope Screening Level 2, Centre Block, 2011-2012", by PWGSC, dated 2012
- Building Management Plan, prepared by PWGSC Property Manager, dated 2010-2011
- Electrical As-Found- Center Block, by S. Ayer, dated January 1996
- Elevator Inspection Certificates, prepared by Technical Standards and Safety Authority
- Energy Audit Report, prepared by Jacques Whitford, dated August 22, 2006
- Environmental Site Assessment, prepared by Viridis Environmental, dated March 2000
- Environmental Report Card", prepared by PWGSC, dated October 2010
- Fire Life Safety Compliance Report, prepared by HRSDC Fire Protection Service Inspector, dated January 9th, 2012
- Fire Protection Plan, prepared by PWGSC, dated March 2012
- HVAC Balancing Reports, prepared by Brassard Adjustments & Calibration, dated July 5, 2011
- Hydrothermal Monitoring of the South-West Tower, East Block, Parliament Hill, by NRC, dated March 2011.
- Indoor Air Quality Survey, prepared by Paracel Laboratories, dated October 2007
- Location of Building Emergency Contingency Plan, dated February 2012
- Multiple Building Utilities Report, dated 2009-2010, 2010-2011, 2011-2012
- Murals Environmental Monitoring 2010/2011 407-S, Centre Block, by PWGSC, dated March 2011
- Peace Tower Monitoring, Centre Block, 2011-2012", by PWGSC, dated March 2012
- Phase I: Environmental Site Assessment, by Viridis Environmental and Oakhill Environmental, dated March 2000.
- Portable Water Quality Assessment, prepared by Genivar, dated 2011-2012
- Pressure Vessel Certificates, prepared by The Boiler Inspection & Insurance Company of Canada, dated 2011-2012.
- Recapitalization Interim Monitoring, Centre Block, 2008-2009", by PWGSC, dated March 2009 and Feb 2012.
- Roof Anchor Inspections, prepared by Galipeau Group, dated September 2, 2012
- Roof Anchor Inspections- Centre Block & East Block, by Don Graham, Kevin Lampkin, Dan Galipeau, dated February 2012.
- Seismic Screening Form, dated October 23, 2001
- Standards and Guideline for the Conservation of Historic Places in Canada, by Canada's Historic Places, Second Edition.
- Treasury Board Fire Protection Compliance Monitoring Inspection", by PWGSC, dated January 2012

DRAWINGS:

-
- Base Building Plans from A-1 to A-9, by PWGSC, dated February 1997.
 - Chimney Plans and Typical Reinf. Details", by UMA Engineering Ltd., dated May 1995
 - Electrical As-Found, CBAF-1-6 & CBAF-B
 - Electrical Drawings from AF1-AF6, by PWGSC, dated January 1996
 - EM1-EM5, by CLEMANN Large Patterson Consulting Engineers., dated January 1995
 - Identification & Mapping of Mechanical Systems-Centre Block", by J.L. Richards & Associates Limited, dated 1998.
 - Mechanical Plans from MC-C-1 to MC-C-9, MC-D-1 to MC-D-5, MC-H-1 to MC-H-14, MC-L-1, MC-P-1 to MC-P-22, MC-S-1 to MS-C-9, MC-V-1 to MC-V-19, by J.L. Richards & Associates Limited, dated March 1998
 - Structural Drawings, by Original (not labelled)
 - STR1 to STR3, by Uma Engineering Ltd., dated May 1992.
 - Tower A and B, 6th Floor Diaphragm Anchorage", by UMA Engineering Ltd., dated May 1995
 - Tower A and B, 6th Floor & Wall Anchorage Details", by UMA Engineering Ltd., dated May 1995

Building History

Heritage Summary

Centre Block Underground Services (CBUS) reached completion in August 1998. It is a two-storey structure located underground and northwest of Centre Block. This building consolidated storage facilities, provided new workshops for maintenance of the Centre Block, created garbage holding areas for recyclable items, improved electrical capabilities, and provided a new space for electrical switch gears, transformer, and emergency power generators.

Most of the Centre Block, Peace Tower, and CBUS were accessible as part of the visual review. The following areas were not accessible: the computer centre in CBUS, the tunnel connecting West Block to Centre Block (currently under construction), the west service tunnel (referred to as the steam service tunnel), and the Prime Minister's wing (located at the southwest corner of Centre Block, at the second and third floors).

Building Description:

The Centre Block is a six storey government building constructed in the Gothic Revival Style but using Beaux-Arts planning principles. It was constructed between 1916 and 1927 to the designs of John A. Pearson, architect and JO Marchand, Associate Architect. It replaced the original structure built on this site as part of the original Parliament Building and which had been destroyed by fire in 1916. The Centre Block itself was completed by 1922, and the Peace Tower by 1927.

-the buildings footprint is essentially rectangular in design with exterior elevations that reflect its symmetrical bi-axial plan. The front elevation has mansard-roof end pavilions and a central tower.

-The Centre Block is built in the materials of the earlier building. Exterior walls are built of rough- faced Nepean sandstone blocks laid in random courses with smooth-faced quoins. The window and door surrounds, string courses, main cornice and other decorative details are in a buff- coloured Ohio sandstone, some of which was salvaged from the original building, re-cut and reused. Small isolated amounts of Wallace sandstone are also present on the facades.

-The construction of the exterior masonry walls reflects the changing technology of the time; steel framing was incorporated within the traditional massive masonry exterior wall. The masonry is comprised of an exterior face of stone solidly backed by brickwork and an interior hollow terra- cotta tile, which is plastered. The exterior walls are load bearing with steel beams bearing on the brick core of the wall.

-The roof construction includes steel frames, which bear on the masonry walls and support a steel decking covered by a thin lightweight concrete slab, referred to as Flex-o-crete. The roofing is copper sheet applied directly over a weatherproofing compound known as "Rubberoid" with no separation sheet. The rubberoid was applied to protect the flex-o-crete after its placement during the winter months and before the copper could be installed. The roofs are capped with elaborate copper cresting. Some projecting areas clad with lead; the flat roof is a membrane system covered with insulated pavers as ballast.

- The three types of windows on the façade of the building consist of rolled steel casements, bronze clad wood 'Kalamein' units and leaded glass tracery units. Many repair and retrofit projects have taken place over the years resulting in the addition of metal and wood storm windows and the replacement of many original windows with aluminum framed windows.

-Exterior doors are typically of solid wood or solid core wood, with or without glazing. There are also bronze doors with glazing.

-The Peace Tower rises 92 m above the House of Commons. It sits on a concrete foundation and is built of poured in place concrete faced with Nepean sandstone, with reinforcing steel at the lintels and roof. The walls vary from 2 m thick at the base to 0.6 to 0.9m below the observation deck level and the tower is reinforced by corner buttresses. An inclined elevator and internal stairwell provide access to the various levels and service rooms within the tower. The tower is capped by a copper roof surmounted by a large bronze flagpole.

Heritage Value & Character Defining Elements:

The Centre Block was designated Classified because of its exceptional significance as a national landmark. It has come to symbolize Canada's nationhood, not only because of its historical associations as the site since 1922 of both the House of Commons and the Senate, but also because of the ceremonial and iconographic design and detailing of the building itself.

Key elements that define the heritage value of the site include:

- its conception as a symbol of Canada;
- the whole of its exterior, centered on the Peace Tower;
- its many public interiors and its ceremonial circulation spaces, which are inextricably entwined with its symbolic and practical functions as the seat of government, and thus embody its heritage character;
- its function as an example of the design methodology of the École des Beaux Arts applied to a Gothic design vocabulary;
- its clear functional layout reinforced by a carefully considered hierarchy of space;
- the Gothic ornament of the building, which does not aspire to a 19th century picturesqueness, and which is carefully worked out to reinforce the clear reading of the building and its hierarchy of space;
- the on-going carving program in the building, which has become a small part of its heritage character (the original design of the building made ample provision for continuing decoration, which has generally taken the form of commemorative devices).

Building Chronology: Construction, Alterations, Repairs and Reports

The following list of construction related events is provided as complimentary information. It is based on a range of reports that document the building's history and projects:

- 1916 fire in the original Centre Block
- 1916-1922 construction of the Centre Block
- 1919-1927 construction of the Peace Tower
- 1920s -1930s installation of storm windows
- 1952-19553 replacement of original metal windows with aluminum windows
- 1933, 1952 and 1974 repointing of stone in various locations. In addition, there is evidence on site of various small masonry repairs for which no records have been found.
- 1952 roof repairs
- 1956 replacement of leaded glass on east and west of Senate Chamber
- 1956 removal of some finials
- 1964-1966 replacement of windows with new aluminum double hung and replacement of leaded glass at House of Commons Chamber
- 1980-1981 work in Peace Tower including installation of new elevator, an enclosed fire- escape stairwell, and upgrades to observation deck.
- 1984 extensive reworking of some copper roofs, including. adding heating cables

- 1985-87 replacement of roofing on flat roofs
- 1994 urgent stabilization of rooftop elements (chimneys, towers and turrets).
- 1997-1998 CBUS, extension to the basement of the Centre Bloc
- 1994-1996 Peace Tower Conservation: repointing all of the mortar joints, as well as stone cleaning, repairing, and replacement; installation of new observation deck windows; replacement of the green copper roof and repair of deteriorated concrete underneath it. Limited seismic work; rehabilitation of the Peace Tower elevator
- 1995-1997 South Facade Conservation: conservation of masonry, original windows and doors; replacement of the 1970's "thermo-pane" windows with more appropriate steel- framed windows; replacement of the copper roof; and some limited seismic strengthening.
- 1996 East and West Water Towers stabilized. The steel water tank in the west tower was emptied but retained as a heritage artifact.
- 1996 Aboriginal Peoples Committee Room built
- 2000 a 100-metre tunnel from the Centre Block to the East Block was completed.
- 2001 foundation at the southeast corner (from the 1866 Parliament Building) was repaired to eliminate water penetration problems. Basement floor space was converted it into offices for Senate Security and support services.
- 2001 conservation of the stained glass windows of the Memorial Chamber.
- 2002-2006 rehabilitation of the directly connected Library of Parliament
- 2011 stabilization of ventilation towers, east and west pavilions projects, and various short term repairs under RECAP program.

PREVIOUS PROJECTS:

The following is a list of key projects that took place in Centre Block, the Peace Tower, and CBUS:

- Building envelope, interior renovations, flat roof restoration took place around 1975.
- Stairwells were added in the courtyards for additional means of egress from the 6th floor to the second floor circa 1990
- The former post office entrance was connected to a security post and welcome centre to create a new entrance for the general public circa 1995.
- A new unisex bathroom was added on both the basement and first floor levels circa 1995.
- One of each of the existing men's and women's washrooms on the each of the second to the sixth floor levels has been modified, circa 1995.
- The original stairs have been furnished with at minimum one handrail that complies with current CSA standards for barrier-free design (assumed to be in 1992).
- Re-pointing of exterior masonry to deter moisture penetration and to secure buildings stones and cleaning of the Peace Tower was completed in 1997.
- In 1998, the south façade was restored, including window upgrades, new copper roofing, and masonry repairs due to falling mortar and stone.
- 1998 also marks the completion of the construction of CBUS.
- In 1999, a new tunnel was also added connecting the East Block to the Centre Block. The previous tunnel is no longer in use due to its accessibility limitations.

The Centre Block's south wall and the Peace Tower are referred to as the "Conserved Areas" of the Building. The remainder, including the courtyards, is referred to as the "Un-Conserved Area". The Un-Conserved Area does not include the stairwells added in 1990 within the Courtyard spaces.

CURRENT PROJECTS:

There are no current major projects within the Centre Block. The West Block is currently being renovated and its tunnel, providing underground access to the Centre Block, is being restored and was therefore not included within our scope. It is our understanding that the north towers will be undergoing a stabilization project. We were not informed of the exact scope.

BCR Executive Summary

COSTS

The total costs within the study is over \$16M and is divided as follows:

- \$6.5M is scheduled within the next 5 years
- \$1.1M is scheduled within the 6 to 10 year period
- \$8.6M is scheduled within years 10 to 30

A breakdown of the costs by building system is included within the system's conditions in the sections labeled "Overview Architectural & Structural Condition", "Overview of Vertical & Horizontal Transportation", "Overview of Mechanical Systems Condition", and "Overview of Electrical Systems Condition".

STRUCTURAL AND ARCHITECTURAL:

The building consists of a conventionally reinforced cast-in-place concrete foundation. The super structure is a steel frame. Terracotta inlay, with a concrete topping, forms most of the suspended slabs within Centre Block. Exterior masonry is load bearing. Stairwells in the courtyards were added in 1990 and have a concrete back-up wall.

The walls are clad in sandstone. Masonry cladding is located in some of the courtyard areas. The south elevation (the front facade of Centre Block) was restored in 1996. This includes the Peace Tower. The remainder of the building is referred to as the un-conserved area. The cladding system is un-insulated and does not include an air cavity. The building has original steel windows as well as bronze and aluminum replacement windows. There are wood doors (some with glazing) and bronze/wrought iron detailing. The sloped roof is clad in copper with some projecting areas reportedly clad with lead; the flat roof is a membrane system covered with insulated pavers as ballast.

There are several different types of windows in the building:

- The original windows are single-glazed leaded glass in steel frames, or single glazed casement windows in steel frames.
- Some of the windows have been replaced with single glazed aluminum framed single-hung vertical sliders.
- Some of the windows have been replaced with two sashes of aluminum framed glazing, an inner sash of single glazed casement and an outer casement sash.
- Some of the windows have been retrofitted with two sashes of glazing, an inner sash of double-glazed vertical wood sliders and an outer aluminum casement sash.
- Several plastic double-domed skylights are located on the flat roof areas on the north side of the building.
- Two large skylight systems are located in the east well and on the main roof at the west end of the building.
- The large skylight in the central well has been recently replaced with a pressure equalized system, with double-glazed thermally sealed glass units and thermally broken frames and mullions.
- Stained glass windows are present throughout the building.

The flat roofs are comprised of inverted roof membrane assemblies. The waterproofing membrane and flashing are comprised of a two-ply modified bitumen membrane system, torch applied to the concrete deck. The insulation consists of polystyrene, type 4, laminated to a 13mm layer of concrete topping. The concrete insulation is ballasted with precast concrete pavers, typically located around the perimeter of each roof. One small roof in the central "well" area has been recently replaced with standard type 4 polystyrene and ballasted with river washed stone. All flat roof areas have a satisfactory slope to the centrally located mechanical roof drains. The sloped roofing is comprised of sheet copper with batten ribs. The system is allowed to expand and contract by means of slip-locked and inter-connected seams. All valleys, ridges and architectural decorative detailing are completed with fully soldered seams. Various eaves include heat-tracing

cables.

Most of the interior finishes form part of the character defining elements. This is especially the case in most of the corner offices (within the tower structures), the Chambers, the Speakers' suites and offices, corridors from the first to the sixth floors, open stairwells, and specialty rooms. Materials used include: sandstone, limestone, marble, copper, bronze, specialty imported stones, and imported woods. The two latter are typically elaborately carved.

CONVEYOR SYSTEM

The vertical transportation equipment consists of four gearless passenger elevators and one hydraulic passenger elevator (CBUS Elevator) in the House of Commons side, three gearless passenger elevators and one hydraulic passenger elevator (East Block Tunnel Shuttle) in the Senate side, one freight elevator located in the Library, one vertical platform lift serving the member's dining area on the sixth floor, and one geared passenger elevator located in the Peace Tower. Using the Centre Block's current elevator numbering system, elevator numbers 2, 4, 6 and 7 were installed circa 1953 - 1954. Elevator numbers 8 and 9 were installed in 1963 while the installation of elevator number 10 (House of Commons service elevator) was completed in 1969. Observation Elevator number 3 was completely modernized circa 1994. All of the installation and modernization work was carried out by Otis Canada.

Elevator 11 (CBUS elevator) and Elevator 5 (East Block Tunnel Shuttle) are both hydraulic passenger elevators. Elevator 11 is considered a direct acting inground hydraulic elevator while Elevator 11 is a twin-post holeless hydraulic elevator.

The West Block tunnel shuttle is a direct acting inground hydraulic elevator. It is currently in the process of being completely modernized including replacement of controller, pumping unit, inground cylinder and operating fixtures.

MECHANICAL SYSTEM

Centre Block is served by cooling and heating media delivered from Cliff Plant Central Heating Plant (CHP). High Pressure steam and Chilled Water enters the Central Block in the mechanical room (basement level).

High pressure steam is reduced to low pressure and used to heat water for heating media. Conversion is performed via tube and shell heat exchangers.

Chilled water is distributed throughout the building from the building branch connected directly to CHP.

The building heating system was not changed since its original installation and consists of radiators and convectors located along perimeter walls, corridors and some other interior spaces. Added later, fan coil units are located in entrances, and loading dock. Steel pipe system distributes hot water to radiators, convectors and fan coil units. A large portion of heating piping is encased in the walls. Pipes encased in the outside walls are subject to high heat loss, thus inefficient performance. Moreover, the rooms are not equipped with individual temperature control. Water temperature is pre-set for the loop based on outdoor conditions.

Chilled water is used for air temperature treatment in several Air Handling Units delivering air to various spaces. Chilled water is also utilized for the food services refrigeration equipment. A large number of offices are conditioned by portable cooling units either window mounted or ducted to outside.

Except in dedicated spaces, there is no central HVAC system in the building. Spaces served by conditioned air are as follows:

- A/H-1 Multi-zone unit serving first floor under Courtyard 1
- A/H-2 Multi-zone unit serving first floor under Courtyard 1
- A/H-3 Multi-zone unit serving House of Commons
- A/H-4 Make up air serving S-W corner of the Building
- A/H-5 Senate Committee rooms and Reading room
- A/H-6 Hall of Fame , first floor and N corridor
- A/H-7 East end of S corridor and Main entrance
- A/H-8 Senate Chambers and galleries
- A/H-9 first floor Central part
- A/H-10 First floor under Courtyard 4
- A/H-12 West end of N corridor first to fourth level
- A/H-13 Meeting room 356S
- A/H-14 Old Cabinet room 340S
- A/H-15 HVAC sixth floor server and ante room

Sanitary sewer piping is part of original construction and consist of cast iron pipe with H&S fittings and galvanized steel piping.

Domestic cold water is supplied to the building from one 200mm diameter main entering the building in basement mechanical room. Duplex booster pump is installed to maintain desired water pressure throughout the building.

Domestic water piping is most likely combination of galvanized steel, brass and copper. Majority of the pipes are encased in the walls , inaccessible ceiling and pipe shafts. Conditions are unknown, however record of frequent repairs is a good indication that piping is past its expectancy life.

Plumbing fixtures consist of counter top or pedestal type china lavatories, floor mounted water closets with flush valves and floor mounted urinals with automatic flush valves. Auxiliary steel kitchen sinks, and mop sinks along with food preparation plumbing fixtures are present.

Fire protection system consist of a standpipe system and a sprinkler system.

The water flow is maintained utilizing Fire Pumps connected to the incoming main. Peace Tower is served by 500gpm @ 125psi booster vertical in line single 60hp Fire Pump. The pump provides water flow to sprinkler system and standpipe for the tower. The standpipe is fitted with hose reels with hoses.

The remaining portion of Central Block is served by 750gpm @ 250 ft boost duplex 75hp Fire Pumps. The pump provides water flow to the sprinkler system for the entire building and CBUS as well as the fire hose cabinets throughout the building located on each floor, close to stair shafts. FHC's are equipped with 1-1/2" hose connection and hoses. The cabinets are fitted with portable fire extinguishers. There are also fire extinguishers located in mechanical rooms, electrical rooms and other service/utility spaces. Their rating is adequate to the spaces served.

ELECTRICAL SYSTEM

The primary switchgear, VT-898, is located in the high voltage room in the basement and consists of switchboard #1 347/600V,1600A and switchboard #2 347/600V, 1600A.

The two secondary switchgears are located in electrical room 216 of CBUS and the high voltage room of Centre Block basement. They consist of Switchboard #4, 347/600V, 3000A and Switchboard #3, 347/600V, 1600A.

MCC Unit #1 is located in the electrical room (room 216) and MCC Unit #2 is located in the mechanical room (room B155). Both units consist of 5 compartments and are 600V, 3PH.

There are many secondary transformers located in various locations on almost every floor of the building. The transformers vary in age and model. The panels on average are 30% older and 70% newer equipment. Approximately 10% of the transformers are manufactured by Delta, and the remaining 90% are manufactured by either Square 'D', Markus or Westinhouse.

There are two electric power meters located in the high voltage room in the basement.

Similar to the transformers, the distribution panels are located in various locations throughout the building and vary in age and model. The distribution panels on average are 40% older and 60% newer equipment. Approximately 10% of the panels are manufactured by Amalgamated Electric, and the remaining 90% are manufactured by either Square 'D', Westinhouse or Cutler-Hammer.

The general lighting in Centre Block consists of different fixtures depending on the area. The lighting in the hallways and corridors is mainly surface-mounted incandescent pendant type or wall sconce fixtures. Offices have ceiling mounted fluorescent 2' x 4' fixtures (newer offices), wall sconces, lamps and task lighting. Washrooms consist of single- or two-tube T-12 type fixtures installed in valances. Character defining lighting fixtures are found throughout the building with incandescent or compact fluorescent lamps.

The general lighting in the basement and CBUS is fluorescent strip fixtures complete with two tubes and a few recessed 2' x 4', fixtures. The lamps are T-8 and T-12 depending on the installation year (older fixtures using T-12 lamps).

The tunnel's general lighting is fed from emergency power. The lighting consists of strip fluorescents, incandescent valance and sconces along the perimeter of the tunnels.

A database exists for the lighting system with information on the existing fixtures, including: type, voltage, power source and maintenance history.

The exit lighting found in the building is bilingual "EXIT/SORTIE" fixtures with incandescent lamps. Most of these fixtures have 75mm high lettering (code requires 152mm high lettering).

The emergency lighting is fed from 120V emergency panels located throughout the building. The on-site fixture database contains information regarding type, wattage and feed for the emergency lighting fixtures.

The direct current (DC) battery support units, which are individual battery support lighting units, are installed throughout the building. The battery packs vary in model and age.

The extent of the grounding retrofit completion is unknown. The grounding system consists of copper ground bars in main electrical rooms.

The lightning arresters are located in various locations on the roof and leave the roof area via hidden corners of the building down to the earth. Whether exothermic bonding underground was done is undetermined. The number of bonding points in the ground is also undetermined.

The building is provided with a Simplex 4100 series networked fire alarm system. A two-stage system operation is provided in the CBUS and a single stage system is provided in the Centre Block. The system is microprocessor-based and is also provided with a computer terminal at the post office security station on the first floor of Centre Block. The main fire alarm panel is located in the computer room (room B137) of the CBUS basement. The fire alarm system consists of pull stations, smoke detectors, heat detectors, duct smoke detectors and signal horns.

There are two emergency generators found in room 216 in the subbasement of CBUS. They provide emergency power for East and Center block. Generators are tested monthly and are visually inspected weekly. Both generators are 750 kVA, 347/600V.

The systems receive regular maintenance and continue to provide good service. Renewal of the electrical systems, including replacement of major components, will be required at the end of normal service life.

The communication and security systems were not within the scope of work for this building condition report.

Design Parameters & Deficiencies - current & future

A functionality/serviceability assessment was not completed as part of the scope. No functionality or serviceability study were performed since the last Building Condition Report (BCR). The following is therefore summarized from the previous BCR dated in 2001:

HVAC Capacity:

The building envelope is not insulated however the heating system is capable of maintaining acceptable interior conditions. Some of the original windows allow excessive air infiltration and cold drafts result.

The building does not have adequate air condition. Ventilated air conditions in various zones of the building are unknown. The HVAC systems are basic and cannot accommodate changes to the building.

The temperature in individual areas cannot be adjusted.

Electrical:

There are no reported deficiencies reported in the previous BCR.

The lighting system is adequate for the existing occupancy although the lighting fixtures should be reviewed to provide lighting that compliments the building's architectural features and overall appearance. The lighting is not adjustable and is composed of fixtures with different lamps, color renditions, and performances. The lighting system should be reviewed in terms of performance, maintenance, and in some cases suitability with surrounding environment. The branch circuit distribution should be addressed with emphasis on wiring management installation procedures and identification.

Elevator Capacity:

The vertical transportation system does not meet the requirements of the occupants.

Washroom Adequacy:

The washrooms are in good condition however much of the drainage piping has surpassed its normal life expectancy.

Tenant Issues

The Centre Block is considered as the most important of the Parliament buildings. The building is designed with the Ceremony as the main focus. The offices are composed of small office suites which are not intended to be flexible. The character defining aspect of the building also makes accommodating various styles of layouts difficult. Storage space for the offices is accommodated within each office suite.

Critical factors affecting the use of the Centre Block are the requirement for additional space for: committees, increased support functions, and space pressures relating to increases in the numbers of elected representatives. As the parliament representation has shifted and grown, office spaces have been located outside of the Parliament Precinct. There are increasing demand for space from the Senate and the House of Commons. However, the amount of space available is insufficient to meet the needs of either party. The space requirements of parliamentarians have also changed over time placing further strains on the overall space requirements of the Complex. To meet these requirements, new construction is recommended. There are also requirements to bring the building systems up to modern standards and to meet the growing demands of the tenants.

Overview Architectural & Structural Condition

Frame:

The super structure is generally in good condition. No major repair or replacement is anticipated within the scope of the study, however a review of the terracotta slabs should be performed during the major anticipated building renovations project (not included within the scope of this report).

Foundations:

The foundation is generally in good condition with no major defects, with the exception of the Peace Tower foundation. We noted substantial staining from water infiltration, cracking, and spalling which has led to cross-sectional loss of the concrete elements. We recommend that a Level 3 study be carried out in order to better understand the extent of the damage and determine the appropriate repair strategy.

Tunnels:

The East Block tunnel is in good to new condition with no major expenditures anticipated within the term of the study. The older service tunnel is currently shored and access to the tunnel is restricted. The plan for the tunnel is unclear, and as such, no major costs are included within the study.

Roofing Systems:

The main roofing (flat inverted system) is leaking and requires replacement in the near future. The Copper roofing was replaced at the south side of the Centre Block and is in good condition. The remainder of the sloped roofing is in fair condition and a life extension cost is recommended.

Building Cladding:

At the south elevation and Peace Tower, defects include: mortar joint deterioration ranging from hairline cracking to open joints, surface conditions including erosion, efflorescence, minor cracking, and staining due to mortar leaching. The flashing elements are in good condition.

Urgent stabilization of the top of the north towers was recommended in the 2007/2008 screening. This has been addressed with temporary bracing, however the towers still require a permanent solution to address their deterioration. It is our understanding that the work on these towers is being implemented and therefore no cost is included within this study.

For the remainder of the building, the most common defects include: cracked and open mortar joints, de-bonded mortar, staining to the face of the stone, soiling, copper staining, exfoliation, surface reduction of carved stone, alveolar decay, cracks and hairline cracks, spalls, displacement of quoins, and parging for surface repairs. Between the House of Commons Chamber's stained glass window and the peak of the dormer, stone repairs were completed.

Windows:

The original steel window frames are corroding and the leaded panes require re-soldering. The single glazed, single hung aluminum framed sliders that were installed some time ago (age unknown) are in reasonable

condition, although the quality of these windows is considered to be poor. The older skylights are heavily reliant on caulking to seal the transitions at the copper covered frames and several sections of glass are cracked. The plastic skylight domes are not well sealed to the metal-framing members. The leaded glass windows vary in condition. Some windows have loose or broken solder connections and corrosion of the steel supporting bars.

In conserved areas defects are minor and localized. They include: dried sealant at a few windows, loose or missing sealant stripping between frame and glazing, loss of finish and localized corrosion.

In un-conserved areas, the aluminium sash windows have lost their finish, are difficult to operate and have essentially reached the end of their service life. The sealant around all of the aluminium windows has been replaced within the last two years and is in good condition. The original steel frame windows are in various states of deterioration depending on the location of the building. Conditions include: corrosion of sashes, dried glazing compounds, cracked or broken glazing, deformation/deflection of frames and comes.

Interior Elements:

Most of the interior finishes form part of the character defining elements. They are generally in new condition or in good to excellent condition due to diligent care. Most of the finishes repairs are addressed on an as-needed basis.

Architectural/Structural Cost Summary:

Within the next 5 years, over \$2.5M is anticipated for the architectural and structural components of Centre Block complex, not including the current projects. This cost is approximated at 74% of the costs within the next 30 years (including renovations). The major events within the next 5 years include:

- Footing and Foundation Study at the Peace Tower at \$10K in year 2013
- Footing and Foundation Repairs at the Peace Tower at \$200K in year 2013 (cost should be reviewed after the completion of the study)
- Skylight Replacement at \$120K in year 2013
- Stain Glass Repairs at \$100K in year 2013
- Stone Cladding Repairs and Level 1 Study at \$80K in year 2013
- Stone Cladding Repairs at \$150K in year 2014
- Annual repair of Cladding at \$100K in years 2015 to 2021
- Copper Roof Repairs at \$50K in year 2015
- Main Roof Replacement at \$1.4M in year 2013
- Roof Replacement in Courtyard (ballast inverted roof) at \$20K in year 2013
- Tread Replacement of Interior marble Steps leading to Peace Tower at \$150K in year 2013
- Roof Anchor Replacement at \$54K in year 2013

Within the next 10 years, \$780K is anticipated in addition to the first five years listed above. This cost is approximated at 23% of the total architectural/structural cost included in the study. The major events within years 6 to 10 include:

- Southwest light well masonry repairs at \$30K in year 2020
- Stone Cladding Repairs at \$175K in 2018
- Copper Roof Repairs at \$75K in 2017
- Annual repair of Cladding at \$100K in years 2015 to 2021

Following these 10 years until the end of the study's term (30 years), the remaining events total up to \$99K. This cost is approximately 3% of the total architectural/structural cost included in the study. This cost only includes repairs at CBUS ,which total to \$13.5K.

Overview Site Condition

Site components around the perimeter of the building are covered under the "Parliament Hill - Grounds" study and AVS report.

Overview of Vertical & Horizontal Transportation Condition

In general, the passenger elevator equipment was of good quality when originally installed and based upon its age, remains in fair operating condition at this time.

Elevators 5 and 11 have been installed in 1997 with Elevator 11 replacing an existing basement drum machine type freight elevator. Accordingly the hydraulic elevators require little capital cost investments over the short and medium terms.

The vertical platform lift was replaced in 2006 and remains in good condition.

The elevators do not fully comply with current barrier free accessibility requirements.

The elevators have not been provided with guarding of components in accordance with OHS requirements.

Car top safety railings have been installed in 2012.

A walkway is required on the roof top from each roof access to the elevator machine rooms in accordance with TSSA requirements.

Conveying system Cost Summary:

The following events are scheduled over the 30-year scope of this report:

- \$50K in 2012 to provide walkways and safety railings from the roof access point to the machine room doors.
- \$160K in year 2013 for code requirement safety components
- \$1.6M in year 2015 for the modernization of elevators 2, 4, 6, 8, 9, and 10

Overview of Mechanical Systems Condition

Since a large portion of the piping system and valves are original to the building construction leaks are expected and are common occurrences. It is safe to assume that large quantity of valves are not holding. Radiators appear in good shape , however significant corrosion buildup is likely.

The heating system in Central Block has reached its expected life expectancy.

The chilled water distribution system reached its life expectancy. The conditions of portable units were not assessed.

A/H units are part of original building construction. Some coils, fans and filter racks were replaced as an ongoing maintenance program. The past and current maintenance program extends life of the equipment, however the system performance does not meet building requirements. Casing of some unit is in poor shape. Capacity of the unit in few cases doesn't meet occupant needs. Many of A/H units have no FD for disposal of condensate. Drip pans are used instead.

The A/H units are passed their life expectancy and are not adequate to serve the Central Block.

Control system for Central Block was modified in the past. Currently it consist of pneumatic actuators and transducers that are connected to DDC systems. There are two vendors of the DDC control (Base and VCI). The newest control, upgrade in the end of the 1990's introduced VCI software for operator work station. Other vendor control was integrated into the DDC system, however a mix of control systems and its components is not the most desired option. DDC control is in good conditions. Pneumatic devices were replaced on an ongoing bases, some still being part of original construction.

The electronic DDC control shall be replaced during major building overhaul. Pneumatic is pass life expectancy.

Storm sewer piping are part of original construction and consist of cast iron pipe with H&S fittings. Several pipe joints are leaking, Some section of the pipes and fittings were replaced with CI MJ system.

The storm system piping is passed its life expectancy.

Sanitary drain piping pass its life expectancy. Several of pipe joints are leaking. It is certain that free area of galvanized steel drain and vent piping is drastically reduced affecting system performance. Some section of the pipes and fittings were replaced with CI MJ system or DVW copper.

Fire system fixtures are in average conditions. Since many are part of original construction it should be replaced.

The following Fire protection system deficiencies were noted:

- Traveling distance to fire extinguishers exceed the Code requirements.

- Sprinkler head installation and types as well as conditions in several location are deficient (clearance , painted over heads, spacing).

- Standpipe and sprinkler piping are passed life expectancy, the same applies to the duplex fire pump.

Mechanical Cost Summary for Centre Block:

Within the next 5 years, over \$1.5M is anticipated for the mechanical components of Centre Block (excluding CBUS). This cost is approximated at 30% of the costs within the next 30 years. The major events within the next 5 years include:

- Repair of Packaged Terminal AC unit in Peace Tower at \$15K in 2012
- Replacement of Packaged Terminal AC unit on the first floor at \$30K in 2012
- Replacement of Heat Pumps at \$30K in 2012
- Repair of Central Air Handling Unit at \$20K in 2015
- Repair of Ventilation Fans in Centre Block at \$60K in 2012
- Replacement of Washroom Exhaust Fans in Centre Block at \$6K in 2015
- Replacement of Pneumatic Controls at \$1.2M in 2012
- Replacement of Hot Water Tanks at \$85K in 2012
- Replacement of Storage Tank (Condensate and Circulating) at \$63K in 2012
- Replacement of Plumbing Pumps at 15K in 2012

Within the next 10 years, over \$135K is anticipated. This cost is approximated at 3% of the total mechanical cost included in the study. The major events within years 6 to 10 include:

- Repair of Ventilation Vents at \$50K in 2017
- Repairs to Plumbing Pumps at \$8K in 2017
- Repairs and Replacements for Plumbing Piping at \$16K in 2018

Following these 10 years and until the end of the study's term (30 years), the remaining events add up to \$3.4M. This cost is approximately 67% of the total mechanical cost included in the study.

Mechanical Cost Summary for CBUS:

Within the next 5 years, approximately \$200K is anticipated for the mechanical components within CBUS. This cost is approximated at 11% of the costs within the next 30 years. This cost is for the replacement of the water distillation units for the water conditioner.

Within the next 10 years, approximately \$200K is anticipated. This cost is approximated at 11% of the total mechanical cost included in the study. This cost is for the replacement of the water distillation filters.

Following these 10 years until the end of the study's term (30 years), the remaining events total up to \$1.4K. This cost is approximately 78% of the total mechanical cost included in the study.

Overview of Electrical Systems Condition

The electrical systems and equipment are generally in average condition, performing well and suited to the building use and occupancy.

The character defining element lighting is in good condition and represents the historical character of the building. They are regularly refurbished with an existing maintenance program.

As of January 1, 2006, exit lights must have an input demand of 5 watts per single wording and less than 10 watts for double wording by using light emitting diodes (LED) in accordance to CSA C860. The exit lights should be replaced to meet current code, but location and area should be taken into consideration due to some areas being too congested or small to fit a fixture that meets code.

There are some self-luminous exit signs in the basement that provide direction without the use of electricity, however this type of signage is not in accordance with CSA C860-07.

The systems receive regular maintenance and continue to provide good service. Renewal of the electrical systems, including replacement of major components, will be required at the end of normal service life.

Electrical Cost Summary:

Within the next 5 years, over \$403K is anticipated for the electrical components of Centre Block and CBUS. This cost is approximated at 10% of the costs within the next 30 years. The major events within the next 5 years include:

- Replacement of Exit Lighting in Centre Block at \$90K in year 2013
- Exterior Lighting Replacement for Centre Block at \$33K in year 2013
- Replacement of the Fire Alarm System in CBUS at \$280K in year 2014

There are no major events anticipated within years 6 to 10 of this study.

Following these 10 years and until the end of the study's term (30 years), the remaining events for CBUS total up to \$3.7M. This cost is approximately 91% of the total electrical cost included in the study.

Compliance with TBS Temp., Humidity & Ventilation Targets

The building meets the requirements for indoor comfort and ventilation effectiveness.

Regulatory Testing Confirmation

Following is a list of building components that requires regulatory testing:

- Fire alarm system - as per code
- Fire pumps - as per NFPA 20
- Sprinkler system - as per NFPA 13
- Standpipe system - as per code
- Fire Extinguishers - as per NFPA 10
- Emergency lighting - yearly as per code
- Exit lighting - yearly as per code
- Elevators - as per code
- Kitchen Exhaust - as per NFPA 96

Compliance with Accessibility Standards

An accessibility review was not performed as part of the study. An audit was completed in 2008 by PWGSC and includes the following key points:

BUILDING ENTRANCES

A cost of \$6,800 is anticipated for the addition of door operators, adjustment to the force required to stop door movements, and door controls signage correction.

VERTICAL MOVEMENT

No major costs are anticipated as part of the accessibility study.

INTERIOR DOORS AND CORRIDORS

Approximately \$30,000 is anticipated to address the adjustment to door hardware heights, the hinges to allow for more appropriate force to operate doors, the replacement of some hardware, the replacement of hinge location to allow more clear area near the door swing, and the adjustment to door stops.

WASHROOMS

Approximately \$105,000 is anticipated for adjustments to self closers, repositioning of stall dividers and stall doors, repositioning of door hardware, replacement of some door hardware, adding back support where no toilet lid or seat is provided, location adjustment to side bars, addition of side bars in some accessible stalls, adjustment to coat hook locations, addition of coat hooks in stalls, replacement of toilet fixtures in some of the accessible stalls, and the replacement or repair of several sinks.

DRINKING FOUNTAINS

No major costs are anticipated as part of the accessibility study.

PUBLIC AREAS

No major costs are anticipated as part of the accessibility study.

The total score provided within the study is 70% compliance.

Overview of Seismic Screening

A Seismic review was not completed as part of the study. A Seismic study was previously conducted by the NRC. The structural index is 17.7 while the non-structural index is 6.0. These provide a seismic priority index of 23.7 for the whole building, based on normal occupancy.

Based on this information and NRC publications, the building has a relatively high priority requirement for further detailed seismic investigation. This was recommended within the 2001 review, however there is no evidence of the completion of the recommended seismic study. A detailed seismic study is still recommended within the near future.

Overview of Environmental Issues

An environmental site assessment of Centre Block was recently completed and revealed no evidence of recognized environmental concerns with the site.

No environmental studies, other than the site assessment, were carried out on Centre Block since the last BCR. The following is extracted from provided documentation:

Asbestos Containing Materials (ACMs)

Compliance was not verified in the last Environmental Report Card.

Polychlorinated Biphenyls (PCBs)

Transformers were removed, however old PCB ballasts are still suspected.

Fuel Storage Tanks

There is diesel fuel storage tanks within the facility with no reported recommendations as part of the Environmental Report Card.

Storage Tanks (Excluding Fuel)

There are no product transfer areas. No records were available for the piping testing (underground). There is no evidence that the storage tanks are visually inspected to determine leakage (inspection log books were missing). Sump pumps do not have evidence of visual inspection. Drawings are not available on site.

Hazardous Materials and Waste Management (INCLUDE PESTICIDES)

Hazardous materials are not stored with proper secondary storage on site. In some cases, labels of hazardous materials were not identified. A hazardous material inventory was available however it was not kept up to date. An MSDS binder was not kept up to date.

Water Consumption/Conservation

Water is used for the washrooms and for drinking fountains. Many areas in the building have their own bottled water coolers.

Environmental Emergency Response Plan

The item was not included within the last Environmental Report Card.

Ozone Depleting Substances

The main cooling plant is located off-site. Regarding the smaller refrigerators and cooling units, inspection records, labels, and maintenance records are generally missing

Transportation of Dangerous Goods

No recorder issues were noted within the Environmental Report Card.

Environmental Management Systems

PWGSC has implemented excellent environmental management systems through an Environmental Pledge and SDS program.

Pesticides

No pesticides are stored on site.

Water Management

Water use is limited mainly to the washrooms. Storm and sanitary lines are separated, although there are reportedly some minor interior cross connections.

Hazardous Materials Storage and Disposal

There are no hazardous materials stored in this building. This is a typical office building where occupants tend to use standard office supplies. Some of the products used would have WHMIS sheets, but none would require special storage or handling.

General Comments

Inspection and maintenance records are generally missing within the building.

Overview of Project Grouping - requirement for swing space

The following is a list of recommended project grouping:

- The roofing replacement project can include the replacement of the roof anchors and roof guards. The guards are not required and their reinstatement is optional (also subject to roof anchor repairs)
- The skylights can be replaced within the roofing replacement project.
- The exterior steps should be addressed at the same time as the stone work at the adjacent cladding.
- Sealant replacement is recommended to take place simultaneously with the window replacement and/or repair programs
- Within the electrical systems, all components due for replacement prior to 2022 have been grouped with the major renovation planned for 2022. Primarily distribution panel and secondary transformers are either overdue or due for replacement shortly and will need to be addressed during the renovation. Exit lighting is not code compliant, but is functional and can also be addressed during the renovation.

Code Compliance Summary

A detailed code compliance was not carried out as part of the study. A Fire Protection Compliance Monitoring Inspection was provided for our reference. The following was noted during the walkthrough and from the fire code review report provided:

- Occupancy Types/Loads:

The major occupancy consists of office space with secondary occupancy consisting of service space such as mechanical rooms and storage spaces. Under the current National Building Code, the required loading is as follows:

- Basement and Ground Floor Offices: 4.8 kPa
- 2nd and 3rd Floor Offices: 2.4 kPa
- Corridors and Exits: 4.8 kPa
- Service Rooms: 3.6 kPa

Structural investigation and analysis of the floor structure was not part of the study mandate.

- Ventilation, Cooling, and Heating

HCFC in refrigeration system, OA rates, temperature control, seismic restraints for mechanical equipment are not up to code. Several pieces of mechanical equipment do not have seismic restraint system.

- Pressure Vessels:

No compliance issues were noted during the walk through.

- Fire Detection/Protection:

Smoke detectors do not initiate first stage of fire alarm as per required inter-connection with mechanical equipment. It is expected that the installation of the fire dampers are not code compliant. Issues of inter-connected floors and open staircases require modifications to the sprinkler system, which is not code compliant.

Major deficiencies are as follows:

No fire safety plan is implemented in the building. Ceiling tiles in localized areas are either missing or displaced, which can hinder the operation of the fire suppression and fire detection systems. Sprinkler head clearance spaces and cleanliness is not maintained throughout the property. In areas where the noise level is above 87dB, fire alarm audible devices have to be supplemented by visual signal devices. The sixth floor kitchen's wet chemical system was found to be deactivated. In the PWGSC shops, mail rooms, and in some areas of the fifth and sixth floors, the means of egress does not have adequate clear width (not less than 1100mm) due to hallway storage. Several doors throughout the facility were propped open and can therefore not adequately perform as fire separation doors. Fire separations above door B-108 is compromised and requires repair.

Other minor deficiencies include lack of adequate clearance in front of electrical equipment, improper installation of fire extinguishers, some exit lights were not lit, smoke detectors or fire separations are not installed above mobile shelving in the mail room.

- Emergency Doors:

No compliance issues were noted during the walk through.

- Emergency /Exits/Lighting:

Inadequate exit lighting.

- Electrical Power Capacity:

No compliance issues were noted during the walk through.

- Elevators:

No compliance issues were noted during the walk through.

- Washrooms:

The number of full-time employees was not available. Based on treasury board guideline of 16m² per employee, the Centre Block could have a potential of approximately 1,900 employees. We understand that the building population is substantially less than this and based on the last Accessibility Audit, there are adequate washrooms within the facility.

00. Property

00.1site

00.1-010 Site Improvements

00.1-010C10 Fence & Gates

Element Instance: 00.1-010C10 Fence & Gates - Rooftop - Metal

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	2009
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Metal guards on the main roof level are located on the north and south sides of Centre Block rooftops. They consists of hollow circular tubing with vertical posts and horizontal rails at the top and at the mid-height. The posts are attached to a concrete base with pre-formed metal cap flashing.

Component Condition & Anticipated Replacement Date

The age of the railing is unknown. It was documented that the railings were added to maintain roof access while the roof anchors are not in service. The roof anchors are discussed in the "01.6A-055 Window Washing Device Anchors" section of the report. The anchors were tagged out in 2009.

This component will require removal within the roofing replacement. Their re-installment is optional with serviceable roof anchors.

The component is also rated at standard quality and excellent condition.

Component Age: 3 years

Remaining Life: 27 years

Next Major Action Year: 2039 (unless removed or damaged during roofing replacement project)

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

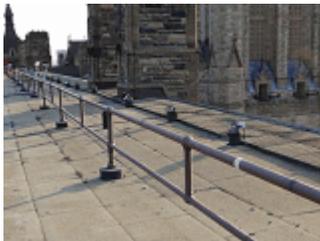
Comments

Deterioration or damage to surfaces

Excessive movements

Loss of function

Physical damage or deterioration



Metal fencing on Centre Block's rooftop.

Element Instance: 00.1-010C10 Fence & Gates - Rooftop - Rope

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	2009

Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description The rope fencing is located along the perimeter of the east and west sides of Centre Block rooftops as well as around the courtyards . They consist of metal poles attached to a concrete block with a loop at the top for the rope to pass through.

Component Condition & Anticipated Replacement Date The age of the railing is unknown however it appears to be of the same age of the metal guards (installed 2009).

This component will most likely be removed during the installation of the new roofing and roof anchors.

Relative to other guards, this item is rated at below-standard quality and in excellent condition.

Component Age: 3 years
 Remaining Life: 17 years
 Next Major Action Year: 2029 (unless removed or damaged during roofing replacement project)

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Deterioration or damage to surfaces
- Excessive movements
- Loss of function
- Physical damage or deterioration



Rope fencing on Centre Block's rooftop.

00.1-010C11 Flagpole

Element Instance: 00.1-010C11 Flagpole - Centre Block

Details	Values
Expected Life	127
Component Cost	0
Last Major Action Year	1924
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description A flagpole is centrally located on the Peace Tower. It is standard height (about 8m). The flag is replaced on a daily basis through a roof hatch directly adjacent to the flagpole.

The flag is reportedly original to the building and made of brass.

Component Condition & Anticipated Replacement Date The exact age of the flag pole is unknown. Based on the estimated age of other flag poles on Parliament Hill, the year of installation is assumed to be 2006. A study indicated that the sealant at the base of the flagpole requires yearly monitoring and

its upkeep is considered to be part of general building maintenance. This is due to previously reported leaks that are no longer present.

This component is rated at average condition, based on its age, and is of above-standard quality.

Component Age: 88 years
Remaining Life: 42 years
Next Major Action Year: 2031

Element State: Average **ACL:** ACL 2 - Check List
Assessment Criteria **Existence** **Comments**
Deterioration or damage to surfaces
Excessive movements
Loss of function
Physical damage or deterioration



Flag Pole of Centre Block

00.1-020 Site Related Stairs, Plazas & Decks

00.1-020C40 Stairs-Site Related

Element Instance: 00.1-020C40 Stairs-Site Related - Centre Block

Details	Values
Expected Life	35
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

The front entrance of the Centre Block includes two levels. The main steps (referred to as the Ceremonial Steps) lead to the Rotunda space on the second floor. This entrance is also intended for occupants of the building. The visitor entrance is on the first floor directly beneath the rotunda space and is accessed by a set of steps on either side of the ceremonial steps.

The steps consist of stone steps and a ramp is also provided for wheelchair accessibility. Handrails are also included within the design.

Component Condition & Anticipated Replacement Date

This component is rated at excellent condition and is of above-standard quality. It was reported to us during the site visit that the steps were repaired in 2010, however the exact scope is unknown.

Component Age: 2 years
Remaining Life: 33 years
Next Major Action Year: 2045

Element State: Excellent **ACL:** ACL 2 - Check List
Assessment Criteria **Existence** **Comments**

- Handrail missing, damaged or deteriorated
- Hazardous conditions
- Loss of structural integrity
- Major surface deterioration
- Minor surface deterioration
- Poor surface drainage
- Vegetation intrusion or overgrowth
- Visible settling or uplift



Centre Block Main Stairs.

01. Architectural & Structural

01.1 Foundations

01.1A-010 Footings & Foundations

Element Instance: 01.1A-010 Footings & Foundations - CBUS

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

CBUS is a two-storey underground structure, located northwest of Centre Block.

The CBUS slab-on-grade structure is located in Sub Basement 2. It consists of conventionally reinforced cast-in-place concrete, with control cuts and a polish finish. Most of the concrete was not painted.

The structure also consists of load bearing concrete walls and columns. In most cases, the interior of the foundation is finished with paint.

The structure is waterproofed with a 2-ply hot rubber system with protection board.

The slab-on-grade is original to the structure. The waterproofing could not be confirmed as part of the study, however no major costs are anticipated based on its age. This component is rated at excellent condition and is of standard quality.

Component Condition & Anticipated Replacement Date

Component Age: 14 years
 Remaining Life: 96 years
 Next Major Action Year: 2108

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Bearings worn

Corrosion

- Excessive cracking
- Excessive settlement
- Ingress of water
- Inoperable subdrainage
- Physical damage or deterioration



Slab on grade in CBUS.

Element Instance: 01.1A-010 Footings & Foundations - Centre Block

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1924
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

Component Description

The building is founded on bedrock. The footings and foundation were not visible as part of the study. The footings are located 10'-6" below the ground level. The foundation consists of conventionally reinforced cast-in-place concrete including a slab-on-grade basement slab and walls. Steels columns are typically grouted with cast iron bases. In some locations, the steel columns are bolted to the foundation and footings. The location of these columns could not be confirmed within the provided drawings due to lack of legibility.

Component Condition & Anticipated Replacement Date

This component is rated at fair condition and is of above-standard quality.

Component Age: 88 years
 Remaining Life: 22 years
 Next Major Action Year: 2034

Element State: Fair **ACL:** ACL 2 - Check List

Assessment Criteria

<u>Existence</u>	<u>Comments</u>
------------------	-----------------

- Bearings worn
- Corrosion
- Excessive cracking
- Excessive settlement
- Ingress of water
- Inoperable subdrainage
- Physical damage or deterioration

Element Instance: 01.1A-010 Footings & Foundations - Peace Tower

Details	Values
Expected Life	85
Component Cost	75,000
Last Major Action Year	1927
Component Condition (For BCR use only)	Poor

This report was generated without using Virtual Events.

Quantity 1
 Measurement unit/ Metric sum

Component Description

The foundation of the Peace Tower was accessed from the basement level of the Centre Block. The foundation consists of cast-in-place concrete with conventional reinforcing. The extent of reinforcement is not known. Elements include load bearing foundation walls and concrete columns on grade and topped with ballast for water shedding.

Component Condition & Anticipated Replacement Date

We noted substantial staining from water infiltration, cracking, and spalling which has lead to cross-sectional loss of the concrete elements. The staff on site also confirmed that has been previous repairs, primarily to address major water infiltration.

This component is rated at poor condition and is of standard quality. We recommend that a Level 3 study is completed in order to better understand the extent of the damage and determine the appropriate repair strategy. The study includes a cost for the foundation review as well as an allowance for anticipated repairs. The latter should be revised after the completion of the structural study.

Component Age: 85 years
 Remaining Life: 0 years
 Next Major Action Year: 2013 (due to near completion of 2012)

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Bearings worn		
Corrosion	X	
Excessive cracking	X	
Excessive settlement		
Ingress of water	X	
Inoperable subdrainage		
Physical damage or deterioration	X	



Footing and Foundation of Peace Tower.

01.1A-010 Footings & Foundations - Peace Tower Event #: 1

Brief Description	RP Component life extension [01.1A-010 Footings & Foundations - Peace Tower]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2013	\$204,800	high priority	Building Condition Report

Event Description Repair damage to concrete foundation and footings. Provide solution for water infiltration and/or drainage.

Event Justification & Strategy Required for structural integrity of the Peace Tower

Implication of Event Deferral (Risks) Continuous damage to Peace Tower foundation.

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description A service tunnel located at the north end (Sub Floor 1) acts as an diesel exhaust shaft (ductwork also included within the shaft) and out to the north escarpment face. The tunnel consists of conventionally reinforced cast-in-place concrete.

Component Condition & Anticipated Replacement Date We did not note any major displacement, spalling, or other defects at the time of our visit. Only a leaking crack was noted at the mid-span of the tunnel. This can be addressed as part of general building maintenance, followed by monitoring to confirm the extent of damage.

This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 96 years
 Next Major Action Year: 2108

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration
- Settlement or movement cracks
- Structurally unsound

01.2 Superstructures

01.2-010 Structural Framing

01.2-010C05 Frame - Concrete

Element Instance: 01.2-010C05 Frame - Concrete - Blocks - CBUS

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Concrete block walls are located at all fire separation interior walls within CBUS. Block walls encase the following areas: stairwells, main service rooms, garbage rooms, and computer rooms.

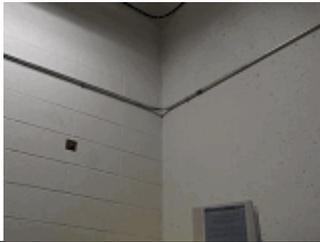
Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 96 years
 Next Major Action Year: 2108

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration
- Settlement or movement cracks
- Structurally unsound



Concrete back wall in CBUS.

Element Instance: 01.2-010C10 Frame - Concrete - CBUS

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description The suspended slabs in CBUS Sub Level 1 is supported by concrete beams and columns, all painted white.

Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality. Previous repairs have been completed and include a floor crack repair in 2012/2013.

Component Age: 14 years
Remaining Life: 96 years
Next Major Action Year: 2108

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration
- Settlement or movement cracks
- Structurally unsound



Concrete beam and column.

01.2-010C10 Frame - Concrete + Steel

Element Instance: 01.2-010C10 Frame - Concrete + Steel - North Towers

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1924
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

Component Description

The towers' structure consist of load bearing masonry with steel framing. The structure was only visible in certain areas from the interior and therefore was not 100% reviewed as part of the study.

Component Condition & Anticipated Replacement Date

There has been several reported leaks within the towers. Significant deterioration is also noted and some of the towers are braced with tension cables on the outside to address bowing of the structure. This component is rated at fair condition and is of standard quality. No major costs are anticipated within the 10-year term of the study to address the structure. However, a cost is included within the cladding section of the report (see "01.3-010C65 Ext.W - Local stone, rough cut, solid"). These repairs should also address the removal of the tension cables and the masonry bowing. The annual building envelope screening should also be maintained as is carried for the roofs as part of the wall section.

Component Age: 88 years
 Remaining Life: 22 years
 Next Major Action Year: 2034

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration X
- Settlement or movement cracks
- Structurally unsound



Tower Structure.

Element Instance: 01.2-010C10 Frame - Concrete + Steel - Peace Tower

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1927
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

Component Description

The Peace Tower of Centre block has a cast-in-place and conventionally reinforced concrete structure up to the eighth floor. From the ninth floor to the thirteenth floor inclusively, the Peace Tower's structure consists of a steel frame. All steel structure elements are finished with a spray-on fire proof coating.

Component Condition & Anticipated Replacement Date

This component is rated at fair condition and is of standard quality.

Component Age: 85 years
Remaining Life: 25 years
Next Major Action Year: 2037

Element State: Fair **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration
- Settlement or movement cracks
- Structurally unsound



Peace tower structure.

Element Instance: 01.2-010C10 Frame - Concrete + Steel - Terracotta - Arch Slabs

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1924
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

Component Description

The floors above ground consist of an array of steel beams supported on masonry walls and columns with terracotta arch slabs spanning between steel beams and a concrete topping (about 4" in thickness). Floors are supported by a combination of load bearing masonry walls and structural steel framing. Opening in the load bearing masonry walls are supported in some areas by concrete lintels and steel framing. The ceiling slabs at the sixth floor is suspended by concrete incased steel hangers, connected to the roof slab.

Component Condition & Anticipated Replacement Date

The terracotta arch slab construction including the encased steel beams, appeared sound in good condition where visible, however most of the slab was not visible.

This component is rated at fair condition and of standard quality.

Component Age: 88 years
 Remaining Life: 22 years
 Next Major Action Year: 2034

A review of the terracotta slabs should be performed as part of the major building restoration, currently planned in 10 years.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration
- Settlement or movement cracks
- Structurally unsound



Steel hangers covered in concrete casing.



Terracotta slabs within a ceiling system.

01.2-030 Floor Structure-Slab above Grade

01.2-030C05 Slab above Grade - Concrete

Element Instance: 01.2-030C05 Slab above Grade - Concrete - Suspended Slab - CBUS

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

The mezzanine level in CBUS consists of a steel deck with concrete topping. The slab is supported with steel beams and steel posts . All the soffits and steel elements are painted in white or beige. Fire proofing on the soffits was noted in the server room.

Component Condition & Anticipated Replacement Date

This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 96 years
 Next Major Action Year: 2108

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive deflection
- Excessive movements or distortion
- Non code compliant
- Physical damage or deterioration
- Settlement or movement cracks
- Structurally unsound



01.2-050 Miscellaneous Structures

01.2-050C35 Loading Docks

Element Instance: 01.2-050C35 Loading Docks - Centre Block, Rear East Side

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	sum

Component Description

A loading dock for the Senate side of the building is located at the back and directly east of the Library. The loading dock is a wood framed structure with rafters, stud interior partition walls, plywood skirts, and a plywood roof. The structure rests on treated beams, leveled by concrete pads on grade.

Component Condition & Anticipated Replacement Date

This component is rated at poor condition and is of standard quality. Reportedly, this loading dock has high maintenance costs, various code compliance issues, a previous mold problem (which as been addressed), and does not comply with the character defining characteristics of the facility. The building is reportedly in a rapid state of deterioration.

A level 3 study is recommended. Refer so Section 10.2. In addition, an anticipated price of 250,000 is expected to replace the loading dock. This cost should be updated and then included within the study upon completion of the Level 3 study.

Component Age: 13 years
 Remaining Life: 0 years(until next major action year and as reported)
 Next Major Action Year: 2012

Element State: Poor **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Corrosion	
Deterioration of paint finish & surfaces	
Excessive wear	
Non code compliant	X
Non operable equipment	
Poorly secured and supported	
Unsafe and structurally unsound	X

Element Instance: 01.2-050C35 Loading Docks - Centre block, Rear West Side

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description A loading dock is available on the House of Commons side of the building, however it is mostly within the building. A wood framed canopy is added for weather protection. The canopy consists of wood rafters, joints, posts with concrete bases, and standard 3-tab asphalt shingle roofing membrane.

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of standard quality. A level 3 study is recommended to assess its condition in 5 years and determine what repairs are required for its maintenance. Refer so Section 10.2.

Component Age: 13 years (assumed)
Remaining Life: 5 years(until next major action year)
Next Major Action Year: 2017

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Corrosion	
Deterioration of paint finish & surfaces	
Excessive wear	
Non code compliant	
Non operable equipment	
Poorly secured and supported	
Unsafe and structurally unsound	



Loading Dock on the Senate Side.

01.3 Exterior Walls/Closures

01.3-010 Exterior Concrete or Masonry Walls

This report was generated without using Virtual Events.

01.3-010C15 Ext.W - Brick, Common

Element Instance: 01.3-010C15 Ext.W - Brick, Common - Glazed - South West Light Well

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

The light well is located in the south-west corner of the Centre Block rooftop of Parliament Hill. The masonry covers all four elevations of the light well which surrounds a skylight. It consists of a load-bearing, white glazed brick with punched in windows. A bird net is installed above the pit.

Component Condition & Anticipated Replacement Date

The glazed masonry veneer bricks show evidence of previous repairs conducted on at least one of the four elevations. Current component condition includes brick spalling and mortar deterioration.

Based on the condition of the glazed masonry, allowance should be made to restore the walls.

This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 61 years
 Next Major Action Year: 2083

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Blocked or ineffective internal drainage		
Deteriorated finishes	X	
Fastener damage or corrosion		
Functional defects		
Joints not properly sealed at wall penetrations		
Non code compliant		
Physical damage or deterioration		
Surface cracking or spalling	X	
Surface staining or discoloration	X	
Vapour barrier defects		
Water ingress		



Glazed brick in south west pit.

01.3-010C15 Ext.W - Brick, Common - Glazed - South West Light Well Event #: 1

Brief Description		RP Component life extension [01.3-010C15 Ext.W - Brick, Common - Glazed - South West Pit]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2020	\$30,720	N/A	Building Condition Report
Event Description		Repair deteriorated mortar joints and replace deteriorated masonry.		
Event Justification & Strategy		Required to maintain cladding system.		
Implication of Event Deferral (Risks)		Lack of performing cladding at west light well.		

Element Instance: 01.3-010C15 Ext.W - Brick, Common - South East Light Well

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description The light well is located in the south-east corner of the Centre Block rooftop of Parliament Hill. The masonry covers all four elevations of the pit which surrounds a skylight. It consists of brick veneer with a soldier course lintel. A bird net is installed above the pit.

Component Condition & Anticipated Replacement Date The brick veneer walls have no apparent defects. However, the bird net is falling and requires maintenance.

This component is rated at average condition and is of standard quality.

Component Age: 37 years
 Remaining Life: 23 years
 Next Major Action Year: 2045

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Blocked or ineffective internal drainage
- Deteriorated finishes
- Fastener damage or corrosion
- Functional defects
- Joints not properly sealed at wall penetrations
- Non code compliant
- Physical damage or deterioration
- Surface cracking or spalling
- Surface staining or discoloration
- Vapour barrier defects
- Water ingress



Brick masonry in the south east pit.

01.3-010C60 Ext.W - Local stone, block back-up

Element Instance: 01.3-010C60 Ext.W - Local stone, block back-up - Courtyard Stairwells

Details	Values
Expected Life	85
Component Cost	0
Last Major Action Year	1990
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description Stairwells were added in 1990 within the courtyards. These stairwells are accessed by fire rated service doors and provide additional means of egress, most likely due to code compliance. The stairwells are clad with a stone finish to match the remainder of the building, however the walls appear to be insulated with a concrete block back-up.

Component Condition & Anticipated Replacement Date This component is rated at good condition and is of above above standard quality.

Component Age: 22 years
 Remaining Life: 63 years
 Next Major Action Year: 2075

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Blocked or ineffective internal drainage
- Deteriorated finishes
- Fastener damage or corrosion
- Functional defects
- Joints not properly sealed at wall penetrations
- Non code compliant
- Physical damage or deterioration
- Surface cracking or spalling
- Surface staining or discoloration
- Vapour barrier defects
- Water ingress

01.3-010C65 Ext.W - Local stone, rough cut, solid

Element Instance: 01.3-010C65 Ext.W - Local stone, rough cut, solid - Front Elevation

Details	Values
Expected Life	85
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

This report was generated without using Virtual Events.

Component Description

The exterior walls consist of solid masonry, the facing of which is comprised primarily of Nepean sandstone with some Wallace sandstone, and with Ohio sandstone used at horizontal projections. Mortar joints are beige to match the sandstone. There is some brick masonry in the courtyards and brick and terracotta masonry back-up. Walls are generally not insulated.

Component Condition & Anticipated Replacement Date

The south façade and Peace Tower have been extensively repaired between 1994 and 1997.

At the south facade and Peace Tower, minor localized defects include: mortar joint deterioration ranging from hairline cracking to open joints, surface conditions including erosion, efflorescence, minor cracking, and staining due to mortar leaching. The flashing elements are in good condition but the sealants (discussed in Section "01.3A-050 Caulking") are beginning to fail.

This component is still rated at excellent condition and is of above standard quality.

Component Age: 17 years
Remaining Life: 68 years
Next Major Action Year: 2080

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Blocked or ineffective internal drainage

Deteriorated finishes

Fastener damage or corrosion

Functional defects

Joints not properly sealed at wall penetrations

Non code compliant

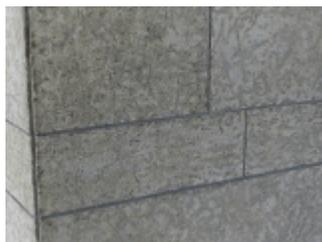
Physical damage or deterioration

Surface cracking or spalling

Surface staining or discoloration

Vapour barrier defects

Water ingress



Sand Stone.

Element Instance: 01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)

Details	Values
Expected Life	90
Component Cost	0
Last Major Action Year	1924
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

This report was generated without using Virtual Events.

Component Description

The exterior walls consist of solid masonry, the facing of which is comprised primarily of Nepean sandstone with some Wallace sandstone, and with Ohio sandstone used at horizontal projections. Mortar joints are beige to match the sandstone. There is some brick masonry in the courtyards and brick and terracotta masonry back-up. Walls are generally not insulated.

Component Condition & Anticipated Replacement Date

The most common defects noted in all the elevations excluding the front elevation, are:

- cracked and open mortar joints
- de-bonded mortar
- staining to the face of the stone
- soiling
- copper staining
- exfoliation
- surface reduction of carved stone
- alveolar decay
- cracks and hairline cracks
- spalls
- displacement of quoins
- parging of surface repairs.

The last review was conducted this year, which indicated that the cracks are stable and that there are no immediate concerns. The life cycle is slightly increased due to the character defining status of this component. The study includes the same recommendations as per the Building Envelope Screening. This includes:

- Level 1 study for the building envelope (cladding and roofing)
- Cladding and defect repairs (defects listed above)

The repairs are anticipated to be required again in 2018, however this should be revisited prior to starting the event.

This component is rated at fair condition and is of above standard quality.

Component Age: 88 years
Remaining Life: 2 years
Next Major Action Year: 2014

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Blocked or ineffective internal drainage

Deteriorated finishes

X

Fastener damage or corrosion

Functional defects

Joints not properly sealed at wall penetrations

X

Non code compliant

Physical damage or deterioration

Surface cracking or spalling

X

Surface staining or discoloration

X

Vapour barrier defects

Water ingress

X



Un-conserved Area.

01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 1

Brief Description

RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Un-Conserved Area]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2014	\$153,600	high priority	Building Condition Report

Event Description

Address aging and distress to exterior wall assembly (defects listed in Condition of component)

Event Justification & Strategy

Required to main cladding performance and appearance.

Implication of Event Deferral (Risks)

Deterioration of the cladding system.

01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 2

Brief Description

RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2015	\$102,400	high priority	Building Condition Report

Event Description

Annual building cladding screening to all elevations excluding the front elevation (conserved area).

Event Justification & Strategy

Required to verify condition and safety of the cladding.

Implication of Event Deferral (Risks)

Further damage to the cladding system in the discussed area.

01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 3

Brief Description

RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2016	\$102,400	high priority	Building Condition Report

Event Description

Annual building cladding screening to all elevations excluding the front elevation (conserved area).

Event Justification & Strategy

Required to verify condition and safety of the cladding.

Implication of Event Deferral (Risks)

Further damage to the cladding system in the discussed area.

01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 4

Brief Description

RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]

Event Type	Event Year	Event Cost	Priority	Data Origin
-------------------	-------------------	-------------------	-----------------	--------------------

RP Component life extension	2017	\$102,400	high priority	Building Condition Report
Event Description				
Annual building cladding screening to all elevations excluding the front elevation (conserved area).				
Event Justification & Strategy				
Required to verify condition and safety of the cladding.				
Implication of Event Deferral (Risks)				
Further damage to the cladding system in the discussed area.				
01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 5				
Brief Description				
RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]				
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2018	\$102,400	high priority	Building Condition Report
Event Description				
Annual building cladding screening to all elevations excluding the front elevation (conserved area).				
Event Justification & Strategy				
Required to verify condition and safety of the cladding.				
Implication of Event Deferral (Risks)				
Further damage to the cladding system in the discussed area.				
01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 6				
Brief Description				
RP Component replacement or new [01.3-010C65 Ext.W - Local stone, rough cut, solid - Un-Conserved Area]				
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2018	\$179,200	high priority	Building Condition Report
Event Description				
Address aging and distress to exterior wall assembly (defects listed in Condition of component)				
Event Justification & Strategy				
Required to main cladding performance and appearance.				
Implication of Event Deferral (Risks)				
Deterioration of the cladding system.				
01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 7				
Brief Description				
RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]				
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2019	\$102,400	N/A	Building Condition Report
Event Description				
Annual building cladding screening to all elevations excluding the front elevation (conserved area).				
Event Justification & Strategy				
Required to verify condition and safety of the cladding.				
Implication of Event Deferral (Risks)				
Further damage to the cladding system in the discussed area.				
01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 8				
Brief Description				
RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]				

This report was generated without using Virtual Events.

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2020	\$102,400	N/A	Building Condition Report
Event Description	Annual building cladding screening to all elevations excluding the front elevation (conserved area).			
Event Justification & Strategy	Required to verify condition and safety of the cladding.			
Implication of Event Deferral (Risks)	Further damage to the cladding system in the discussed area.			
01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front) Event #: 9				
Brief Description	RP Component life extension [01.3-010C65 Ext.W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2021	\$102,400	N/A	Building Condition Report
Event Description	Annual building cladding screening to all elevations excluding the front elevation (conserved area).			
Event Justification & Strategy	Required to verify condition and safety of the cladding.			
Implication of Event Deferral (Risks)	Further damage to the cladding system in the discussed area.			

01.3-060 Exterior Doors

01.3-060C15 Wood Doors

Element Instance: 01.3-060C15 Wood Doors - Remainder (All Elevations Excluding Front)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Exterior doors are solid wood and include the following:

- sweeps
- self closers or automated door operators
- kick plates
- inserts with reinforcing and beveled edges
- clearstorey (not at all doors)
- vestibule configurations
- bronze hardware
- carvings and other elaborate finishes.

The woodwork is a character defining element and varies in degree of detail and design depending on areas, the floor level, use, and function.

Component Condition & Anticipated Replacement Date The defect conditions of the unconserved doors include: delamination and loss of finish, splitting and checking of wooden panels and rails, cracking or loss of sealant at door frames and stone jambs, corrosion of brass kick plates, and salt staining and related damage at the bottom of the doors.

This component is rated at average condition and is of standard quality.

Component Age: 37 years
 Remaining Life: 13 years
 Next Major Action Year: 2035

the listed defects can be addressed as part of general maintenance.

Element State:	Average	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Air penetration			
Broken or cracked glass			
Physical damage or deterioration			
Unsafe conditions			

Element Instance: 01.3-060C15 Wood Doors - Front Elevation

<u>Details</u>	<u>Values</u>
Expected Life	40
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description Exterior doors are solid wood and include the following:

- sweeps
- self closers or automated door operators
- kick plates
- inserts with reinforcing and beveled edges
- clearstorey (not at all doors)
- vestibule configurations
- bronze hardware
- carvings and other elaborate finishes.

The woodwork is a character defining element and varies in degree of detail and design depending on areas, the floor level, use, and function.

Component Condition & Anticipated Replacement Date Defects noted at these doors include localized and minor: loss of finish, salt staining or damage at the bottom of doors, failure of sealant between frame and stone jambs, corrosion of metal kick plates, splitting and checking of wooden panels and rails of two wooden doors, soiling from hands and lubricants.

This component is rated at good condition and is of standard quality.

Component Age: 17 years
 Remaining Life: 33 years
 Next Major Action Year: 2045

the listed defects can be addressed as part of general maintenance.

Element State:	Good	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Air penetration			
Broken or cracked glass			
Physical damage or deterioration			



Wood Doors

01.3-070 Windows

01.3-070C01 Aluminum Windows

Element Instance: 01.3-070C01 Aluminum Windows - General

<i>Details</i>	<i>Values</i>
Expected Life	50
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

The aluminum windows are not original to the building and vary in style:

- Single glazed aluminum frames with single-hung vertical sliders
- Two sashes of aluminum frames with single-glazing per sash, casement-style
- Two sashes of aluminum framed glazing, an inner sash of double-glazed vertical wood sliders and an outer aluminum casement sash

The aluminum frames are mostly black to match the original steel framed glazing. Most seals are dry seals (gasket-style).

These windows are located throughout most of the corridors and offices with the exception of the south wall (the front elevation of the building). Most of the windows are not dated and their age could not be confirmed on site. They are expected to vary in age. Some of the glazing has been switched from clear glass to frosted. Most windows have locks, but no insect screens. Along the north perimeter, window-unit air conditioners are used in the summer months. Brackets to hold the units are located on the outside of the window sills.

Where glazing is single glazed, the windows are reported to be drafty and cause discomfort to the occupants. Plexi-glass is installed to the interior face during the winter months.

Component Condition & Anticipated Replacement Date

The aluminum sash windows have reportedly lost their finish and are difficult to operate. At the time of our visit, most of the windows appear to be operable and in average condition. It is assumed that the frames adjustment and other maintenance has been performed. Also, the finishes were not reported to have any major defects. The sealant around all of the aluminum windows has been replaced within the last two years and is in good condition.

This component is therefore rated at average condition and is of above standard quality.

Component Age: 37 years
Remaining Life: 13 years

Next Major Action Year: 2025

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Air penetration
- Broken or cracked glazing
- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage
- Operable glass inoperative
- Unsafe conditions
- Water penetration



Aluminum Windows in Office Suites.

Element Instance: 01.3-070C01 Aluminum Windows - Skylight - Fourth Floor Window Well

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	2006
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Skylights are located in two main light wells above the stain glass ceilings in the vestibule of the House of Commons chamber and the Senate chamber.

The skylights have been covered with modified bitumen to prevent water infiltration. Lighting was also added beneath the skylights to maintain the look of natural lighting through the stained glass ceilings.

Component Condition & Anticipated Replacement Date The skylights were waterproofed six years ago to prevent water infiltration. The flashing around the skylight is experiencing some paint loss in the Senate's side.

This component is rated at average condition and is of standard quality. The service life is lowered relative to other skylights within the study due to its leakage history and repair strategy.

Component Age: 6 years
Remaining Life: 14 years
Next Major Action Year: 2026

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Air penetration
- Broken or cracked glazing

- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage
- Operable glass inoperative
- Unsafe conditions
- Water penetration



Skylight in the south east pit.

Element Instance: 01.3-070C01 Aluminum Windows - Skylight - North End

<i>Details</i>	<i>Values</i>
Expected Life	50
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

Skylights are located on the north side of the Centre Block. They consist of a series of dome style, white opacity, aluminum framed skylights. Some of the north skylights also include pressure equalized system, with double-glazed thermally sealed glass units and thermally broken frames and mullions.

Component Condition & Anticipated Replacement Date

The skylights are reportedly from from 1999. The aluminum frame of the north end skylights are beginning to loose their color and the sealants around the openings (windows) are starting to fail.

Allowance should be made to maintain the skylights (minimal cost below the threshold). The scope would primarily include re-caulking of the joints. This component will be replaced past the scope of the ten-year report.

This component is rated at average condition and is of above standard quality.

Component Age: 13 years
 Remaining Life: 37 years
 Next Major Action Year: 2059

Element State: Average ***ACL:*** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Air penetration
- Broken or cracked glazing
- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage

Operable glass inoperative
 Unsafe conditions
 Water penetration



North side skylights.

Element Instance: 01.3-070C01 Aluminum Windows - Skylight - Senate Courtyard

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

The Senate courtyard skylight is located in the interior court of the east side of Centre Block. It consists of an aluminum frame with double pane, Insulated Glazed Units (IGUs). The bottom IGUs are tinted. The skylight has a triangular prism configuration.

Component Condition & Anticipated Replacement Date

The IGUs were date stamped 1996, which is the assumed age of the component. It is rated at good condition and is of standard quality.

Component Age: 16 years
 Remaining Life: 34 years
 Next Major Action Year: 2046

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Air penetration
- Broken or cracked glazing
- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage
- Operable glass inoperative
- Unsafe conditions
- Water penetration



Senate courtyard skylight.

Element Instance: 01.3-070C01 Aluminum Windows - Skylight - West Roof

This report was generated without using Virtual Events.

Details

Expected Life	50
Component Cost	120,375
Last Major Action Year	1960
Component Condition (For BCR use only)	Poor
Quantity	125
Measurement unit/ Metric	m2

Values**Component Description**

The west skylight is located above Parliament Restaurant. It has an aluminum frame with reinforced glazing (georgian mesh in a single-glazed). The casing of the skylight consists of metal flashing over modified bitumen. The top of the skylight has a series of air vents with lightning rods on top. Anchors are attached onto the side of the aluminum frame.

Component Condition & Anticipated Replacement Date

Some of the glazed units were previously replaced. The bottom flashing is corroded and needs replacing. Leaks are also reported at this skylight.

The skylight appears to have reached the end of its life expectancy. It requires maintenance and is reportedly relying on the sealant to prevent water infiltration.

This component is rated at poor condition and is of standard quality.

Component Age: 52 years
 Remaining Life: 0 years
 Next Major Action Year: 2013

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria**Existence****Comments**

Air penetration

Broken or cracked glazing

Deteriorated surface or integral glass treatments

Deterioration of frame finishes

X

Frame deterioration

X

Hardware damage

Operable glass inoperative

Unsafe conditions

Water penetration



Skylights in the west wing.

01.3-070C01 Aluminum Windows - Skylight - West Roof Event #: 1**Brief Description**

RP Component replacement or new [01.3-070C01 Aluminum Windows - Skylight - West Roof]

Event Type**Event Year****Event Cost****Priority****Data Origin**

RP Component replacement or new

2013

\$123,264

medium priority

Building Condition Report

Event Description

Remove and replace skylight (recommended to be performed in sequence with the

This report was generated without using Virtual Events.

Event Justification & Strategy	anticipated roofing replacement) Further water ingress and water damage.
Implication of Event Deferral (Risks)	The water infiltration will remain and cause further water damage.

01.3-070C05 Steel Windows

Element Instance: 01.3-070C05 Steel Windows - Offices

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description The steel windows are reportedly original to the building and are located along the south elevation of the building . The windows have been retrofitted with newer inner frames. The steel components are therefore located on the outside. Each window has a fixed steel pane and an adjacent operable pane. The newer inner sashes are black steel with bronze hardware (cranks and locks). The inner panes are completely operable.

The retrofit maintains the appearance of the building and the overall performance as well. All panes are single glazed.

Component Condition & Anticipated Replacement Date The original steel window frames are corroding and the leaded panes require resoldering. Defects of the windows include: dried, cracked and failed sealant at a number of windows, loose or missing sealant stripping between frame and glazing, loss of finish on a few frames and corrosion of one frame member.

This component is rated at good condition and is of standard quality.

Component Age: 17 years
Remaining Life: 33 years
Next Major Action Year: 2045

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Air penetration		
Broken or cracked glazing		
Deteriorated surface or integral glass treatments	X	
Deterioration of frame finishes	X	
Frame deterioration	X	
Hardware damage		
Operable glass inoperative		
Unsafe conditions		
Water penetration		



Steel Windows.

01.3-070C10 Wood Windows

Element Instance: 01.3-070C10 Wood Windows

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	m2

Component Description Wood framed windows are primarily located within the courtyard spaces. The windows consist of single-pane sashes. Vertical sliders are used at the outer panes and casements are used for the inner panes. The inner panes have locks. The frames are painted to match the esthetics of the building.

Interior casements appear to be retrofitted and not present at all wood frame windows.

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of standard quality.

Component Age: 37 years
 Remaining Life: 13 years
 Next Major Action Year: 2035

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Air penetration
- Broken or cracked glazing
- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage
- Operable glass inoperative
- Unsafe conditions
- Water penetration



Wood Window Frames.

01.3-070C15 Other-Specialties Windows

This report was generated without using Virtual Events.

Element Instance: 01.3-070C15 Other-Specialties Windows - Copper Frame - Peace Tower

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1992
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

The copper framed windows are located in the Observation deck of the Peace Tower. On all four elevations, the windows are incorporated within the original stone balustrade openings, above the balustrades, and as a clearstorey sloped glazing. All windows have double-pane IGUs. Most panes are fixed with only a few operable casement windows.

Component Condition & Anticipated Replacement Date

There was a total of nine failed IGUs noted in windows. Some minor staining was also noted and therefore a review of the sealant is recommended to take place while replacing the IGUs. The replacement can be completed from the interior at minimal cost and below the study's threshold. No cost is therefore included within the study.

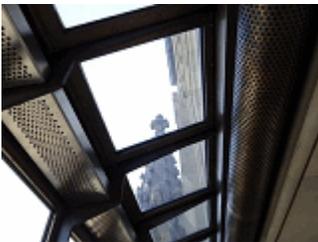
This component is rated at average condition and is of standard quality.

Component Age: 20 years
 Remaining Life: 20 years
 Next Major Action Year: 2032

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Air penetration
- Broken or cracked glazing
- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage
- Operable glass inoperative
- Unsafe conditions
- Water penetration



Top set of copper windows.



Low set of copper windows.

This report was generated without using Virtual Events.



Middle set of copper windows.

Element Instance: 01.3-070C15 Other-Specialties Windows - Stained Glass - Memorial Chamber

<u>Details</u>	<u>Values</u>
Expected Life	40
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Stained Glass windows are located on all four sides of the Memorial Chamber. The south side of the tower has a geometric tracery (pink tone) and the three other sides have a reticulated tracery (multi-colored).

Component Condition & Anticipated Replacement Date

The stained glass was restored as part of the 1998 Peace Tower renovation project.

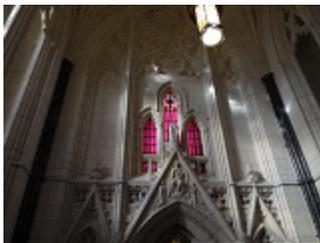
This component is rated at excellent condition and is of above standard quality.

Component Age: 6 years
 Remaining Life: 34 years
 Next Major Action Year: 2046

Element State: Excellent **ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
-----------------------------------	-------------------------	------------------------

- Air penetration
- Broken or cracked glazing
- Deteriorated surface or integral glass treatments
- Deterioration of frame finishes
- Frame deterioration
- Hardware damage
- Operable glass inoperative
- Unsafe conditions
- Water penetration



Stain Glass with Lead in Memorial Chamber.

Element Instance: 01.3-070C15 Other-Specialties Windows - Stained Glass in Centre Block

<u>Details</u>	<u>Values</u>
Expected Life	35
Component Cost	0
Last Major Action Year	1979

This report was generated without using Virtual Events.

Component Condition (For BCR use only) Poor
 Quantity 1
 Measurement unit/ Metric sum

Component Description Stained glass windows are located throughout the Centre Block, primarily within specialty rooms, some larger offices, and Chambers.

In 1979, aluminum framed fixed units were added to the exterior to protect the stain glass and improve its performance.

Component Condition & Anticipated Replacement Date There are many areas of leaks which are causing significant damage to the adjacent stone work.

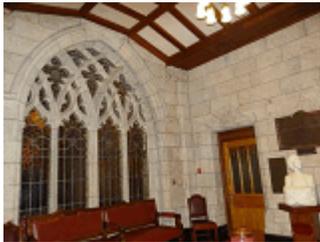
This component is rated at poor condition and would have been considered at above standard quality.

Component Age: 37 years
 Remaining Life: 0 years
 Next Major Action Year: 2013 (due to completion of 2012)

Element State: Poor **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Air penetration	
Broken or cracked glazing	
Deteriorated surface or integral glass treatments	
Deterioration of frame finishes	X
Frame deterioration	X
Hardware damage	
Operable glass inoperative	
Unsafe conditions	
Water penetration	



Stain Glass

01.3-070C15 Other-Specialties Windows - Stained Glass in Centre Block Event #: 1

Brief Description RP Component life extension [01.3-070C15 Other-Specialties Windows - Stain Glass in Centre Block]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2013	\$102,400	medium priority	Building Condition Report

Event Description Perform repairs to the stained glass to address sealants and localized defects.

Event Justification & Strategy Required to repair current defects and minimize water infiltration.

Implication of Event Lack of adequate performance of the building envelope.

Deferral (Risks)

01.3A-050 Caulking

This report was generated without using Virtual Events.

Element Instance: 01.3A-050 Caulking

Details	Values
Expected Life	10
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Caulking is used primarily around windows. Refer to the window sections of the report (section 1.3-070C).

Component Condition & Anticipated Replacement Date Not applicable

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Cracks
Dirt in operating subcomponents
Discolouration or staining
Insufficient seal and packing protection
Missing elements

01.3A-075 Window Coverings**Element Instance: 01.3A-075 Window Coverings - Centre Block**

Details	Values
Expected Life	15
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Window coverings can be broken into three groups: The Senate offices, the House of Commons offices and specialty areas/rooms (including office areas such as the Speaker for the Senate's suite).

The Senate offices utilize more elaborate drapes or a combination of sheers and drapes while the House of Commons offices typically use aluminum or wood blinds. The specialty spaces often use richer materials for the drapery.

Component Condition & Anticipated Replacement Date Window coverings vary in age. As a whole, the component is rated at above average standard and of good to excellent quality. There are no major costs anticipated within the 10-year term of the study.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Ineffective or inoperative
Obsolete
Physical damage or deterioration



Window Coverings.

01.4 Roofing

01.4-010 Roof Coverings

01.4-010C10 Composition or Asphalt Shingles/Tiles Roof

Element Instance: 01.4-010C10 Composition or Asphalt Shingles/Tiles Roof - House of Commons Loading

Dock

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

A sloped roof is located over the loading dock canopy for the House of Commons side of the building (west end of the north elevation). The roofing consists of conventional 3-tab asphalt shingles on a roof structure.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of standard quality.

Component Age: 13 years
 Remaining Life: 22 years
 Next Major Action Year: 2034

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Damaged openings or specialties
- Damaged, deteriorated or inadequate roofing material
- Inadequately sloped to drains
- Inherent environmental defects
- Insufficient roof drains
- Leakage
- Non code compliant
- Water penetration

01.4-010C15 Copper Roof

Element Instance: 01.4-010C15 Copper Roof - Front Elevation

Details	Values
Expected Life	50
Component Cost	50,000
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

The sloped roofing is comprised of sheet copper with batten ribs. Architectural details made of iron are provided by pinnacles, finials, and projections. The system is allowed to expand and contract by means of slip-locked and interconnected seams. All valleys, ridges and architectural decorative detailing have fully soldered seams. Soldering is also present at perforations of pinnacles and finials.

Most of the copper roofs are located at the corner towers, the Peace Tower, and turrets. Water is mostly shed to lower flat roofs that have storm water roof drains. Some roofs are equipped with eavestroughs and some of which have heating cables.

Component Condition & Anticipated Replacement Date

Reported defects in the front elevation (verified where possible), include the following:
- bent drip edges
- accumulation of debris and bird droppings in downspouts and catch basins
- broken and missing de-icing cables at the main valley eaves

A life extension project is recommended to repair the listed defects and to minimize damage.

This component is rated at good condition and is of above standard quality.

Component Age: 17 years
Remaining Life: 33 years
Next Major Action Year: 2045

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Damaged openings or specialties

X

Damaged, deteriorated or inadequate roofing material

X

Inadequately sloped to drains

Inherent environmental defects

Insufficient roof drains

Leakage

Non code compliant

Water penetration



Copper roof on south side of the roof.

01.4-010C15 Copper Roof - Front Elevation Event #: 1

Brief Description

RP Component life extension [01.4-010C15 Copper Roof - South Side of Centre Block]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2015

\$51,200

high priority

Building Condition Report

Event Description

Repair allowance to address defects with eavestrough, roofing, solders, connections, heating cables, and any other sloped roof elements required.

This report was generated without using Virtual Events.

Event Justification & Strategy	Required to extend the service life of the component
Implication of Event Deferral (Risks)	Reduced service life of the component.

Element Instance: 01.4-010C15 Copper Roof - Remainder (All Elevations Excluding Front)

Details	Values
Expected Life	50
Component Cost	10,000
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

The sloped roofing is comprised of sheet copper with batten ribs. Architectural details made of iron are provided by pinnacles, finials, and projections. The system is allowed to expand and contract by means of slip-locked and interconnected seams. All valleys, ridges and architectural decorative detailing have fully soldered seams. Soldering is also present at perforations of pinnacles and finials.

Most of the copper roofs are located at the corner towers, the Peace Tower, and turrets. Water is mostly shed to lower flat roofs that have storm water roof drains. Some roofs are equipped with eavestroughs and some of which have heating cables.

Component Condition & Anticipated Replacement Date

The following defects were reported at all elevations, excluding the front elevation, and verified where possible:

- Application of caulking to the copper roof and stainless steel fasteners
- Color fading due to UV exposure
- Dents
- Repaired areas
- A hole in the copper pan at the east side of the main core.
- Blueskin peel was visible at the towers due to lack of cap flashing.
- Rusting of the fasteners was also observed at the cap flashing in the courtyards.

The last restoration project was noted to be around 1975. This component is rated at average condition and is of standard quality. Minor repairs have since been addressed as part of maintenance.

Component Age: 37 years
 Remaining Life: 13 years
 Next Major Action Year: 2025

This sloped roof restoration in the un-conserved section is anticipated past the term of the 10-year study, based on expected service life of the component. To ensure the service life, we anticipate the requirement for on-going maintenance and repairs.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Damaged openings or specialties	X	
Damaged, deteriorated or inadequate roofing material	X	
Inadequately sloped to drains		
Inherent environmental defects		
Insufficient roof drains		

This report was generated without using Virtual Events.

Leakage
 Non code compliant
 Water penetration



Copper roof on east side of centre block.

01.4-010C15 Copper Roof - Remainder (All Elevations Excluding Front) Event #: 1

Brief Description	RP Component life extension [01.4-010C15 Copper Roof -Un-Conserved Section]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2017	\$76,800	high priority	Building Condition Report
Event Description	Repair allowance to address defects with eavestrough, roofing, solders, connections, heating cables, and any other sloped roof elements required.			
Event Justification & Strategy	Required to extend the service life of the component			
Implication of Event	Reduction in service life of the sloped roofing component			
Deferral (Risks)				

01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply

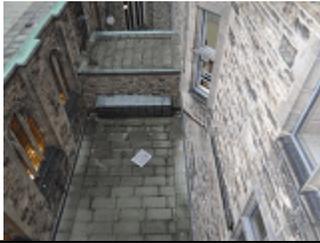
Element Instance: 01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Central Courtyards

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2000
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum
Component Description	Refer to Section "01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Centre Block"
Component Condition & Anticipated Replacement Date	The inverted roofs in the courtyards are estimated to be around twelve years old, with the central lower well being less than three years old. This component is rated at good condition and is of standard quality. Component Age: 12 years Remaining Life: 13 years Next Major Action Year: 2025

Element State:	Good	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Damaged openings or specialties			
Damaged, deteriorated or inadequate roofing material			
Inadequately sloped to drains			
Inherent environmental defects			

This report was generated without using Virtual Events.

Insufficient roof drains
 Leakage
 Non code compliant
 Water penetration



Central Coutyards

Element Instance: 01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Centre Block]

Details	Values
Expected Life	22
Component Cost	1,430,528
Last Major Action Year	1991
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

Component Description

The flat roofs are comprised of inverted roof membrane assemblies and are located around the three main courtyards, along the perimeter between the towers and on the elevated roofs within the courtyards.. The waterproofing membrane and flashing are comprised of a two-ply modified bitumen membrane system, torch applied to the concrete deck. The insulation consists of polystyrene, type 4, laminated to a 13mm layer of concrete topping. Precast concrete pavers are typically located around the perimeter of each roof.

All flat roof areas appear to have a satisfactory slope to the centrally located mechanical roof drains.

Membrane flashings are protected from UV degradation and mechanical damage with 16 oz copper flashing. The metal flashing on the newer roofs in the central well area are covered with pre-finished galvanized steel.

Component Condition & Anticipated Replacement Date

The deterioration of the ballast was noted throughout the roof. In addition, there is a number of locations where vegetation has begun to grow. This vegetation can be as significant as small tree saplings that have taken root underneath the pavers in some locations.

The perimeter concrete pavers appear to be newer. In addition, the perimeter flashing appears to have been replaced (where verified). Some evidence of cut testing was also noted at the time of our visit. It is our understanding that a roofing study was performed, however the report was not made available.

This component is rated at fair condition and is of standard quality.

Component Age: 21 years
 Remaining Life: 1 years
 Next Major Action Year: 2013

Element State: Fair
Assessment Criteria

ACL: ACL 2 - Check List
Existence **Comments**

This report was generated without using Virtual Events.

Damaged openings or specialties	X
Damaged, deteriorated or inadequate roofing material	X
Inadequately sloped to drains	
Inherent environmental defects	
Insufficient roof drains	
Leakage	X
Non code compliant	
Water penetration	X



Asphalt roofing.

01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Centre Block] Event #: 1

Brief Description

RP Component replacement or new [01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Centre Block]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2013	\$1,430,528	high priority	Building Condition Report

Event Description

Remove and replace roofing membrane and required elements

Event Justification & Strategy

Required to maintain water tightness of the roof assembly

Implication of Event Deferral (Risks)

Potential failure of membrane.

Element Instance: 01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Inverted with ballast

Details	Values
Expected Life	25
Component Cost	20,320
Last Major Action Year	1991
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	sum

Component Description

One small roof in the central courtyard area has been replaced with new standard type 4 polystyrene insulation and ballasted with river washed stone. It appear to have a satisfactory slope to the centrally located mechanical roof drains.

Component Condition & Anticipated Replacement Date

This component is rated at fair condition and is of standard quality.
 Component Age: 21 years (assumed to be replaced around 1991).
 Remaining Life: 4 years
 Next Major Action Year: 2016

Element State: Fair **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Damaged openings or specialties	X	

Damaged, deteriorated or inadequate roofing material
 Inadequately sloped to drains
 Inherent environmental defects
 Insufficient roof drains
 Leakage
 Non code compliant
 Water penetration

01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Inverted with ballast Event #: 1

Brief Description		RP Component replacement or new [01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Inverted with ballast]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2013	\$20,808	high priority	Building Condition Report
Event Description		Remove and replace roofing membrane and required elements		
Event Justification & Strategy		Required to maintain water tightness of the roof assembly		
Implication of Event Deferral (Risks)		Potential failure of membrane.		

Element Instance: 01.4-010C25 Inv Roof/Elast. Reinforced Sheet 1>ply - Senate Side - Second Floor

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description
 In the main east courtyard on the senate side, the roofing consists of an inverted system and reportedly asphalt membrane . The roofing membrane is topped with rigid insulation, filter fabric, and concrete stone pavers instead of stone ballast. The roof also has pre-finished metal flashing and a drain with a slotted dome cover.

Component Condition & Anticipated Replacement Date
 The metal flashing is experiencing some surface loss. The courtyard has some vegetation growing between the inverted roof pavers.

This component is rated at good condition and is of standard quality.

Component Age: 11 years
 Remaining Life: 14 years
 Next Major Action Year: 2036

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Damaged openings or specialties
 Damaged, deteriorated or inadequate roofing material
 Inadequately sloped to drains
 Inherent environmental defects
 Insufficient roof drains

Leakage
 Non code compliant
 Water penetration



Inverted roof system on senate side at ground level.

01.5 Interior Construction

01.5-012 Frame Partitions

01.5-012C01 Gypsum Board Partition with Studs

Element Instance: 01.5-012C01 Gypsum Board Partition with Studs - Carillon Room - Peace Tower

Details	Values
Expected Life	10
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Although most of the spaces within Centre Block are finishes with lath and plaster, some areas include drywall finishes with a paint (typically beige). Such rooms include The Carillon room (located on the seventh floor of the Peace Tower), kitchen spaces, the mail room (on the first floor) and some service rooms.

Component Condition & Anticipated Replacement Date

The drywall is of different vintages and on-going painting and repairs are reportedly addressed as part of general building maintenance. The study therefore assumes that the last major action year is 2012 and no major costs within the 10-year term of the Centre Block study.

This component is rated at excellent condition and is of standard quality.

Component Age: 0 years (to represent the annual renovations)
 Remaining Life: 10 years
 Next Major Action Year: 2022

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Deteriorated finishes
- Functional defects
- Non code compliant
- Physical damage or deterioration
- Unsafe conditions



Paint finished walls in Carillon Room.

01.5-050 Interior Doors

Element Instance: 01.5-050 Interior Doors - East Block Tunnel

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Excellent
Quantity	3
Measurement unit/ Metric	ea

Component Description The tunnel connecting the East Block to the Centre Block includes 2 sets of double swing solid wood doors, totaling up to 4 doors. Doors include:

- tempered lite and side lite panels
- brass locks
- push bars in a brass finish
- pull handles with latches (brass finish)
- brass hinges

Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality.

Component Age: 13 years
 Remaining Life: 37 years
 Next Major Action Year: 2049

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Broken or cracked glass
- Functional defects
- Non code compliant
- Physical damage or deterioration



East Block Tunnel Doors.

01.5-050C10 Hardwood Doors

Element Instance: 01.5-050C10 Hardwood Doors - Offices

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1

This report was generated without using Virtual Events.

Measurement unit/ Metric

sum

Component Description

Each office suite, conference room, meeting rooms, etc. is equipped with a wood door with brass hardware. The doors are a mix of veneer and solid wood components. Elements include:

- rectangular inlay designs in the wood door
- self closer
- transom and transom knob
- lock
- knob
- mail slot

Transoms are typically frosted glass inserts with door frames and they are operable. Where the operating mechanism is no longer serviceable, the glass insert is replaced with a wood panel and a fan is included to allow for air exhaust from the office space to the corridor.

Component Condition & Anticipated Replacement Date

The exact age of the doors is unknown, however that are considered to be part of the character defining elements. It was reported that doors are refinished in-house on an as-needed basis. Temporary doors are provided until the original doors are re-installed.

This component is rated at excellent condition and is of standard quality.

Component Age: 2 years

Remaining Life: 48 years

Next Major Action Year: 2060

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Broken or cracked glass

Functional defects

Non code compliant

Physical damage or deterioration



Office Door.

Element Instance: 01.5-050C10 Hardwood Doors - Specialities

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Specialty doors are located at Reading Rooms, Chambers, and other specialty areas in the House of Commons spaces and the Senate Spaces in Centre Block. These doors vary in size, and are typically larger than the remainder of the doors in

the building. The doors are a solid wood doors with wrought iron hardware and are considered to be part of the character defining elements.

Component Condition & Anticipated Replacement Date

This component is rated at excellent condition and is of above standard quality. It is our understanding that the doors are monitored and repaired frequently to maintain their appearance and quality. Repairs and touch-ups to the finish are completed annually. The doors are believed to be original. The last major action year is assumed to be 2012 based on regular review and maintenance.

Component Age: 13 years (assumed to be part of the major repairs to the south end of the building)
Remaining Life: 62 years
Next Major Action Year: 2074

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Broken or cracked glass

Functional defects

Non code compliant

Physical damage or deterioration



Office Doors.

01.5-050C15 Metal Doors

Element Instance: 01.5-050C15 Metal Doors - CBUS

Details	Values
Expected Life	60
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Doors in CBUS primarily consist of hollow steel doors (single and double swing). They are typically equipped with:
- push bars
- pull plates
- kick plates
- door locks
- self closers

Most doors come with a lite panel with reinforcing mesh. Doors are painted with a commercial green color.

Component Condition & Anticipated Replacement Date

This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
Remaining Life: 46 years
Next Major Action Year: 2058

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Broken or cracked glass
- Functional defects
- Non code compliant
- Physical damage or deterioration



Metal doors in CBUS.

Element Instance: 01.5-050C15 Metal Doors - Centre Block

Details	Values
Expected Life	60
Component Cost	0
Last Major Action Year	1992
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Service doors in the Centre Block primarily consist of hollow steel doors (single swing). They are typically equipped with:

- push bars
- pull plates
- kick plates
- door locks
- self closers

Most doors come with a lite panel with reinforcing mesh.

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of standard quality.

Component Age: 20 years
Remaining Life: 20 years
Next Major Action Year: 2032

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Broken or cracked glass
- Functional defects
- Non code compliant
- Physical damage or deterioration

01.5-060 Interior Wall Finishes

01.5-060C10 Lath & Plaster Wall

Element Instance: 01.5-060C10 Lath & Plaster Wall

Details	Values
Expected Life	40
Component Cost	0

This report was generated without using Virtual Events.

Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

The walls in the offices, Reading Rooms, Dining Rooms, conference rooms, washrooms, and other specialty rooms include painted plaster, wood cornices, wood base boards, wood chair rails, and wood wainscoting in certain offices.

The House of Commons offices are generally painted below the chair rail. The wood crown moldings, bases, and chair rails are also more elaborate in the Senate offices.

Component Condition & Anticipated Replacement Date

The component is of different vintages and on-going painting and repairs are reportedly carried out as part of general building maintenance. The study therefore assumes that the last major action year is 2012 and no major costs are anticipated within the 10-year term of the Centre Block study.

This component is rated at excellent condition and is of standard quality.

Component Age: 0 years (to represent the annual renovations)
 Remaining Life: 10 years
 Next Major Action Year: 2022

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Algae/biological growth/mould

Sagging and settlement - water penetration

Stains and discolouration



Paint finishes on walls.

01.5-060C30 Special Wall Finishes

Element Instance: 01.5-060C30 Special Wall Finishes - Aluminum Guards - CBUS

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

Aluminum guards are installed along the hallways in the first and second level of CBUS. They are in placed to protect the corners, columns and walls of the hallways from impact damage.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of above-standard quality.

Component Age: 14 years
 Remaining Life: 36 years
 Next Major Action Year: 2048

Element State: Good **ACL:** ACL 2 - Check List

This report was generated without using Virtual Events.

Assessment Criteria**Existence****Comments**

Discolouration or staining

Physical damage or deterioration of finish



Element Instance: 01.5-060C30 Special Wall Finishes - Black & White Marble - Peace Tower**Details****Values**

Expected Life	50
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

The Memorial Chamber is located on the third floor of the Peace Tower. The interior walls consists of white marble walls with black marble pilasters in the corners. The finish is considered to be part of the building's character defining elements.

Component Condition & Anticipated Replacement Date

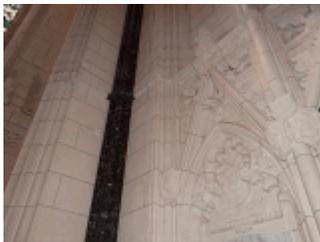
This component is rated at excellent condition and is of above standard quality.

Component Age: 14 years
Remaining Life: 36 years
Next Major Action Year: 2048

Element State: Excellent**ACL:** ACL 2 - Check List**Assessment Criteria****Existence****Comments**

Discolouration or staining

Physical damage or deterioration of finish



Black and white marble with stones.

Element Instance: 01.5-060C30 Special Wall Finishes - Stone**Details****Values**

Expected Life	85
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

Public corridors are finishes with stone (lower portion) and painted plaster (upper). The stone base is generally black to match the border closest to the wall. The top of the stone is carried up and over door and transoms. The stone finish on the upper floors and the lower floors is in light grey, while the public corridors on the lower floor

are rougher sandstone. These finishes are carried into the open stairwells.

Some of the hallways have plaster finish on block. Specialty finishes include the following:

- Ceremonial and special areas with elaborate carvings (Aboriginal Room, larger suites, etc.)
- Decorative piers and friezes in stone and wood at the sixth floor dining room
- Elaborate stone, wood work and gold leafing in Commons and Senate's chambers
- Elaborate wood paneling in reading rooms

Component Condition & Anticipated Replacement Date

All of the vestibule entrances are part of the character defining elements with a high quality of finish and detail. Components appear to be well maintained and therefore in good condition and of above-standard quality.

Component Age: 37 years (assumed to have been restored as part of the 1975 restoration program)
 Remaining Life: 48 years
 Next Major Action Year: 2060

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Discolouration or staining

Physical damage or deterioration of finish



Stone Wall Finishes.

01.5-070 Floor Finishes

01.5-070C05 Carpeting

Element Instance: 01.5-070C05 Carpeting - East Block Tunnel

Details	Values
Expected Life	30
Component Cost	72,300
Last Major Action Year	1999
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

The Tunnel connecting the East Block to the Centre Block is finished with a beige-brown pile cut carpet with a solid brown perimeter inlay. A granite border and baseboard (grey & black) is incorporated on both sides of the tunnel.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of above-standard quality. The service life of this component was increased to reflect the increase in quality.

Component Age: 13 years
 Remaining Life: 17 years
 Next Major Action Year: 2029

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

This report was generated without using Virtual Events.

Excessive wear
 Stains, tears and poor seam condition
 Stretching and wrinkling



Carpeting in East Tunnel.

01.5-070C05 Carpeting - East Block Tunnel Event #: 1

Brief Description	RP Component replacement or new [01.5-070C05 Carpeting - East Block Tunnel]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2039	\$74,035	N/A	Building Condition Report
Event Description	Remove and replace carpeting			
Event Justification & Strategy	Required to maintain esthetics			
Implication of Event	Compromised esthetics and potential tipping hazards			
Deferral (Risks)				

Element Instance: 01.5-070C05 Carpeting - House of Commons & Senate

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description Pile cut carpets are located in the chambers. The carpet is red in the Senate Chamber and green in the House of Commons' Chamber. The carpets cover the full areas of the chambers, including the steps.

Component Condition & Anticipated Replacement Date This component is rated at good condition and is of above standard quality, based on the age of the carpet. We do not expect that carpet to be addressed before the 10-year term of the study.

Component Age: 17 years
 Remaining Life: 33 years
 Next Major Action Year: 2045

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Excessive wear
 Stains, tears and poor seam condition
 Stretching and wrinkling



Red Carpeting in the Senate Chamber.



Green carpeting in the House of Commons.

Element Instance: 01.5-070C05 Carpeting - Offices & Service Areas

<i>Details</i>	<i>Values</i>
Expected Life	20
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Carpets are installed in offices as well as in service areas such as the mail room.

Component Condition & Anticipated Replacement Date All the carpets are of different vintages are changed on an as-needed basis. The office users are responsible for the request of replacement. It was noted that the carpet in the Reading Room was restored in 1996.

This component is rated at varying condition and is of standard quality.

Component Age: 0 years (to represent the annual repairs to the carpeting)
 Remaining Life: 20 years
 Next Major Action Year: 2032

Element State: Excellent ***ACL:*** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
-----------------------------------	-------------------------	------------------------

- Excessive wear
- Stains, tears and poor seam condition
- Stretching and wrinkling



Carpeting in Office Spaces.



Carpet in Mail Room.

Element Instance: 01.5-070C05 Carpeting - Restaurant & New Zealand Room

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Carpets are installed in the New Zealand Room and in the Restaurant of Parliament. The carpets have varying colors and textures depending on their location.

Some of the carpeting is finished with wood baseboards along the perimeters of the walls. Several hallways also have carpeting.

Component Condition & Anticipated Replacement Date

This component is rated at excellent condition and is of above standard quality with a higher life expectancy. The age of the carpet is unknown. It was reported on side that the carpet was replaced in 2010, and no provided documentation indicated otherwise.

Component Age: 2 years
 Remaining Life: 28 years
 Next Major Action Year: 2040

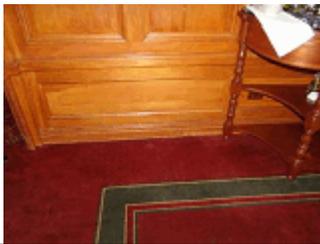
Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Excessive wear
- Stains, tears and poor seam condition
- Stretching and wrinkling



Carpet in the Restaurant



Carpeting in the New Zealand Room.

01.5-070C20 Hardwood Floor

Element Instance: 01.5-070C20 Hardwood Floor

This report was generated without using Virtual Events.

Details

Expected Life	50
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Values**Component Description**

Hardwood flooring can only be found in the Speakers' Chambers as well as in the Reading Room and is now mainly covered with carpets for protection. The flooring is of character defining elements.

Component Condition & Anticipated Replacement Date

The hardwood flooring is well maintained and preserved.

This component is rated at good condition and is of above standard quality.

Component Age: 17 years (based on estimated last major action year)

Remaining Life: 33 years

Next Major Action Year: 2045

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria**Existence****Comments**

Deterioration of surface finish

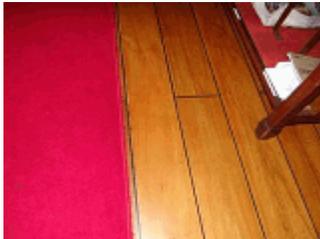
Excessive wear

Protruding nails

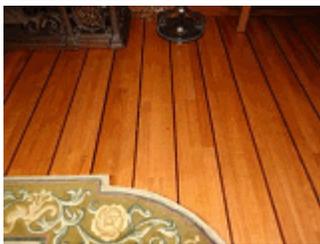
Rotting and decay

Shrinkage

Unevenness



Hardwood Floor in Reading Room.



Hardwood in the Speaker's Chambers.

01.5-070C30 Marble Floor

Element Instance: 01.5-070C30 Marble Floor - Observation Deck - Peace Tower

Details

Expected Life	60
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Values**Component Description**

The flooring in the Observation Deck of the Peace Tower consists of beige marble

This report was generated without using Virtual Events.

squared by black marble. The black marble also runs along the perimeter of the deck.

Component Condition & Anticipated Replacement Date

This component is rated at average condition and is of above standard quality. The life cycle is reduced based on heavy foot traffic.

Component Age: 37 years
Remaining Life: 23 years
Next Major Action Year: 2035

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Debonding of assembly from substrate
- Discolouration or staining
- Excessive wear
- Physical damage or deterioration of finish



Marble flooring in Peace Tower.

Element Instance: 01.5-070C30 Marble Floor - Offices

Details	Values
Expected Life	110
Component Cost	0
Last Major Action Year	1924
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Black and White marble floors and baseboards are installed in the vestibule of corner offices. The design of the marble flooring changes from office to office.

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of above standard quality.

Component Age: 88 years
Remaining Life: 22 years
Next Major Action Year: 2034

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Debonding of assembly from substrate
- Discolouration or staining
- Excessive wear
- Physical damage or deterioration of finish



Marble floor vestibule in corner offices.

01.5-070C35 Painted Concrete Floor

Element Instance: 01.5-070C35 Painted Concrete Floor

Details	Values
Expected Life	15
Component Cost	0
Last Major Action Year	2000
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Concrete floors are located on the sixth floor of Centre Block. They have a grey paint finish and are located under the copper roof areas.

Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality.

Component Age: 2 years
 Remaining Life: 13 years
 Next Major Action Year: 2025

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Discolouration or staining
- Excessive peeling or flaking
- Excessive wear



Painted concrete floor.

Element Instance: 01.5-070C35 Painted Concrete Floor - CBUS

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description The concrete floor is painted in all the service rooms but not in the corridors. Grey paint is used at upturns for mechanical pads as well.

Component Condition & Anticipated Replacement Date This component is rated at good condition and is of above standard quality. This is most likely due to the extensive maintenance and cleaning (service life was extended to 30 year based on age and current condition).

Component Age: 14 years
Remaining Life: 16 years
Next Major Action Year: 2028

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Discolouration or staining
Excessive peeling or flaking
Excessive wear



Painted concrete.

01.5-070C36 Parquet tile floor

Element Instance: 01.5-070C36 Parquet tile floor

<u>Details</u>	<u>Values</u>
Expected Life	40
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Parquet flooring is installed in the Commonwealth Room and in the Reading Room of the House of Commons. Several different types of wood were used.

Component Condition & Anticipated Replacement Date

The parquet flooring in the Reading Room (House of Commons) is part of the character defining elements, however it was replaced in 2012 and not to match the original design.

This component is rated at excellent condition and is of above standard quality.

Component Age: 0 years
Remaining Life: 40 years
Next Major Action Year: 2052

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Deterioration of surface finish
Excessive wear
Protruding nails
Rotting and decay
Shrinkage
Unevenness



Parquet flooring in the Commonwealth Room.

01.5-070C50 Rubber Floor

Element Instance: 01.5-070C50 Rubber Floor

Details	Values
Expected Life	18
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Rubberized cement floors and baseboards are located in the kitchen of Centre Block. They are also present in the staff washroom. The rubber material is burgundy in color.

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of standard quality.

Component Age: 17 (years assumed to be from 1995)
 Remaining Life: 13 years
 Next Major Action Year: 2025

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria Existence Comments

- Debonding of assembly from substrate
- Discolouration or staining
- Excessive wear
- Physical damage or deterioration of finish
- Physical damage or deterioration of substrate



Rubberized cement floors.

01.5-070C60 Vinyl Floor Tile

Element Instance: 01.5-070C60 Vinyl Floor Tile - CBUS

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Vinyl flooring is found throughout the offices and the tunnel leading to the library from

CBUS. The vinyl is beige in corridors and grey in the offices. There are also vinyl baseboards and transition pieces.

Component Condition & Anticipated Replacement Date

This component is rated at average condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 6 years
 Next Major Action Year: 2018

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Cracks
- Excessive wear
- Inherent environmental defects
- Loose tiles or debonded areas
- Physical damage or deterioration
- Stains and discolouration



Vinyl flooring in tunnel.

01.5-070C70 Special or Other Floor Finishes

Element Instance: 01.5-070C70 Special or Other Floor Finishes - Peace Tower

<u>Details</u>	<u>Values</u>
Expected Life	60
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

The floor of the Memorial chamber consists of Chateau Gallard Stone (beige), Hepton wood stone, marble black steps and brass plates from shell casings.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 46 years
 Next Major Action Year: 2058

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Debonding of assembly from substrate
- Discolouration or staining
- Excessive wear
- Physical damage or deterioration of finish



Stone floors in Memorial Chamber.

01.5-070C85 Masonry & Stone Flooring

Element Instance: 01.5-070C85 Masonry & Stone Flooring - Public Areas

Details	Values
Expected Life	100
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Floors in the public halls and corridors are polished stone. The same pattern is generally used throughout the building though color of the stone varies by floor and/or area. The variation in color may have at one point been significant. The basic design has a black border and base with a secondary border against the black and a grey field. The sixth floor is the only floor that does not use the second base color (black border and grey field only). The secondary border is stone, which is varied in design.

Component Condition & Anticipated Replacement Date This component is part of the character defining elements. No major defects were noted during our walkthrough.

This component is rated at average condition and is of standard quality.

Component Age: 17 years
 Remaining Life: 82 years
 Next Major Action Year: 2094

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Debonding of assembly from substrate
- Discolouration or staining
- Excessive wear
- Physical damage or deterioration of finish

01.5-080 Ceiling Finishes

01.5-080C25 Plaster & Lath Ceiling

Element Instance: 01.5-080C25 Plaster & Lath Ceiling

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Corridors ceilings from level one through six are plaster in either smooth or stipple

finishes. The ceiling edges arc down to the walls where a crown moulding separates the two. All ceilings are painted.

Specialty ceilings:

- Senate chamber ceiling is a painted canvas (reportedly the largest in the world) stretched over the whole ceiling area.
- Elaborate carved panels on the upper walls and ceilings in either wood or stone. These are also of character defining elements.
- The second floor north corridor has a barrel vaults in either plaster or light panels designed to imitate skylight.
- The sixth floor dining room utilizes elaborate domed lighting construction that also were designed to imitate skylight
- ceiling tile in service areas such as mail room, security offices, kitchen spaces, computer rooms, etc.

Component Condition & Anticipated Replacement Date

The component is of different vintages and on-going painting and repairs are reportedly addressed as part of general building maintenance. The study therefore assumes that the last major action year is 2012 and no major costs within the 10-year term of the Centre Block study. Specialty ceiling finishes are part of the character defining elements of the building and are in excellent condition. Most of the vaulted ceilings (in plaster finish) are new.

This component is rated at excellent condition and is of standard quality.

Component Age: 0 years (to represent the annual renovations)
 Remaining Life: 40 years
 Next Major Action Year: 2052

Element State:	Excellent	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Algae/biological growth/mould			
Sagging and settlement - water penetration			
Stains and discolouration			



Ceilings in Centre Block.

01.5-080C30 Suspended Acoustic Panel Ceiling

Element Instance: 01.5-080C30 Suspended Acoustic Panel Ceiling - Lunch Room & Offices - CBUS

Details	Values
Expected Life	25
Component Cost	15,200
Last Major Action Year	1998
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description The suspended ceiling is located in the lunch room as well as in the offices of CBUS. The ceiling consists of square acoustic tile with white inverted T-bar hangers.

Component Condition & Anticipated Replacement Date

Some staining in the lunch room was observed at the time of our visit.
 This component is rated at average condition and is of standard quality.
 Component Age: 14 years
 Remaining Life: 11 years
 Next Major Action Year: 2023

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Algae/biological growth/mould
- Corrosion
- Missing panels or suspension elements
- Sagging and settlement - water damage
- Stains and discolouration



Suspended ceiling in lunch room.

01.5-080C30 Suspended Acoustic Panel Ceiling - Lunch Room & Offices - CBUS Event #: 1

Brief Description RP Component replacement or new [01.5-080C30 Suspended Acoustic Panel Ceiling - Lunch Room & Offices - CBUS]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2023	\$15,565	N/A	Building Condition Report

Event Description Remove and replace component
Event Justification & Strategy Required to maintain esthetics of the interior.
Implication of Event Deferral (Risks) Visible deterioration of component

Element Instance: 01.5-080C30 Suspended Acoustic Panel Ceiling - Peace Tower

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description Susedepended acoustic ceiling tile are found in some of the offices on the fifth and sixth floors, the 4th floor office in the Peace Tower, and most of the basement offices.

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of standard quality.
 Component Age: 17 years
 Remaining Life: 14 years
 Next Major Action Year: 2036

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Algae/biological growth/mould
- Corrosion
- Missing panels or suspension elements
- Sagging and settlement - water damage
- Stains and discolouration



Acoustic tile ceiling in Peace Tower offices.

01.5-080C35 Wood Ceiling

Element Instance: 01.5-080C35 Wood Ceiling - East Block Tunnels

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

The ceiling within the East Block to Central Block tunnel is a suspended wood ceiling with the following features:

- barrel shape
- square reels pattern
- ceiling mounted

Each panel spans from one concrete beam to the next beam.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of above standard quality.

Date
Component Age: 13 years
Remaining Life: 27 years
Next Major Action Year: 2039

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Loss of surface finish
- Rotting and decay
- Shrinkage



Wood Ceiling in East Tunnel.

01.5-080C40 Special Ceiling Finishes

Element Instance: 01.5-080C40 Special Ceiling Finishes - Peace Tower

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description Special ceiling finishes are located in the observation deck of the Peace Tower of Centre Block. They consist of brass plates and are mounted in grid form. The ceiling forms part of the character defining elements of the building.

Component Condition & Anticipated Replacement Date This component is rated at excellent condition and of above standard quality.

Component Age: 14 years
Remaining Life: 61 years
Next Major Action Year: 2083

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Biological growth/contamination

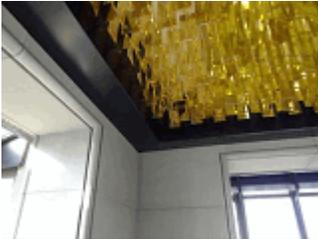
Debonding - fastener failure

Fading Colours

Missing elements

Sagging and settlement - water damage

Stains and discolouration



Ceiling in the observatory of the Piece Tower.

01.5A-110 Interior Stairs

Element Instance: 01.5A-110 Interior Stairs - Centre Block - Courtyard Stairs

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1990
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description Interior stairs were added in the courtyards to provide adequate means of egress. The stairwells are steel with marble treads and bronze detailing.

Component Condition & Anticipated Replacement Date This component is rated at good condition and is of above standard quality.

Component Age: 22 years
Remaining Life: 53 years
Next Major Action Year: 2065

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged walking surfaces
- Handrail damaged or non code compliant
- Structurally unsound
- Surface finishes deteriorated
- Uneven surfaces, tripping hazard



Courtyard Stairwells.

Element Instance: 01.5A-110 Interior Stairs - Centre Block - Enclosed Stairwells

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

Emergency Stairs are located in the north side of the building. these stairwells are accessed via service doors with reinforced lite panels. The steps are part of the character defining elements and are steel with picket-style railing. The treads are white marble.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of above standard quality.

Component Age: 37 years
Remaining Life: 38 years
Next Major Action Year: 2050

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged walking surfaces
- Handrail damaged or non code compliant
- Structurally unsound
- Surface finishes deteriorated
- Uneven surfaces, tripping hazard



Enclosed Stairwells.

Element Instance: 01.5A-110 Interior Stairs - Centre Block - Open Stairwells

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description Ceremonial stairs connect the 5th floor to the first floor of the building. The steps are part of the character defining elements and are stone with metal picket style railing and bronze detailing. The treads are white marble.

Component Condition & Anticipated Replacement Date This component is rated at good condition and is of above standard quality. The exception to the condition is the stairwell connecting the visitor's centre of the first floor to the third floor. The treads have undergone enough traffic that they have worn down in the centre. This can cause a tripping hazard in future years if not addressed. A life extension event is included for the tread replacement.

Component Age: 37 years
 Remaining Life: 38 years
 Next Major Action Year: 2050

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Corrosion	
Damaged walking surfaces	
Handrail damaged or non code compliant	
Structurally unsound	
Surface finishes deteriorated	X
Uneven surfaces, tripping hazard	X



Open Stairs.

01.5A-110 Interior Stairs - Centre Block - Open Stairwells Event #: 1

Brief Description RP Component life extension [01.5A-110 Interior Stairs - Centre Block - Open Stairwells]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2013	\$153,600	high priority	Building Condition Report

Event Description Remove and repalce marble treads

Event Justification & Strategy Required for safe access.

Implication of Event Potential tripping hazard

Deferral (Risks)

Element Instance: 01.5A-110 Interior Stairs - Concrete & Steel - CBUS

Details	Values
----------------	---------------

This report was generated without using Virtual Events.

Expected Life	75
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description The stairs consist of steel frames with steel handrails and concrete treads.

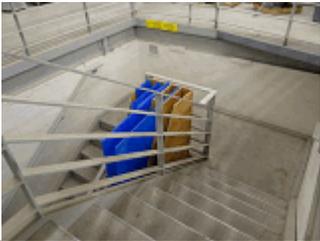
Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality.

Date Component Age: 14 years
 Remaining Life: 61 years
 Next Major Action Year: 2073

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged walking surfaces
- Handrail damaged or non code compliant
- Structurally unsound
- Surface finishes deteriorated
- Uneven surfaces, tripping hazard



Concrete and steel stairs.

Element Instance: 01.5A-110 Interior Stairs - Concrete - CBUS

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description The stairs connect the two CBUS levels. They are concrete stairs with steel rails and guards. The stairs are supported on painted concrete walls.

Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality.

Date Component Age: 14 years
 Remaining Life: 61 years
 Next Major Action Year: 2073

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged walking surfaces
- Handrail damaged or non code compliant
- Structurally unsound

Surface finishes deteriorated
 Uneven surfaces, tripping hazard



Concrete stairs.

Element Instance: 01.5A-110 Interior Stairs - Peace Tower (Observation Deck)

<i>Details</i>	<i>Values</i>
Expected Life	75
Component Cost	0
Last Major Action Year	1927
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description A set of stairs link the Observation Deck in the Peace Tower to the washrooms, situated directly beneath the deck. The steps are white and black marble. Guards are bronze with tempered glass panels.

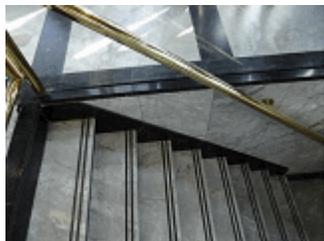
Component Condition & Anticipated Replacement Date The staircase's finishes are part of the Observation Deck. This component is rated at excellent condition and of standard quality.

Component Age: 14 years
 Remaining Life: 61 years
 Next Major Action Year: 2083

Element State: Excellent ***ACL:*** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged walking surfaces
- Handrail damaged or non code compliant
- Structurally unsound
- Surface finishes deteriorated
- Uneven surfaces, tripping hazard



Stairwells with brass handrails in Peace Tower.

Element Instance: 01.5A-110 Interior Stairs - Peace Tower Emergency Stairwell

<i>Details</i>	<i>Values</i>
Expected Life	75
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1

Measurement unit/ Metric

sum

Component Description

The Peace Tower includes a set of stairs which services all the mechanical rooms of the tower. This stair is mounted onto concrete walls with steel stain casing. The concrete walls have a stipple finish. The stairs are also equipped with PVC handrails, steel mounts, rubber flaring (black and grey nosing) and baseboards.

Component Condition & Anticipated Replacement Date

This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
Remaining Life: 61 years
Next Major Action Year: 2083

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Damaged walking surfaces

Handrail damaged or non code compliant

Structurally unsound

Surface finishes deteriorated

Uneven surfaces, tripping hazard



Stairs in Peace Tower.

01.6 Miscellaneous Items

01.6A-010 Building Signage (Interior)

Element Instance: 01.6A-010 Building Signage (Interior) - Centre Block

Details	Values
Expected Life	15
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Signage located throughout the facility includes, but is not limited to:
- wood and bronze tourist information plaques
- wood and metal name plates at office doors
- metal door number plates at corners of door frames
- stand-up signs for tourist directions

Component Condition & Anticipated Replacement Date

The signs are of different ages and varying conditions. This component is generally rated at excellent condition and is of above standard quality.

Component Age: 2 years (assumed)
Remaining Life: 13 years
Next Major Action Year: 2035

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

This report was generated without using Virtual Events.

- Corrosion
- Deterioration of paint finish & surfaces
- Excessive wear
- Non code compliant
- Non operable equipment
- Poorly secured and supported
- Unsafe and structurally unsound



Signage in Centre Block.

01.6A-011 Catwalks

Element Instance: 01.6A-011 Catwalk - North Tower Mechanical Room

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description Concrete catwalks are in the south west and south east tower service rooms (sixth floor). The catwalks are cast-in-place concrete with four risers on either side (bridging over HVAC ductwork). The steps are painted with yellow markings at the nosing. Guards along both sides are made of painted steel.

Component Condition & Anticipated Replacement Date At the southeast tower, the catwalk has failed and has not been replaced. It appears to no longer be required and therefore a cost is not included for its replacement. The southwest catwalk is in good condition of standard quality.

Component Age: 17 years (assumed based on appearance)
 Remaining Life: 23 years
 Next Major Action Year: 2035

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Deterioration of paint finish & surfaces
- Excessive wear
- Non code compliant
- Non operable equipment
- Poorly secured and supported
- Unsafe and structurally unsound



Catwalk in north mechanical room.

01.6A-025 Fixed or Permanent Furnishing (Millwork)

Element Instance: 01.6A-025 Fixed or Permanent Furnishing (Millwork) - CBUS

Details	Values
Expected Life	30
Component Cost	11,807
Last Major Action Year	1998
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description The CBUS sub-level fixed kitchennette furnishings includes:
 - MDF cabinets
 - laminate counter top
 - sink

Component Condition & Anticipated Replacement Date This component is rated at average condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 16 years
 Next Major Action Year: 2038

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Deterioration of paint finish & surfaces
- Excessive wear
- Non code compliant
- Non operable equipment
- Poorly secured and supported
- Unsafe and structurally unsound



Kitchen in CBUS

01.6A-025 Fixed or Permanent Furnishing (Millwork) - CBUS Event #: 1

Brief Description RP Component replacement or new [01.6A-025 Fixed or Permanent Furnishing (Millwork) - CBUS]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2038	\$11,807	N/A	Building Condition Report

Event Description Remove and replace component

This report was generated without using Virtual Events.

Event Justification & Strategy	Required to maintain interior standards
Implication of Event Deferral (Risks)	Deterioration of mill work

01.6A-037 Ladders

Element Instance: 01.6A-037 Ladders - CBUS Tunnel

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description An aluminum ladder is located on the south side of the CBUS tunnel. It is epoxy-drilled to the concrete service tunnel wall.

Component Condition & Anticipated Replacement Date This component is rated at excellent condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 36 years
 Next Major Action Year: 2048

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Corrosion		
Deterioration of paint finish & surfaces		
Excessive wear		
Non code compliant		
Non operable equipment		
Poorly secured and supported		
Unsafe and structurally unsound		



Ladder in CBUS tunnel.

01.6A-038 Railing & Ramps

Element Instance: 01.6A-038 Railing & Ramps - CBUS

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description A bronze railing is wall mounted along the full length of the tunnel connecting the Centre Block to the East Block.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 26 years
 Next Major Action Year: 2038

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Deterioration of paint finish & surfaces
- Excessive wear
- Non code compliant
- Non operable equipment
- Poorly secured and supported
- Unsafe and structurally unsound



Railings in Tunnel.

Element Instance: 01.6A-038 Railing & Ramps - East Block Tunnel

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

A wood railing with bronze wall mounted brackets is located along the full length (on both sides) of the tunnel connecting the Centre Block to the East Block.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of standard quality.

Component Age: 13 years
 Remaining Life: 27 years
 Next Major Action Year: 2039

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Deterioration of paint finish & surfaces
- Excessive wear
- Non code compliant
- Non operable equipment
- Poorly secured and supported
- Unsafe and structurally unsound



Handrails in East Block Tunnels.

01.6A-055 Window Washing Device Anchors

Element Instance: 01.6A-055 Window Washing Device Anchors

Details	Values
Expected Life	30
Component Cost	54,000
Last Major Action Year	1997
Component Condition (For BCR use only)	Poor
Quantity	80
Measurement unit/ Metric	ea

Component Description

Roof anchors are located on the main roof level. They are bolted into the steel structural elements of the roof and have typical hook-and-plate design.

Component Condition & Anticipated Replacement Date

The roof anchors were last certified in 2008. Anchor are tagged and the tags must remain until the strength test is completed. Most of the anchors are currently out of commission. It is our understanding that the roof anchors are tagged due to improper installation and not failure in strength

This component is rated at poor condition and is of standard quality. Based on the anticipated roofing replacement, we recommend that the roof anchors are replaced as part of the same project (2013).

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Deterioration of paint finish & surfaces

Excessive wear

Non code compliant

X

Non operable equipment

Poorly secured and supported

Unsafe and structurally unsound

X



Roof anchor on Centre Block.

01.6A-055 Window Washing Device Anchors Event #: 1

Brief Description

RP Component replacement or new [01.6A-055 Window Washing Device Anchors - Roof Anchors]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2013	\$55,296	high priority	Building Condition Report

This report was generated without using Virtual Events.

Event Description

Remove and replace existing roof anchors.

Event Justification & Strategy

This work is recommend to take place during the anticipated roofing replacement. Required to aquire certification and maintain use of the roof anchors

Implication of Event

Roof anchors will most likely remain not serviceable.

Deferral (Risks)

01.6A-060 Special Ornamental Elements**Element Instance: 01.6A-060 Special Ornamental Elements**

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	2012
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

Art work is located throughout the interior of the Centre Block. Art work primarily consists of paintings, photographs, sculptures, collectibles, and artifacts.

Some of the art belongs to third party galleries. These pieces are kept in glass cases to maintain recommended air humidity levels.

The Memorial Room in the Peace Tower also includes elaborate art and most of which is concealed behind glass enclosures. This includes the Memorial Books.

Component Condition & Anticipated Replacement Date

The pieces are of different ages, however they are all considered to be of excellent condition and above-standard quality. Permanent pieces are considered to be part of the building's ceremonial nature and character defining elements. The study notes the last major action year as 2012 to incorporate the on-going updating and maintenance of the artwork.

Component Age: 0 years

Remaining Life: 30 years

Next Major Action Year: 2042

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria**Existence****Comments**

Cracks

Debonded areas

Deterioration of surface finish

Deterioration or damage to surfaces

Discolouration or staining



Art in glass cases to maintain recommended air humidity levels.



Sample Art in Parliament.

02. Conveying Systems

02.1 Conveying Systems - V & H Movement

02.1A-010 Elevators

Element Instance: 02.1A-010 Elevators

Details	Values
Expected Life	25
Component Cost	1,612,865
Last Major Action Year	1969
Component Condition (For BCR use only)	Fair
Quantity	10
Measurement unit/ Metric	ea

Component Description

Equipment Description Summary

Elevator GOVERNMENT NUMBER 10091
 Type Passenger #2
 Car speed 2.54 m/s
 Capacity 1134 Kg.
 Controller 62USL, Simplex Operation
 Relay Based
 Machine type Gearless, Overhead Machine
 Manufacturer Otis Elevator
 Installed Circa 1954

Elevator GOVERNMENT NUMBER 33387
 Type Passenger #3
 Car speed 1.52 m/s
 Capacity 907 Kg.
 Controller Otis 311, Simplex Operation
 Microprocessor Based
 Machine type Geared, Overhead Machine
 Manufacturer Otis Elevator
 Installed Circa 1994

Elevator GOVERNMENT NUMBER 10094
 Type Passenger #4
 Car speed 2.54 m/s
 Capacity 1134 Kg.
 Controller 62USL, Simplex Operation
 Relay Based
 Machine type Gearless, Overhead Machine
 Manufacturer Otis Elevator
 Installed Circa 1954

Elevator GOVERNMENT NUMBER 10165
Type Passenger #5
Car speed 0.51m/s
Capacity 2040 Kg.
Controller Otis LRV, Simplex Operation
 Microprocessor Based
Machine type Twin-post, Holeless Hydraulic
Manufacturer Otis Elevator
 Installed Circa 2000

Elevator GOVERNMENT NUMBER 10093
Type Passenger #6
Car speed 2.54 m/s
Capacity 1134 Kg.
Controller 62USL, Simplex Operation
 Relay Based
Machine type Gearless, Overhead Machine
Manufacturer Otis Elevator
 Installed Circa 1954

Elevator GOVERNMENT NUMBER 10092
Type Passenger #7
Car speed 2.54 m/s
Capacity 1134 Kg.
Controller 62USL, Simplex Operation
 Relay Based
Machine type Gearless, Overhead Machine
Manufacturer Otis Elevator
 Installed Circa 1954

Elevator GOVERNMENT NUMBER 10090
Type Passenger #8
Car speed 2.54 m/s
Capacity 1134 Kg.
Controller 62UCL, Simplex Operation
 Relay Based
Machine type Gearless, Overhead Machine
Manufacturer Otis Elevator
 Installed Circa 1963

Elevator GOVERNMENT NUMBER 10089
Type Passenger #9
Car speed 2.54 m/s
Capacity 1134 Kg.
Controller 62UCL, Simplex Operation
 Relay Based
Machine type Gearless, Overhead Machine
Manufacturer Otis Elevator
 Installed Circa 1963

Elevator GOVERNMENT NUMBER 10088
Type Passenger #10

Car speed 1.78 m/s
 Capacity 1814 Kg.
 Controller 69UCL, Simplex Operation
 Relay Based
 Machine type Gearless, Overhead Machine
 Manufacturer Otis Elevator
 Installed Circa 1969

Elevator GOVERNMENT NUMBER 73574
 Type Passenger #11
 Car speed 0.75 m/s
 Capacity 3629 Kg.
 Controller Simplex Operation
 Microprocessor Based
 Machine type Direct Acting, Inground Hydraulic
 Manufacturer Otis Elevator
 Installed Circa 1998

Component Condition & Anticipated Replacement Date

In general, except for adjustments, the elevators were observed to be operating in accordance with expected norms based upon their vintage. However, the condition and operation of the elevator equipment is of some concern. In addition to general wear and tear that is to be expected with elevators of this age (examples are brittle wiring, worn relay contacts, machine oil leaks etc.) particular problems were noticed in the leveling operation and the door operation of the elevators. Elevator door operation is noisy and 'rough' and likely proves disconcerting to passengers.

All of the above noted elevators (with the exception of the Observation elevator which is a geared traction elevator) are driven by overhead gearless machines. These elevators have overhead machine room locations, with each hoist motor being controlled by an AC powered DC motor generator. The floor leveling and stopping functions for all elevators are initiated by a floor mounted selector which is driven by a steel tape and connected to the elevator cab. Due to the construction of these selectors, they require constant attention to provide adequate service. If neglected, numerous callbacks and malfunctions of the elevator system will result.

Given the mechanical selector system, elevator leveling will never be accurate without constant attention. Modernization of elevators 2, 4, 6, 7, 8, 9, 10 will be required within 3-5 years. Modernization should include a new solid-state motor drive, electrical controller, upgrading of door operating equipment, all new wiring, renewal of the cab and fixtures and upgrades to meet with current CSA standards. Modernization of elevators #3, 5 and 11 would typically require replacement within 8 years (based on age), however this can be extended to take place during the main building renovations with adequate elevator maintenance.

The elevators are in fair condition.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Damaged cab appearance finishes, interior & exterior

Hydraulic oil leaks

X

Some leaks at machine

Inadequate capacity

Inadequate speed

Levelling over/undershoot	X	
Obsolete drive	X	mechanical selector
Obsolete or problematic controls	X	
Poor Door operation	X	
Worn mechanical components	X	Hoist ropes car 7 need replacing

02.1A-010 Elevators Event #: 1

Brief Description		Safe Roof Top Access		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$51,200	high priority	Building Condition Report
Event Description		Walkway and safety railings from roof access to machine room doors.		
Event Justification & Strategy		In accordance with TSSA Enforcement Procedure Bulletin 231/08 where access to machinery space requires passage across a roof top with a roof parapet less than 1070 mm at the perimeter of the building, the building owner shall have either:		
		<ol style="list-style-type: none"> 1. An engineered safety system in place or, 2. A walkway and railings (or lifelines) in place (designed in accordance with CSA B44 Safety Code for Elevators) to provide safe rooftop access. 		
Implication of Event Deferral (Risks)		Possible TSSA shutdown of an elevator.		

02.1A-010 Elevators Event #: 2

Brief Description		Equipment Guarding		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2013	\$163,840	high priority	Building Condition Report
Event Description		The Ministry of Labour (MOL) in Ontario has increased its roster of field inspectors resulting in increased attention on elevator machine rooms. Reliance upon a locked elevator machine room door or restricted access policy is no longer considered sufficient safeguard against the hazards presented by unguarded elevator machinery.		
Event Justification & Strategy		Regardless of a building's age or function the elevator machine room equipment requires guarding to OHS standards, in the view of MOL. This standard exceed the usual guarding provided on even new projects by the elevator industry and as accepted by the elevator safety authority - The TSSA. There is no specific deadline for conformance and appears to be little active enforcement of the standard, however we would caution building owners that non-conformance represents increased liability in case of an injury sustained in the elevator machine room.		
Implication of Event Deferral (Risks)		Elevator installation will not comply with OHS guarding requirements leading to a reduced level of safety for workers and those entering equipment spaces.		

02.1A-010 Elevators Event #: 3

Brief Description		Modernize 7 elevators		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2015	\$1,612,865	high priority	Building Condition Report
Event Description		Completely modernize the seven elevators (#2, 4, 6, 8, 9, 10) to include the installation of the following major components as a minimum.		

- Refurbish machine
- Solid state controllers and motor drives
- New hoisting and governor ropes
- All new wiring throughout the machine room, hoistway and car top
- Installation of new closed loop car door operators
- New car and hall operating buttons
- Refurbishing of the car cab interiors

Event Justification & Strategy

The existing elevator drive and control equipment will have reached the end of its useful life expectancy. Most of the control and drive components will be obsolete at this time. As the elevators reach this milestone there is bound to be a decrease in the reliability of the elevator service.

The elevator modernization project would be put out to public tender to obtain competitive pricing. Only one elevator at a time would be removed from service for modernization. Much of the modernization work would be carried out after hours in order to minimize the disruption to the building occupants.

Very careful planning and scheduling will be required in order to ensure that the work is scheduled to suit the Parliamentary schedule.

Each elevator would be out of service for approximately 8-10 weeks for modernization.

Implication of Event Deferral (Risks)

Reduced level service and reliability to the client.

03. Mechanical

03.1 HVAC

03.1A-010 CHP Related Heat Exchangers

Element Instance: 03.1A-010 CHP Related Heat Exchangers (5th floor)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

The domestic high temperature hot water plant consists of a LP steam shell and tube heat exchanger. It generates domestic hot water for use in the dishwasher, cafeteria and kitchen services. There are (2) heat exchangers in the mechanical room on the 5th floor They are Model 38 by Thrush.

The Heat Exchanger is owned by House of Commons. Description for general information only.

Component Condition & Anticipated Replacement Date

The heat exchangers are in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 30 years
 Assessed service life: 30 years
 Remaining service life: 15 years
 Replacement Date: 2027
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Corrosion			
Damaged insulation and cover			
Improper adjustments and incorrect settings			
Inadequate capacity			
Inefficient operation			
Leakage			
Poorly maintained			
Retubing required			



5th floor heat exchanger

Element Instance: 03.1A-010 Heat Exchangers (Basement)

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	0
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description

The domestic hot water plant consists of a LP steam shell and tube heat exchanger. It generates domestic hot water for use throughout the building. (some services that require higher water demand are equipped with aux. electric water heaters). There are (2) heat exchangers in the basement. They are Type 007 by Leitch and measure 16"dia x 72" long. Auxiliary piping ,trim and valves were replaced in approximately 1985 heat exchanger was re-tubed in 2002.

Component Condition & Anticipated Replacement Date

The heat exchangers are in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2002

CAPS theoretical service life: 30 years
 Assessed service life: 30 years
 Remaining service life: 20 years
 Replacement Date: 2032
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Good	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Corrosion			
Damaged insulation and cover			
Improper adjustments and incorrect settings			
Inadequate capacity			
Inefficient operation			
Leakage			
Poorly maintained			
Retubing required			



Basement Heat Exchanger

Element Instance: 03.1A-010 Heat Exchangers (Basement)

<u>Details</u>	<u>Values</u>
Expected Life	60
Component Cost	0
Last Major Action Year	1965
Component Condition (For BCR use only)	Fair
Quantity	2
Measurement unit/ Metric	ea

Component Description

The hot water heating plant consist of LP steam shell and tube heat exchanger. It generates hot water for building space heating. There are (2) heat exchangers in the basement. They are Model 0564 by Armstrong.

Component Condition & Anticipated Replacement Date

The heat exchangers are in fair condition and of above standard quality. The typical service life has been extended to 60 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1965
 CAPS theoretical service life: 30 years
 Assessed service life: 60 years

Remaining service life: 13 years
 Replacement Date: 2025
 Reason for service life adjustments: Adequate water treatment and in house service.
 Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion
 Damaged insulation and cover
 Improper adjustments and incorrect settings
 Inadequate capacity
 Inefficient operation
 Leakage
 Poorly maintained
 Retubing required

X
 X



Basement Heat Exchanger

03.1A-020 Duct Systems

Element Instance: 03.1A-020 Duct Systems

<u>Details</u>	<u>Values</u>
Expected Life	50
Component Cost	0
Last Major Action Year	1978
Component Condition (For BCR use only)	Average
Quantity	75600
Measurement unit/ Metric	m2

Component Description

The buildings air distribution system moves ventilation air, return air, sanitary and general exhaust and specialty air transfer (kitchen make-up, kitchen exhaust, dishwasher exhaust). The air is not conditioned. From the air handling units in the basement, the duct system distributes air to various zones in the building. The system is constant volume, but for individual areas (example room 104 to 119) by pass boxes are utilized. A separate duct system exhausts the wash rooms and various mechanical spaces. An independent duct system exhausts the kitchen hood and serves make up air for the kitchen cafeteria. Duct sizes vary from 60" x 48" to 4"dia. Ducts are constructed from galvanized metal, stainless steel or welded carbon steel. AC ducts are thermally insulated.

Component Condition & Anticipated Replacement Date

The duct systems are in average condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There

are no noticeable deficiencies and there is no visible rust, leaks or excessive noise. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: Varies, no exact data

Assessment of average installation year: 1978

CAPS theoretical service life: 40 years

Assessed service life: 50 years

Remaining service life: 16 years

Replacement Date: 2028

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Algae/biological growth/mould			
Damaged Insulation and cover			
Damaged ductwork, supports, hangers		X	
Damaged guide vanes, grilles, diffusers, louvres, etc			
Excessive dust and debris			
Noisy operation			
Seized dampers			



Ductwork properly sealed.

03.1A-022 Self-Contained AHU - Cool

Element Instance: 03.1A-022 Self-Contained AHU - Cool (Basement)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

Component Description

Local A/C systems consist of unitary cooling units with direct expansion (DX) cooling coils and associate condensing units. Fan sections move air and duct systems distribute into various spaces.

There are three (3) cooling units located in the basement.

One (1) unit is manufactured by Precision cooling and is a 2-ton unit. The Factory nameplate is missing/un-readable. No historical data available.

Two (2) units are manufactured by Majic Air, model: 24BDX/DBW. They are each 1/4 hp and 2 tons.

All three units were installed at the same time.

The A/C is owned by House of Commons. Description for general information only. The cooling units are in average condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibration. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1996

CAPS theoretical service life: 25 years

Assessed service life: 30 years

Remaining service life: 14 years

Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

***Component Condition &
Anticipated Replacement
Date***

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Clogged Filter

Corrosion

Dirty coils or radiator fins

Excessive noise

Excessive vibration

Inoperative

Isolation valves seized

Physical damage

Poor efficiency

Refrigerant leakage



AHU

Element Instance: 03.1A-022 Self-Contained AHU - Cool Fan Coil Unit (1st floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description

Local A/C systems for 1st floor rooms consist of unitary cooling units with chilled water cooling coils and electric duct mounted reheat coils. Fans move air and the duct system distribute into the spaces. There are two (2) units in the 1st floor mechanical space. There are Model LH003W2R301R000 by Williams with 2kW PM Wright electric coils.

Component Condition & Anticipated Replacement Date

The fan coil units are in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibration. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2002
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 15 years
 Replacement Date: 2027
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Clogged Filter
- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Isolation valves seized
- Physical damage
- Poor efficiency
- Refrigerant leakage



Fan coil unit.

Element Instance: 03.1A-022 Self-Contained AHU - Cool Fan Coil Unit (CBUS)

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	300,672
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	6
Measurement unit/ Metric	ea

Component Description

Local A/C systems for CBUS rooms consist of fan coil units with chilled water cooling coils. Fans move air and the duct system distributes air into the spaces. There are six (6) fan coil units located on level 2 of CBUS. No information about the units was available.

Component Condition & Anticipated Replacement Date

The fan coil units are in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibration. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Clogged Filter
- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Isolation valves seized
- Physical damage
- Poor efficiency
- Refrigerant leakage



Fan coil unit.

03.1A-022 Self-Contained AHU - Cool Fan Coil Unit (CBUS) Event #: 1

Brief Description		RP Component replacement or new [03.1A-022 Self-Contained AHU - Cool Fan Coil Unit (CBUS)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2022	\$307,888	N/A	Building Condition Report
Event Description		Replace fan coil unit at the end of normal service life.		
Event Justification & Strategy		Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.		
Implication of Event Deferral (Risks)		CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle. Failure to replace the fan coil unit at the end of normal service life will reduce the availability, efficiency and capacity.		

03.1A-023 DX Split AHU - Cool

Element Instance: 03.1A-023 DX Split AHU - Cool (Peace Tower)

Details	Values
Expected Life	65
Component Cost	0
Last Major Action Year	1960
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

Component Description Local A/C systems for the observation deck at the Peace Tower consist of unitary cooling units with direct expansion (DX) cooling coils and associated condensing unit. Fans move air and the duct system distributes into the spaces. There is one (1) unit in the mechanical space above the observation deck. It is Model 50BA00110 by Carrier.

Component Condition & Anticipated Replacement Date The cooling unit is in fair condition and of above standard quality. The typical service life has been extended to 65 years due to quality and professional experience. The equipment is well maintained and functioning as designed. The refrigeration lines are not insulated. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960
 CAPS theoretical service life: 25 years
 Assessed service life: 65 years
 Remaining service life: 13 years
 Replacement Date: 2025
 Reason for service life adjustments: Visual inspection along with regular

maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Clogged Filter
- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Isolation valves seized
- Physical damage
- Poor efficiency
- Refrigerant leakage



DX Unit.

03.1A-024 Computer Cooling AHU

Element Instance: 03.1A-024 Computer Cooling AHU Air Conditioner (Basement)

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	0
Last Major Action Year	2005
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	Cool tons

Component Description

Local A/C systems for cooling of computer/media/electrical equipment rooms consist of console type cooling units with direct expansion (DX) cooling coils and associated condensing units. Air is re-circulated in the space without ductwork. There is one (1) unit in the basement. It is Model "Mr Slim" by Mitsubishi.

The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The air conditioner is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005

CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 18 years
 Replacement Date: 2030
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Clogged Filter
- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Isolation valves seized
- Physical damage
- Poor efficiency
- Refrigerant leakage



A/C.

03.1A-027 Packaged Terminal AC AHU

Element Instance: 03.1A-027 Packaged Terminal AC AHU A/C Unit (1st floor)

Details	Values
Expected Life	45
Component Cost	0
Last Major Action Year	1980
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Local A/C systems for 1st floor rooms consist of unitary cooling units with chilled water cooling coils and electric unit mounted reheat coils. Fans move air and the duct systems distribute into the various spaces. There is one (1) unit in shipping area 1st floor. It is a unit by Thermolec. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The A/C unit is in average condition and of above standard-quality. The typical service life has been extended to 45 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts,

manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1980
CAPS theoretical service life: 25 years
Assessed service life: 45 years
Remaining service life: 13 years
Replacement Date: 2025

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Clogged Filter			
Corrosion			
Dirty coils or radiator fins			
Excessive noise			
Excessive vibration			
Inoperative			
Isolation valves seized			
Physical damage			
Poor efficiency			
Refrigerant leakage			



Terminal A/C unit

Element Instance: 03.1A-027 Packaged Terminal AC AHU A/C Unit (South West Offices)

Details	Values
Expected Life	45
Component Cost	0
Last Major Action Year	1981
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

Component Description

Local A/C systems for various south west offices consist of unitary water cooled heat pumps. Air is re-circulated in the space without ductwork. The (22) units in individual offices on the 1st ,2nd and 3rd floors. There are heat pumps are manufactured by Koolwave. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The A/C unit is in fair condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1981

CAPS theoretical service life: 25 years

Assessed service life: 45 years

Remaining service life: 11 years

Replacement Date: 2023

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Clogged Filter
- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Isolation valves seized
- Physical damage
- Poor efficiency
- Refrigerant leakage



AHU SW

Element Instance: 03.1A-027 Packaged Terminal AC AHU Unit Heater (1st floor)

<u>Details</u>	<u>Values</u>
Expected Life	55
Component Cost	27,992
Last Major Action Year	1960
Component Condition (For BCR use only)	Fair
Quantity	4
Measurement unit/ Metric	Cool tons

Component Description Dedicated heating systems for the loading dock consist of horizontal steam unit

heaters. There are two (2) steam unit heaters located on the first floor in the shipping entrance. The equipment is manufactured by Trane. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The unit heaters are in fair condition and of above standard quality. The typical service life has been extended to 55 years due to quality and professional experience. The equipment is well maintained and functioning as designed. The units show signs of rust since they are exposed to elements when the loading dock doors are opened. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960
 CAPS theoretical service life: 25 years
 Assessed service life: 55 years
 Remaining service life: 3 years
 Replacement Date: 2015

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies and anticipation of life extension/service work in coming years.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Clogged Filter
- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Isolation valves seized
- Physical damage
- Poor efficiency
- Refrigerant leakage



Unit Heater.

03.1A-027 Packaged Terminal AC AHU Unit Heater (1st floor) Event #: 1

Brief Description

RP Component life extension [03.1A-027 Packaged Terminal AC AHU Unit Heater (1st floor)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2015

\$27,992

high priority

Building Condition Report

Event Description

Testing and condition assessment; visual inspection, replace fan and motor, inspect

This report was generated without using Virtual Events.

coil, remove coils and clean, replace fan motor.

Event Justification & Strategy
Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)
Failure to repair/maintain the A/C unit at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.1A-027 Packaged Terminal AC AHU condenser (Peace Tower)

Details	Values
Expected Life	25
Component Cost	6,998
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	ea

Component Description
Local A/C systems for The Peace Tower elevator machine room consist of unitary cooling unit with DX cooling coils and associated fan. Remote AHU condenser. It is Model K0010G by KeepRite with a 2hp in-line circulator

Component Condition & Anticipated Replacement Date
The A/C unit is in poor condition and of standard quality. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1969
CAPS theoretical service life: 25 years
Assessed service life: 25 years
Remaining service life: 0 years
Replacement Date: 2012

Element State: Poor **ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Clogged Filter		
Corrosion	X	
Dirty coils or radiator fins		
Excessive noise	X	
Excessive vibration		
Inoperative		
Isolation valves seized		
Physical damage		
Poor efficiency		
Refrigerant leakage		



03.1A-027 Packaged Terminal AC AHU condenser (Peace Tower) Event #: 1

Brief Description		RP Component life extension [03.1A-027 Packaged Terminal AC AHU Condensing Unit (Peace Tower)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$6,998	high priority	Building Condition Report
Event Description		Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check refrigerant charge, inspect fan impeller and housing looking for fatigue, corrosion, or wear.		
Event Justification & Strategy		Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.		
Implication of Event Deferral (Risks)		Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary. Failure to repair/maintain the A/C unit at the end of normal service life will reduce the availability, efficiency and capacity.		

03.1A-028 Heat Pumps

Element Instance: 03.1A-028 Heat Pumps (1st floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2007
Component Condition (For BCR use only)	Excellent
Quantity	2
Measurement unit/ Metric	ea

Component Description	Local A/C systems for cooling of computer/media/electrical equipment rooms consist of console type cooling units with direct expansion (DX) cooling coils and associate condensing units. Air is re-circulated in the space without ductwork. There are two (2) heat pumps located on the first floor in room 160S6 by EMI that are 1 ton each. The Factory nameplate is missing/un-readable. No historical data available.
Component Condition & Anticipated Replacement Date	The heat pumps are in excellent condition and of standard quality. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life. Original installation year: 2007 CAPS theoretical service life: 40 years Assessed service life: 40 years Remaining service life: 35 years Replacement Date: 2047

This report was generated without using Virtual Events.

Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Leakage
- Physical damage
- Poor efficiency



Heat pump

Element Instance: 03.3A-020 Plumbing Pumps Circulator Heating(Basement)

Details	Values
Expected Life	20
Component Cost	31,039
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	2
Measurement unit/ Metric	ea

Component Description

The main circulation systems for hot water heating utilize a base-mounted pump. The pump was rebuilt in 2010 and is located in the basement mechanical space. There is two (2) pump and it is Model 55-38401 by Goulds. It supplies 1000gpm @ 75' head.

Note: There is a second heat pump of same manufacturer and model number that is undergoing repairs/replacement.

Component Condition & Anticipated Replacement Date

The heat pump is in excellent condition and of above standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2010 and other pump is under repair/replacement currently
 CAPS theoretical service life: 20 years
 Assessed service life: 20 years
 Remaining service life: 18 years
 Replacement Date: 2030

Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Excellent	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Corrosion			
Dirty coils or radiator fins			
Excessive noise			
Excessive vibration			
Inoperative			
Leakage			
Physical damage			
Poor efficiency			



Heat pump.

03.1A-029 Central Station AHU

Element Instance: 03.1A-029 Central Station AHU (11 in basement, 1st, 3rd, 6th floor)

Details	Values
Expected Life	55
Component Cost	704,310
Last Major Action Year	1960
Component Condition (For BCR use only)	Fair
Quantity	11
Measurement unit/ Metric	ea

Component Description

Central cooling, heating and ventilation air for various areas throughout the building is conditioned in several modular type Air Handling units. Primary construction consist of a central supply air fan and unitary sections housing steam re-heat coils, chilled water coils, filter section and damper section. Some units are equipped with return air fans or multi-zone damper modules and zone re-heat coils.

For several AHU the factory nameplate is missing/un-readable. No historical data was available.

There are eleven (11) air handling units located on various floors, all manufactured by Canadian Blower.

Nine (9) air handling units are located in the basement with the following information:

One (1) air handling unit is model: 825D with a 25hp fan. AH11 multi-zone serving the first floor under Courtyard 1

One (1) air handling unit has a 10hp fan, 60" fan. The chilled water coils on this unit were replaced in 1975. The steam coils are original. AHU2 Multi-zone serving under

courtyard 1.

One (1) multi-zone unit. It has a 10hp, 60" fan and consists of four (4) chilled water coils, newer control valves, mixing eliminator and various reheat coils. AHU3 Multi-zone serving the house of commons.

One (1) air handling unit used to be a multi-zone unit but the motorized dampers have been removed. It has a 10hp, 60" fan and consists of four (4) chilled water coils, newer control valves, mixing eliminator and various reheat coils. This unit is currently shut down. AHU4 100% outside air serving South-West corner of centre block.

One (1) air handling unit has a 7.5hp motor and 42" wheel. AHU5 Senate committee rooms and reading rooms.

One (1) air handling unit has a 20hp motor and 32" wheel. AHU6 Hall of Fame, first floor and north corridor.

Two (2) air handling units have a 20hp motor with a 60" wheels. AHU7 East end of the South corridor and main entrance, AHU8 Senate chamber and galleries.

One (1) air handling units are multi-zone with 5hp fans, consisting of a mixing damper, steam heating section, chilled water cooling section and humidifier section. This is located on the first, model: 181AS. AHU12 West end of North corridor first to fourth level.

One (1) air handling unit is located on the 6th floor and has a 5hp motor. AHU15 Heating and cooling 6th floor servery and ante room.

Engineering experience; cost of life extension service work for central AHU should be 70,000\$ as opposed to AVS generated.

**Component Condition &
Anticipated Replacement
Date**

The air handling units are in fair condition and of above standard quality. The typical service life has been extended to 55 years due to quality and professional experience. The equipment is well maintained and functioning as designed. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960
CAPS theoretical service life: 25 years
Assessed service life: 55 years
Remaining service life: 3 years
Replacement Date: 2015

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment. The units elements are very well constructed and are being replaced as they break.

Engineering experience; cost of life extension service work for central AHU should be 70,000\$ as opposed to AVS generated.

Element State: Fair **ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Corrosion	X	
Damaged Insulation and cover	X	
Damaged housing and/or plenums		
Damaged or seized dampers		
Dirty coils or radiator fins		
Excessive noise	X	
Excessive vibration		
Inoperative		
Poor efficiency		
Refrigerant leakage		



Canada Blower AHU

03.1A-029 Central Station AHU (11 in basement, 1st, 3rd, 6th floor) Event #: 1

Brief Description	RP Component life extension [03.1A-029 Central Station AHU (11 in basement, 1st, 3rd, 6th floor)]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2015	\$516,494	high priority	Building Condition Report
Event Description	Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.			
Event Justification & Strategy	Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase. Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.			
Implication of Event Deferral (Risks)	Failure to repair/maintain the A/C unit at the end of normal service life will reduce the availability, efficiency and capacity.			

Element Instance: 03.1A-029 Central Station AHU (5th floor)

Details	Values
Expected Life	45
Component Cost	46,954
Last Major Action Year	1970
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

Component Description Central cooling, heating and ventilation air for various areas throughout the building is conditioned in several modular type Air Handling units. Primary construction consist of a central supply air fan and unitary sections housing steam pre-heat coils, chilled

water coils, filter section and damper section. Some units are equipped with return air fans or multi-zone damper modules and zone re-heat coils. An air handling unit consisting of steam heating and chilled water cooling is located on the 5th floor inside the mechanical room of the kitchen. It is model H9LPACEY, by AAF. It has a 3hp motor.

Engineering experience; cost of life extension service work for central AHU should be 5,000\$ as opposed to AVS generated.

Component Condition & Anticipated Replacement Date

The air handling unit is in fair condition and of above standard quality. The typical service life has been extended to 55 years due to quality and professional experience. The equipment is well maintained and functioning as designed. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1970
 CAPS theoretical service life: 25 years
 Assessed service life: 45 years
 Remaining service life: 3 years
 Replacement Date: 2015

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment. Additionally in 2011 preheat coil was replaced and 2012/2013 cooling coil and dampers are scheduled to be replaced (on site).

Engineering experience; cost of life extension service work for central AHU should be 5,000\$ as opposed to AVS generated.

Element State: Fair
Assessment Criteria

ACL: ACL 2 - Check List
Existence **Comments**

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage

- X
- X
-
-
-
- X
-
-
-
-



AHU

This report was generated without using Virtual Events.

03.1A-029 Central Station AHU (5th floor) Event #: 1

Brief Description	RP Component life extension [03.1A-029 Central Station AHU (5th floor)]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2015	\$46,954	high priority	Building Condition Report
Event Description	Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.			
Event Justification & Strategy	Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase. Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.			
Implication of Event Deferral (Risks)	Failure to repair/maintain the A/C unit at the end of normal service life will reduce the availability, efficiency and capacity.			

Element Instance: 03.1A-029 Central Station AHU (5th floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2005
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description	Dedicated cooling, heating and ventilation air handling units for cafeteria and dining area consist of package type Air Handling units. They consist of a supply air fan and unitary sections housing steam re-heat coils, chilled water coils, filter sections and damper sections. Some units are equipped with return air fans or multi-zone damper modules and zone re-heat coils. There are two (2) air handling units by McQuay located on the 5th floor in room 504SC. One (1) is model MCCM1042 with a 1/2hp motor. One (1) is model FSHD1512AAD and is a recirculation chilled water cooling coil unit with dedicated circulating 1/3 pump.
Component Condition & Anticipated Replacement Date	The air handling units are in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life. Original installation year: 2005 CAPS theoretical service life: 25 years Assessed service life: 25 years Remaining service life: 18 years Replacement Date: 2030 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this

report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



AHU.

Element Instance: 03.1A-029 Central Station AHU (6th floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Local A/C systems for dedicated rooms consist of a packaged type Air Handling unit. It consists of a supply air fan and sections housing steam re-heat coils, chilled water coils, filter section and damper section and return air fan. The air handling unit is located on the 6th floor in the MP kitchen area. The manufacturer was not able to be determined by the model number, but appeared to be HMAR90. It has a 1.5hp motor.

Component Condition & Anticipated Replacement Date

The air handling unit is in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1998
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 11 years
 Replacement Date: 2023
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



AHU.

Element Instance: 03.1A-029 Central Station AHU (6th floor)

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	0
Last Major Action Year	2002
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

Make-up air A/C systems for the MP kitchen consist of a packaged type Air Handling unit. They consist of supply air fans and sections housing steam re-heat coils, chilled water coils, filter sections and damper section. There are two (2) air handling units located on the 6th floor that are manufactured by CanAir, models: EM0281H2C and EM0181HZCSER. They both have a 1/4hp motor.

Component Condition & Anticipated Replacement Date

The air handling units are in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2002
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 15 years
 Replacement Date: 2027

Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



CanAir AHU.

Element Instance: 03.1A-029 Central Station AHU (Basement)

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	2
Measurement unit/ Metric	ea

Component Description

Local A/C systems for dedicated rooms consist of package type Air Handling unit. It consist of supply air fan and sections housing steam re-heat coils, chilled water coils, filer section and damper section. There is (1) unit located in basement mechanical space. It is SystemAir with 5hp fan.

Component Condition & Anticipated Replacement Date

The factory nameplate is missing/un-readable. No historical data was available. The AHU is in excellent condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2010
CAPS theoretical service life: 25 years
Assessed service life: 25 years

Remaining service life: 23 years
 Replacement Date: 2035
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



AHU.

Element Instance: 03.1A-029 Central Station AHU (Basement)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2008
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description

Local A/C systems for dedicated rooms consist of package type Air Handling unit. It consist of supply air fan and sections housing steam re-heat coils, chilled water coils, filter section and damper section. There is (1) unit located in basement mechanical space. It is ClimateChanger by Trane.

The factory nameplate is missing/un-readable. No historical data was available.

Component Condition & Anticipated Replacement Date

The air handling unit is in excellent condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2008

CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 21 years
 Replacement Date: 2033
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Excellent	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Corrosion			
Damaged Insulation and cover			
Damaged housing and/or plenums			
Damaged or seized dampers			
Dirty coils or radiator fins			
Excessive noise			
Excessive vibration			
Inoperative			
Poor efficiency			
Refrigerant leakage			



AHU

Element Instance: 03.1A-029 Central Station AHU (Basement)

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

Local A/C systems for dedicated rooms consist of package type Air Handling unit. It consist of supply air fan and sections housing steam re-heat coils, chilled water coils, filter section and damper section and remote return air in line fans. There are (2) units located in basement mechanical space. There are ClimateChanger by Trane with 3hp and 5hp Northern Blower fans.

The AHU factory nameplate are missing/un-readable. No historical data was available.

Component Condition & Anticipated Replacement Date

The air handling units are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the

examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1996

CAPS theoretical service life: 25 years

Assessed service life: 30 years

Remaining service life: 14 years

Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Damaged Insulation and cover

Damaged housing and/or plenums

Damaged or seized dampers

Dirty coils or radiator fins

Excessive noise

Excessive vibration

Inoperative

Poor efficiency

Refrigerant leakage



Air Handling Unit.

Element Instance: 03.1A-029 Central Station AHU (CBUS)

Details	Values
Expected Life	30
Component Cost	153,869
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

Local A/C systems for dedicated rooms consist of package type Air Handling unit. It consist of supply air fan and sections housing heating coil, chilled water coils, filter section and damper section. There is (1) unit located on level 1 CBUS in room B/55-125. It is Model ITF-1-4 by Ventrol.

Component Condition & Anticipated Replacement Date

The air handling units are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 15 years
 Replacement Date: 2027

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



AHU.

03.1A-029 Central Station AHU (CBUS) Event #: 1

Brief Description

RP Component replacement or new [03.1A-029 Central Station AHU (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

All Life Cycle
 Activity

2027

\$153,829

N/A

Building Condition Report

Event Description

Replace air handling units at the end of normal service life.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle.

Implication of Event Deferral (Risks)	Failure to replace the air handling units at the end of normal service life will reduce the availability, efficiency and capacity.
--	--

Element Instance: 03.1A-029 Central Station AHU (CBUS)

Details	Values
Expected Life	30
Component Cost	76,915
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description Local A/C systems for cooling of computer/media/electrical equipment rooms consist of package type cooling units with direct expansion (DX) cooling coils and associate chilled water cooled compressor. There are four (4) handling units located in level 2 of CBUS in the computer room. They are manufactured by AirPAC, model: CM0505D5EH000 and each consist of a compressor, 2 fan motors (3/4 hp each), an electric heater and a humidifier.

Component Condition & Anticipated Replacement Date The air handling unit is in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 15 years
 Replacement Date: 2027

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



Air handling unit.

03.1A-029 Central Station AHU (CBUS) Event #: 1

Brief Description	RP Component replacement or new [03.1A-029 Central Station AHU (CBUS)]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2027	\$76,915	N/A	Building Condition Report

Event Description Replace air handling unit at the end of normal service life.

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle.

Implication of Event Deferral (Risks) Failure to replace the air handling unit at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.1A-029 Central Station AHU (CBUS)

Details	Values
Expected Life	30
Component Cost	307,659
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	4
Measurement unit/ Metric	ea

Component Description Local A/C systems for dedicated rooms consist of package type Air Handling unit. It consist of supply air fan and sections housing heating coil, chilled water coils, filter section and damper section There are (2) units located on level 1 CBUS in room B/55-125. They are Model AirPack by Breck-Mar.

Component Condition & Anticipated Replacement Date The air handling units are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 15 years
 Replacement Date: 2027
 Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Damaged Insulation and cover
- Damaged housing and/or plenums
- Damaged or seized dampers
- Dirty coils or radiator fins
- Excessive noise
- Excessive vibration
- Inoperative
- Poor efficiency
- Refrigerant leakage



Air handling unit.

03.1A-029 Central Station AHU (CBUS) Event #: 1

Brief Description

RP Component replacement or new [03.1A-029 Central Station AHU (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

All Life Cycle

2027

\$307,659

N/A

Building Condition Report

Activity

Event Description

Replace air handling units at the end of normal service life.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle.

Implication of Event

Failure to replace the air handling units at the end of normal service life will reduce the availability, efficiency and capacity.

Deferral (Risks)

03.1A-030 Ventilation Fans

Element Instance: 03.1A-030 Ventilation Fans (10 in basemend, 3rd, 6th floor)

Details

Values

Expected Life	25
Component Cost	58,700
Last Major Action Year	1960
Component Condition (For BCR use only)	Poor
Quantity	10
Measurement unit/ Metric	ea

Component Description

Return air, sanitary and general exhaust system consist of various centrifugal or in line axial fans.

There are ten (10) fans, seven (7) exhaust and three (3) return, by Canadian Blower, located on the basement, 3rd and 6th floors and 8th floor of the Peace Tower.

One (1) exhaust fan has a 7.5hp motor with a 30" fan and is located in the basement.

One (1) exhaust fan has a 5hp motor with a 48" fan and is located in the basement.

One (1) exhaust fan outputs 300CFM of air and is located on the 8th floor of the Peace Tower. No other information was able to be collected.

Two (2) exhaust fans have a 3hp motor and are located on the 6th floor.

One (1) exhaust fan has a 1/4hp motor and is located in the basement.

One (1) exhaust fan has a 2hp motor and is located on the 5th floor.

Three (3) return fans are duct mounted with a 7.5hp motor and 36" fan each, and are located in the basement.

The Factory nameplate is missing/un-readable. No historical data available.

The exhaust fans are in poor condition and of standard quality. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Component Condition & Anticipated Replacement Date

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency

X

X



Supply Fan.

03.1A-030 Ventilation Fans (10 in basemend, 3rd, 6th floor) Event #: 1

Brief Description

RP Component life extension [03.1A-030 Ventilation Fans (10 in basemend, 3rd, 6th floor)]

Event Type**Event Year****Event Cost****Priority****Data Origin**

RP Component life extension

2012

\$58,700

high priority

Building Condition Report

Event Description

Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the exhaust fans at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.1A-030 Ventilation Fans (6th floor)**Details****Values**

Expected Life

25

Component Cost

5,870

Last Major Action Year

1960

Component Condition (For BCR use only)

Poor

Quantity

1

Measurement unit/ Metric

ea

Component Description

Dedicated sanitary exhaust system for individual space consist of cabinet fan. The exhaust fan is located on the 6th floor in the kitchen and serves the kitchen and servery. It is manufactured by Sheldon and has a 3hp motor. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The exhaust fan is in poor condition and of standard quality. The equipment is well maintained and functioning as designed. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960
CAPS theoretical service life: 25 years
Assessed service life: 25 years
Remaining service life: 0 years
Replacement Date: 2012
Reason for service life adjustments: N/A

Element State:

Poor

ACL: ACL 2 - Check List**Assessment Criteria****Existence****Comments**

Corrosion

X

Excessive dirt and dust

Excessive noise

X

Excessive vibration

Inoperative

Physical damage

Poor efficiency



Exhaust Fan.

03.1A-030 Ventilation Fans (6th floor) Event #: 1

Brief Description		RP Component life extension [03.1A-030 Ventilation Fans (6th floor)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$5,870	high priority	Building Condition Report

Event Description Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks) Failure to repair/maintain the exhaust fan at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.1A-030 Ventilation Fans (6th floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description Dedicated general exhaust system for individual space consist of cabinet centrifugal fan. The sanitary exhaust fan is located on the 6th floor in the staff washroom. It is manufactured by Delhi, model: 9209HD.

Component Condition & Anticipated Replacement Date The sanitary exhaust fan is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2002
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 15 years
 Replacement Date: 2027
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency



Ventilation Fan.

Element Instance: 03.1A-030 Ventilation Fans (Basement 2)

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated general exhaust system for individual space consist of cabinet centrifugal fan. The fan is serving Rooms 166E,168E,177F,179and 175F. There is (1) unit located in basement mechanical space. It is cabinet centrifugal fan Model 5215 HD by Delhi.

Component Condition & Anticipated Replacement Date

The terminal unit is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2001
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 14 years
 Replacement Date: 2026
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency



Ventilation fan

Element Instance: 03.1A-030 Ventilation Fans (Basement)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated general exhaust system for individual space consist of cabinet centrifugal fan. The fan is serving Rooms 166E,168E,177F,179and 175F. There is (1) unit located in basement mechanical space. It is cabinet centrifugal fan Model 5215 HD by Delhi.

Component Condition & Anticipated Replacement Date

The terminal unit is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2001
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 14 years
 Replacement Date: 2026
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust

Excessive noise
 Excessive vibration
 Inoperative
 Physical damage
 Poor efficiency



Ventilation Fan

Element Instance: 03.1A-030 Ventilation Fans (Peace Tower)

<i>Details</i>	<i>Values</i>
Expected Life	25
Component Cost	0
Last Major Action Year	1999
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated general exhaust system for individual space consist of cabinet centrifugal fan. The fan is serving Peace Tower elevator room. There is one (1) unit located in the elevator room of the peace tower and is manufactured by CanArm. It has a 1/4hp motor.

Component Condition & Anticipated Replacement Date

The exhaust fan is in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1999
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 12 years
 Replacement Date: 2024
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average ***ACL:*** ACL 2 - Check List

Assessment Criteria ***Existence*** ***Comments***

Corrosion
 Excessive dirt and dust
 Excessive noise
 Excessive vibration
 Inoperative

Physical damage

Poor efficiency



Exhaust Fan.

Element Instance: 03.1A-030 Ventilation Fans Dishwasher Exhaust

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated dishwasher exhaust system for kitchen area dishwasher. Roof mounted PENN UPBLASS.

Component Condition & Anticipated Replacement Date

The kitchen exhaust fans are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1996
CAPS theoretical service life: 25 years
Assessed service life: 30 years
Remaining service life: 14 years
Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency

This report was generated without using Virtual Events.



Dishwasher Exhaust Fan

Element Instance: 03.1A-030 Ventilation Fans Dust Collector (CBUS)

Details	Values
Expected Life	25
Component Cost	15,870
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated dust collecting system of cabinet exhaust fans and dust collecting container. The dust collector is located on level 2 of CBUS in room SB-DSS-247. It is manufactured by Craftex, model: B405 with a 3hp motor.

Component Condition & Anticipated Replacement Date

The dust collector is in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency



Dust Collector.

03.1A-030 Ventilation Fans Dust Collector (CBUS) Event #: 1

Brief Description	RP Component life extension [03.1A-030 Ventilation Fans Dust Collector (CBUS)]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2022	\$15,870	N/A	Building Condition Report
Event Description	Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.			
Event Justification & Strategy	Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.			
	Very seldom use of the system justifies life extension versus replacement.			
Implication of Event Deferral (Risks)	Failure to repair/maintain the fan at the end of normal service life will reduce the availability, efficiency and capacity.			

Element Instance: 03.1A-030 Ventilation Fans Exhaust Fans (CBUS)

Details	Values
Expected Life	25
Component Cost	17,610
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

Component Description Dedicated general exhaust system for individual space consist of in line axial fans. There are three (3) exhaust fans located on level 1 CBUS in room B155-129. They are manufactured by Northern Blower with 7.5hp motors. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date The exhaust fans is in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Corrosion		
Excessive dirt and dust		
Excessive noise		
Excessive vibration		
Inoperative		
Physical damage		

Poor efficiency



Exhaust fan.

03.1A-030 Ventilation Fans Exhaust Fans (CBUS) Event #: 1

Brief Description		RP Component life extension [03.1A-030 Ventilation Fans Exhaust Fans (CBUS)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2022	\$17,610	N/A	Building Condition Report

Event Description Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Very seldom use of the system justifies life extension versus replacement.

Implication of Event Deferral (Risks) Failure to repair/maintain the fan at the end of normal service life will reduce the availability, efficiency and capacity

Element Instance: 03.1A-030 Ventilation Fans Filtered Fans (CBUS)

Details	Values
Expected Life	45
Component Cost	11,399
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description Dedicated local fumes dust collecting system consist of exhaust fans with "smoke eaters" filtration system and "arms" duct extension with canopy to position point of exhaust close to working area. There are two (2) filtered fans in the shop area of the mechanical room. They are manufactured by Lawrcon. No other information could be obtained about them.

Component Condition & Anticipated Replacement Date The filtered fans are in good condition and of above standard quality. The typical service life has been extended to 45 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 45 years
 Remaining service life: 30 years

Replacement Date: 2043

Reason for service life adjustments: Occasional use, equipment still relatively new. Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency



Filtered Fan.

Element Instance: 03.1A-030 Ventilation Fans Grilles (Tunnel)

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	10
Measurement unit/ Metric	ea

Component Description

There are 10 ventilation grilles located in the tunnel between the Center Block and East Block.

Component Condition & Anticipated Replacement Date

The ventilation grilles are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 15 years
 Replacement Date: 2027

Reason for service life adjustments: Caps says 25 years for fans, but these are not fans. They are static elements (grilles).

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency



Ventilation Grille.

Element Instance: 03.1A-030 Ventilation Fans Kitchen Exhaust

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Roof mounted restaurant type exhaust fans by Delhi. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The kitchen exhaust fans are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life. Comply with NFPA 96.

Original installation year: 1996
 CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 14 years
 Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment. Good quality equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Corrosion			
Excessive dirt and dust			
Excessive noise			
Excessive vibration			
Inoperative			
Physical damage			
Poor efficiency			



Kitchen exhaust fan on the roof

Element Instance: 03.1A-030 Ventilation Fans Return Fan (Basement)

Details	Values
Expected Life	25
Component Cost	5,870
Last Major Action Year	1975
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated general exhaust system for basement space consist of in line axial fans. The return fan is located in the basement and is an inline fan manufactured by Aerofoil, model: 38200R. It has a 2hp motor.

Component Condition & Anticipated Replacement Date

The return fan is in poor condition and of standard quality. The equipment is well maintained and functioning as designed. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1975
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Element State:	Poor	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Corrosion			
Excessive dirt and dust			
Excessive noise		X	

Excessive vibration
 Inoperative
 Physical damage X
 Poor efficiency



Inline Fan.

03.1A-030 Ventilation Fans Return Fan (Basement) Event #: 1

Brief Description		RP Component life extension [03.1A-030 Ventilation Fans Return Fan (Basement)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$5,870	high priority	Building Condition Report

Event Description Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks) Failure to repair/maintain the Fans at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.1A-030 Ventilation Fans Roof Exhaust

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	6
Measurement unit/ Metric	ea

Component Description Local general or sanitary exhaust system for individual space consist of roof mounted direct drive or belt drive Centrifugal Roof Exhausters. There is (6) fan serving various areas. The fans are by Delhi and Penn.

Component Condition & Anticipated Replacement Date The roof exhaust fans are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1996

CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 14 years
 Replacement Date: 2026
 Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Corrosion			
Excessive dirt and dust			
Excessive noise			
Excessive vibration			
Inoperative			
Physical damage			
Poor efficiency			



Roof Exhaust Fan

Element Instance: 03.1A-030 Ventilation Fans Washroom Exhaust (6th floor)

<u>Details</u>	<u>Values</u>
Expected Life	25
Component Cost	5,870
Last Major Action Year	1990
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

Component Description Dedicated sanitary exhaust system for 6th floor staff wash room consist of in cabinet fan. The wash room exhaust fan is located on the 6th floor and is manufactured by Zephyr. It produces 1000CFM. The Factory nameplate is missing/un-readable. No historical data available.

Note: Photo not available

Component Condition & Anticipated Replacement Date The wash room exhaust fan is in fair condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1990

CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 3 years
 Replacement Date: 2015
 Reason for service life adjustments: N/A

Note: AVS does not allow a reduction of price based on professional experience.
 This component should cost approximately \$1500 to replace.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive dirt and dust
- Excessive noise
- Excessive vibration
- Inoperative
- Physical damage
- Poor efficiency

03.1A-030 Ventilation Fans Washroom Exhaust (6th floor) Event #: 1

Brief Description RP Component life extension [03.1A-030 Ventilation Fans Washroom Exhaust (6th floor)]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2015	\$5,870	high priority	Building Condition Report

Event Description Testing and condition assessment: lubrication of bearings and motor, check tightness for wheel, housing, bolts and set screws, check rubber isolators for deterioration, inspect fan impeller and housing looking for fatigue, corrosion, or wear.

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks) Failure to repair/maintain the Fans at the end of normal service life will reduce the availability, efficiency and capacity.

03.1A-032 Humidifiers

Element Instance: 03.1A-032 Humidifiers (5th floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2005
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description Humidification steam for individual Air Handling units is generated in LP steam to "clean" steam humidifiers. The humidifier is located on the 5th floor in room 504SC and is manufactured by Drysteam.

Component Condition & Anticipated Replacement Date

These units are disconnected and abandoned.
 The humidifier is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005
 CAPS theoretical service life: 25 years
 Assessed service life: 25 years
 Remaining service life: 18 years
 Replacement Date: 2030
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Algae/biological growth/mould
- Clogged valves
- Damaged coils/damaged cabinet
- Dirt in operating subcomponents
- Leakage
- Problematic operation
- Rust and corrosion



Humidifiers on the 5th floor

Element Instance: 03.1A-032 Humidifiers (Basement)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

Humidification steam for individual Air Handling units is generated in LP steam to "clean" steam humidifiers. There are two (2) humidifiers located in the basement that are manufactured by Dry Steem, model: STS25C.

These units are disconnected and abandoned.

Component Condition & Anticipated Replacement Date

The humidifiers are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1996
 CAPS theoretical service life: 25 years
 Assessed service life: 30 years
 Remaining service life: 14 years
 Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Algae/biological growth/mould
- Clogged valves
- Damaged coils/damaged cabinet
- Dirt in operating subcomponents
- Leakage
- Problematic operation
- Rust and corrosion



Humidifier.

Element Instance: 03.1A-032 Humidifiers (CBUS)

Details	Values
Expected Life	15
Component Cost	15,625
Last Major Action Year	1998
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

Component Description

Humidification steam for individual Air Handling units is generated in LP steam to "clean" steam humidifiers. The humidifier is located on level 1 CBUS in room B/55 125 and is manufactured by DriSteam, model: STS-50C.

Component Condition & Anticipated Replacement Date

The humidifier is in fair condition and of below standard quality. The equipment is well maintained with operational deficiencies. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1998
 CAPS theoretical service life: 25 years
 Assessed service life: 15 years
 Remaining service life: 1 years
 Replacement Date: 2013
 Reason for service life adjustments: Design deficiency, redesign and corrections are required.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Algae/biological growth/mould
- Clogged valves
- Damaged coils/damaged cabinet
- Dirt in operating subcomponents
- Leakage
- Problematic operation
- Rust and corrosion

X



Humidifier.

03.1A-032 Humidifiers (CBUS) Event #: 1

Brief Description

RP Component replacement or new [03.1A-032 Humidifiers (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component replacement or new

2013

\$16,000

high priority

Building Condition Report

Event Description

Replace humidifier.

Event Justification & Strategy

System design and equipment is deficient.

Implication of Event Deferral (Risks)

Failure to replace the humidifier at the end of normal service life will reduce the availability, efficiency and capacity.

03.1A-060 Terminal Units

Element Instance: 03.1A-060 Terminal Units HVAC

Details

Values

Expected Life	50
Component Cost	1,864,800
Last Major Action Year	1978
Component Condition (For BCR use only)	Average

This report was generated without using Virtual Events.

Quantity
Measurement unit/ Metric

180
ea

Component Description

Four pipe induction units located below windows provide ventilation, heating and cooling.

Force flow hot water heaters are located at exterior doors.

Hot water unit heaters are located in service areas.

AVS costing does not allow reduction in price due to professional experience. Terminal units price should be approximately \$1,000,000.

Component Condition & Anticipated Replacement Date

The terminal units are in average condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1978
CAPS theoretical service life: 35 years
Assessed service life: 50 years
Remaining service life: 16 years
Replacement Date: 2028

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Biological growth/contamination
- Corrosion
- Damaged or seized dampers
- Dirty cabinet grilles
- Dirty coils or radiator fins
- Excessive vibration
- Filters dirty (Unit Ventilators)
- Inadequate capacity
- Inoperative
- Leakage
- Noisy operation (forced flow, univents, unit heaters)
- Physical damage
- Poor efficiency



03.1A-082 Gas Fired Radiant Heater

Element Instance: 03.1A-082 Gas Fired Radiant Heater (Hot Water Radiators)

Details	Values
Expected Life	30
Component Cost	50,000
Last Major Action Year	1962
Component Condition (For BCR use only)	Poor
Quantity	730
Measurement unit/ Metric	ea

Component Description

Hot Water Radiators supply heat to each office space. The manufacture and model number were able to be determined.

AVS does not have components for Hot Water Radiators. Therefore we used Gas Fired Radiant Heater to create the component.

Note: Engineering experience; budget 5000\$ a year to replace broken Hot Water Radiators as required.

Component Condition & Anticipated Replacement Date

The Hot Water Radiators are in poor condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1962
 CAPS theoretical service life: 30 years
 Assessed service life: 30 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Note: Engineering experience; budget 5000\$ a year to replace broken Hot Water Radiators as required.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

Clogged or dirty grilles

Corrosion

X

Damaged support devices

Defective controls

Deteriorated cabinet finishes

Inadequate capacity
 Inefficient burner operation



Radiators

03.1A-082 Gas Fired Radiant Heater (Hot Water Radiators) Event #: 1

Brief Description		RP Component life extension [03.1A-082 Gas Fired Radiant Heater Hot Water Radiators]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$6,806,520	high priority	Building Condition Report
Event Description		On going service repairs for the hot water radiators over the next 10 years with an average budget of 5000\$ year.		
Event Justification & Strategy		Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.		
		Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.		
Implication of Event Deferral (Risks)		Failure to repair/maintain the Radiators at the end of normal service life will reduce the availability, efficiency and capacity.		

03.2 Control Systems

03.2A-010 Controls, Electrical or Pneumatic

Element Instance: 03.2A-010 Controls, Electrical or Pneumatic and DDC

Details	Values
Expected Life	30
Component Cost	42,160
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	1200
Measurement unit/ Metric	pt

Component Description The Centre Block mechanical systems are controlled by a combination of DDC controls by base controls, and VCI controls and pneumatic end devices.

Component Condition & Anticipated Replacement Date The pneumatic control are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1980, upgraded in 1997
 CAPS theoretical service life: 24 years

Assessed service life: 30 years
 Remaining service life: 15 years
 Replacement Date: 2027
 Reason for service life adjustments: Reassuring visual inspection, on going servicing, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Auxiliary equipment not operating			
Broken or stuck valves			
Clogged Filter			
Compressor malfunction			
Damaged or broken thermostats, humidistats, devices			
Damaged wiring			
Dryer not operating/too much moisture in line			
Improper point setting			
Lack of point capacity			
Lack of user training			
Leakage			
Outdated software			
Poor graphics abilities			
Regulator not set correctly			
Separator not drained			
Software operation problems			



Control Dampers

03.3 Plumbing

03.3-025 Tanks

03.3-025C05 Domestic Hot Water Tanks

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (5th floor)

<u>Details</u>	<u>Values</u>
Expected Life	20
Component Cost	32,200
Last Major Action Year	1953
Component Condition (For BCR use only)	Poor
Quantity	700
Measurement unit/ Metric	ltr

This report was generated without using Virtual Events.

Component Description

The domestic hot water plant consist of electric tank water heater. It generates hot water for dedicated building spaces. There are two (2) domestic hot water heaters located on the 5th floor, model: ATH.

Component Condition & Anticipated Replacement Date

The domestic hot water tanks are in poor condition and of standard quality. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1953
CAPS theoretical service life: 20 years
Assessed service life: 20 years
Remaining service life: 0 years
Replacement Date: 2012
Reason for service life adjustments: N/A

Cost of new hot water tank should be 20,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria**Existence****Comments**

Burner in poor condition

Corrosion

Damaged service connections

Improper adjustments and incorrect settings

Inadequate capacity

Leakage

Physical damage

Scaling and sediment

03.3-025C05 Domestic Hot Water Tanks (5th floor) Event #: 1**Brief Description**

RP Component replacement or new [03.3-025C05 Domestic Hot Water Tanks (5th floor)]

Event Type**Event Year****Event Cost****Priority****Data Origin**

RP Component

2012

\$32,973

high priority

Building Condition Report

replacement or new

Event Description

Replace domestic hot water heaters at the end of normal service life.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Cost of life extension on hot water tanks versus cost of replacement is negligible and new unit will provide better efficiency (no scale build up).

Implication of Event**Deferral (Risks)**

Failure to replace the domestic hot water heaters at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (6th floor)**Details****Values**

Expected Life

20

Component Cost

0

Last Major Action Year

2005

Component Condition (For BCR use only)

Good

This report was generated without using Virtual Events.

Quantity 1
Measurement unit/ Metric ea

Component Description

The domestic hot water plant consist of electric tank water heater. It generates hot water for dedicated building spaces. The domestic hot water tank is located on the 6th floor in room CB-669C. It is manufactured by Giant, model: 152ETE3F5M. It is 7.5KW.

Component Condition & Anticipated Replacement Date

The domestic hot water heater is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005
CAPS theoretical service life: 20 years
Assessed service life: 20 years
Remaining service life: 13 years
Replacement Date: 2025
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Burner in poor condition
- Corrosion
- Damaged service connections
- Improper adjustments and incorrect settings
- Inadequate capacity
- Leakage
- Physical damage
- Scaling and sediment



Domestic hot water tank.

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (Basement)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2000
Component Condition (For BCR use only)	Good
Quantity	675
Measurement unit/ Metric	ltr

Component Description

The domestic hot water plant consist of LP steam shell and tube heat exchanger

This report was generated without using Virtual Events.

and hot water storage tank. There is (1) storage tank located in basement mechanical space next to heat exchanger. It is Model 005 52" dia x 96" long by AS Leitch.

Component Condition & Anticipated Replacement Date

The domestic hot water heater is in good condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960 major repairs estimated 2000

CAPS theoretical service life: 20 years

Assessed service life: 25 years

Remaining service life: 13 years

Replacement Date: 2025

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Burner in poor condition

Corrosion

Damaged service connections

Improper adjustments and incorrect settings

Inadequate capacity

Leakage

Physical damage

Scaling and sediment



Domestic Hot Water Tank.

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (CBUS)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	350
Measurement unit/ Metric	ltr

This report was generated without using Virtual Events.

Component Description

The domestic hot water plant consist of electric tank water heater. It generates hot water for dedicated building spaces. The domestic hot water heater DHWT-1 is located on level 1 CBUS and is manufactured by Taco. It measures 40" dia x 80" tall.

Component Condition & Anticipated Replacement Date

The domestic hot water tank is in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
CAPS theoretical service life: 20 years
Assessed service life: 30 years
Remaining service life: 15 years
Replacement Date: 2027

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment..

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Burner in poor condition

Corrosion

Damaged service connections

Improper adjustments and incorrect settings

Inadequate capacity

Leakage

Physical damage

Scaling and sediment



Domestic hot water tank.

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (CBUS)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	150

This report was generated without using Virtual Events.

Measurement unit/ Metric

ltr

Component Description

The domestic hot water plant consist of insert type LP steam shell and tube heat exchanger within hot water storage tank. There is (1) storage tank located on level 1 CBUS. It is 40" dia. x 80" high by Taco

Component Condition & Anticipated Replacement Date

The domestic hot water tank is in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
CAPS theoretical service life: 20 years
Assessed service life: 30 years
Remaining service life: 15 years
Replacement Date: 2027

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Burner in poor condition

Corrosion

Damaged service connections

Improper adjustments and incorrect settings

Inadequate capacity

Leakage

Physical damage

Scaling and sediment



Domestic hot water tank.

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (Peace Tower)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1986
Component Condition (For BCR use only)	Average
Quantity	300

This report was generated without using Virtual Events.

Measurement unit/ Metric

ltr

Component Description

The domestic hot water plant consist of electric tank water heater. It generates hot water for dedicated building spaces. There are two (2) domestic hot water heaters located on the third and eight levels of the peace tower. They are manufactured by Giant and draw 6KW and 7.5KW respectively, and hold 40Gal each.

Component Condition & Anticipated Replacement Date

The domestic hot water heaters are in average condition and of above standard quality. The typical service life has been extended to 30 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1986
CAPS theoretical service life: 20 years
Assessed service life: 40 years
Remaining service life: 14 years
Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Burner in poor condition
- Corrosion
- Damaged service connections
- Improper adjustments and incorrect settings
- Inadequate capacity
- Leakage
- Physical damage
- Scaling and sediment



Domestic hot water tank.

Element Instance: 03.3-025C05 Domestic Hot Water Tanks (Speakers Kitchen)

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	2007
Component Condition (For BCR use only)	Good

This report was generated without using Virtual Events.

Quantity 1
Measurement unit/ Metric ea

Component Description

The domestic hot water plant consist of electric tank water heater. It generates hot water for dedicated building spaces. The domestic hot water heater is located in the speakers kitchen and is inaccessible. The hot water heater appears to be fairly new and approximately 5 years old. It was not possible to discern the make, model or any other information about it.

Component Condition & Anticipated Replacement Date

The domestic hot water heater is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2007
CAPS theoretical service life: 20 years
Assessed service life: 20 years
Remaining service life: 15 years
Replacement Date: 2027
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Burner in poor condition
- Corrosion
- Damaged service connections
- Improper adjustments and incorrect settings
- Inadequate capacity
- Leakage
- Physical damage
- Scaling and sediment

Element Instance: 03.3-025C05 Domestic Hot Water Tanks for kitchenette (Basement)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

The domestic hot water plant consist of electric tank water heater. It generates hot water for dedicated building spaces. The domestic hot water tank is located in the basement and serves the kitchenette (room 127-B). The manufacturer was not obtainable but it is a 9KW electric hot water heater.

Component Condition & Anticipated Replacement Date

The domestic hot water heater is in good condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2001
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 14 years
 Replacement Date: 2026

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Burner in poor condition
- Corrosion
- Damaged service connections
- Improper adjustments and incorrect settings
- Inadequate capacity
- Leakage
- Physical damage
- Scaling and sediment

03.3-025C10 Water Storage Tanks

Element Instance: 03.3-025C10 Water Storage Tanks Condensate Vacuum (Basement) (various HVAC storage/aux. tanks/expansion tanks)

Details	Values
Expected Life	45
Component Cost	0
Last Major Action Year	1986
Component Condition (For BCR use only)	Average
Quantity	950
Measurement unit/ Metric	ltr

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters is collected via gravity or vacuum in condensate receivers and where lift is not possible is pumped out back to the plant. The condensate vacuum tank by Leitch is 80" high and 40" in diameter. It is located in the basement. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The condensate vacuum tank is in average condition and above standard quality. The typical service life has been extended to 45 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1986

CAPS theoretical service life: 35 years

Assessed service life: 45 years

Remaining service life: 19 years

Replacement Date: 2031

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Leakage

Physical damage

Scaling



Condensate Vacuum Tank

Element Instance: 03.3-025C10 Water Storage Tanks Expansion (Basement) (various HVAC storage/aux. tanks/expansion tanks)

Details	Values
Expected Life	35
Component Cost	45,900
Last Major Action Year	1965
Component Condition (For BCR use only)	Poor
Quantity	1350
Measurement unit/ Metric	ltr

Component Description

To accommodate thermal expansion of water in hydraulic heating system, plant include expansion tanks. There is (1) steel expansion tank located in basement mechanical room. It is 36" dia x 130" long by Leitch. The control, aux. piping and trim was replaced in 1985. The expansion tank is 36" dia x 130" long and manufactured by Leitch. It is located in the basement. The pneumatic steam controls were replaced in the mid 1980's. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The expansion tank is in poor condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1965
 CAPS theoretical service life: 35 years
 Assessed service life: 35 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

X

Leakage

Physical damage

Scaling



Expansion tank

03.3-025C10 Water Storage Tanks Expansion (Basement) (various HVAC storage/aux. tanks/expansion tanks) Event #: 1

Event Description

RP Component life extension [03.3-025C10 Water Storage Tanks Expansion (Basement)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2012

\$45,900

high priority

Building Condition Report

Event Description

Testing and condition assessment: replace connection fittings, repair insulation and check for leaks.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event

Deferral (Risks)

Failure to repair/maintain the expansion tank at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3-025C10 Water Storage Tanks Expansion Tank (CBUS) (various HVAC storage/aux. tanks/expansion tanks)

Details

Values

Expected Life

50

Component Cost

0

Last Major Action Year

1997

This report was generated without using Virtual Events.

Component Condition (For BCR use only) Good
 Quantity 150
 Measurement unit/ Metric ltr

Component Description

To accommodate thermal expansion of water in hydraulic heating system, plant include expansion tanks. There is (1) steel expansion tank ET-1 located on level 1 CBUS in room B/55 125 and is manufactured by Taco. No other information was found.

Component Condition & Anticipated Replacement Date

The expansion tank is in good condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 35 years
 Assessed service life: 50 years
 Remaining service life: 35 years
 Replacement Date: 2047

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Leakage
- Physical damage
- Scaling



Expansion Tank.

Element Instance: 03.3-025C10 Water Storage Tanks Expansion Tank (Peace Tower) (various HVAC storage/aux. tanks/expansion tanks)

Details	Values
Expected Life	35
Component Cost	0
Last Major Action Year	2004
Component Condition (For BCR use only)	Excellent
Quantity	400
Measurement unit/ Metric	ltr

This report was generated without using Virtual Events.

Component Description

To accommodate thermal expansion of water in domestic water system include expansion tanks. There is (1) steel expansion tank. The expansion tank is located in the peace tower and is manufactured by Amtrol, model: WX451. It supports up to 150psi.

Component Condition & Anticipated Replacement Date

The expansion tank is in excellent condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2004
CAPS theoretical service life: 35 years
Assessed service life: 35 years
Remaining service life: 27 years
Replacement Date: 2039
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:

Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Leakage

Physical damage

Scaling



Water Storage Tank.

Element Instance: 03.3-025C10 Water Storage condensate Tanks (Basement) (various HVAC storage/aux. tanks)

Details	Values
Expected Life	35
Component Cost	57,800
Last Major Action Year	1975
Component Condition (For BCR use only)	Poor
Quantity	1700
Measurement unit/ Metric	ltr

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters is collected via gravity or vacuum in condensate receivers and where lift is not possible is pumped out back to the plant. There are two (2) condensate receiver tanks located in the basement. They are 38" dia x 74" in length. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The condensate receiver tanks are in poor condition and of standard quality. There are no noticeable deficiencies and no traces leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1975
 CAPS theoretical service life: 35 years
 Assessed service life: 35 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Cost of new hot water tank should be 10,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

X

Leakage

Physical damage

Scaling



Condensate Tank.

03.3-025C10 Water Storage condensate Tanks (Basement) (various HVAC storage/aux. tanks) Event #: 1

Brief Description

RP Component life extension [03.3-025C10 Water Storage condensate Tanks (Basement) (various HVAC storage/aux. tanks)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2012

\$57,800

high priority

Building Condition Report

Event Description

Testing and condition assessment: replace connection fittings, repair insulation and check for leaks.

Event Justification & Strategy

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the Fans at the end of normal service life will reduce the availability, efficiency and capacity.

03.3A-010 Plumbing Piping

Element Instance: 03.3A-010 Plumbing Piping Chilled Water

Details

Values

Expected Life

40

Component Cost

443,248

Last Major Action Year

1962

Component Condition (For BCR use only)

Poor

This report was generated without using Virtual Events.

Quantity 2131
 Measurement unit/ Metric m

Component Description

Chilled water serving the building is generated in Central Plant and delivered to the building via service tunnel. The distribution within the building consist of thermally insulated black steel piping. There is mix of schedule 40 and 80 malleable iron fittings. Valves and accessories are mix of various brands and dated from original building construction to current which were replaced on as need repair bases.

Note: Price for life extension too high, should be 10,000\$ a year for 10 years (total 100,000\$)

Component Condition & Anticipated Replacement Date

The chilled water piping is in poor condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies with some traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1962
 CAPS theoretical service life: 40 years
 Assessed service life: 40 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Cost of pipe life extension should be 100,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Biological growth/contamination
- Clogged drain
- Corrosion
- Damaged Insulation and cover
- Damaged piping and/or fittings
- Damaged valves
- Lack of backflow prevention
- Leakage
- Scaling

X

X



Chilled water piping

03.3A-010 Plumbing Piping Chilled Water Event #: 1

Brief Description

RP Component life extension [03.3A-010 Plumbing Piping Chilled Water]

Event Type **Event Year** **Event Cost** **Priority** **Data Origin**

RP Component life extension 2012 \$443,248 medium priority Building Condition Report

Event Description

On an as-need basis replace the piping section that is deteriorated. This will extend the life of the piping for over 10 years, which is above the scope of this project.

Note: Split this amount approximately 10,000\$ a year to extend the life determined by engineering experience

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the chilled water piping at the end of normal service life will reduce the availability, efficiency and capacity.



Element Instance: 03.3A-010 Plumbing Piping Gas

Details

Values

Expected Life	40
Component Cost	443,248
Last Major Action Year	1960
Component Condition (For BCR use only)	Poor
Quantity	2131
Measurement unit/ Metric	m

Component Description

Natural gas serving the building is connected to outside utility services and carry on troughs the building to kitchen and few gas fired fireplaces. The distribution within the building consist of black steel piping. With malleable iron fittings.

Note: Price for life extension too high, should be 3,000\$ a year for 10 years (total 30,000\$)

Component Condition & Anticipated Replacement Date

The gas piping is in poor condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies with traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life. Valves and accessories are in good condition, installation is Code compliant.

Original installation year: 1960
 CAPS theoretical service life: 40 years
 Assessed service life: 40 years
 Remaining service life: -2 years
 Replacement Date: 2010
 Reason for service life adjustments: N/A

This report was generated without using Virtual Events.

Cost of pipe life extension should be 30,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Biological growth/contamination
- Clogged drain
- Corrosion
- Damaged Insulation and cover
- Damaged piping and/or fittings
- Damaged valves
- Lack of backflow prevention
- Leakage
- Scaling

X

X



Gas piping

03.3A-010 Plumbing Piping Gas Event #: 1

Brief Description

RP Component life extension [03.3A-010 Plumbing Piping Gas]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2012

\$443,248

medium priority

Building Condition Report

Event Description

On an as-need basis replace the piping section that is deteriorated. This will extend the life of the piping for over 10 years, which is above the scope of this project.

Note: Split this amount approximately 3,000\$ a year to extend the life determined by engineering experience (total of 30,000\$)

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the gas piping at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-010 Plumbing Piping Heating

Details

Values

Expected Life	40
Component Cost	443,248
Last Major Action Year	1962
Component Condition (For BCR use only)	Poor
Quantity	2131
Measurement unit/ Metric	m

Component Description

Heating hot water serving the building is generated via steam heat exchangers in

the life of the piping for over 10 years, which is above the scope of this project.

Note: Split this amount approximately 10,000\$ a year to extend the life determined by engineering experience

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the piping at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-010 Plumbing Piping Sanitary Drain & Vent

Details	Values
Expected Life	50
Component Cost	443,248
Last Major Action Year	1962
Component Condition (For BCR use only)	Poor
Quantity	2131
Measurement unit/ Metric	m

Component Description

Sanitary drain and plumbing vent services are located throughout the building. The system consist of cast iron, galvanized steel and DWV copper pipes. There is mix of H&S, MJ ,treated and solder fittings. Valves and accessories are mix of various brands and dated from original building construction to current which were replaced on as need repair bases. Significant portion of the drainage in basement was replaced in 1980.

Note: Price for life extension too high, should be 5,000\$ a year for 10 years (total 50,000\$)

Component Condition & Anticipated Replacement Date

The sanitary drain and vent piping is in poor condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies with traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1962 partial replacement in 1980
CAPS theoretical service life: 40 years
Assessed service life: 50 years
Remaining service life: 0 years
Replacement Date: 2012
Reason for service life adjustments: N/A

Cost of pipe life extension should be 50,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Biological growth/contamination
Clogged drain

Corrosion	X
Damaged Insulation and cover	
Damaged piping and/or fittings	
Damaged valves	
Lack of backflow prevention	
Leakage	X
Scaling	



Sanitary drain & Vent piping

03.3A-010 Plumbing Piping Sanitary Drain & Vent Event #: 1

Brief Description	RP Component life extension [03.3A-010 Plumbing Piping Sanitary Drain & Vent]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$443,248	medium priority	Building Condition Report

Event Description On an as-need basis replace the piping section that is deteriorated. This will extend the life of the piping for over 10 years, which is above the scope of this project.

Note: Split this amount approximately 5,000\$ a year to extend the life determined by engineering experience

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks) Failure to repair/maintain the piping at the end of normal service life will reduce the availability, efficiency and capacity

Element Instance: 03.3A-010 Plumbing Piping Storm

Details	Values
Expected Life	40
Component Cost	443,248
Last Major Action Year	1962
Component Condition (For BCR use only)	Poor
Quantity	2131
Measurement unit/ Metric	m

Component Description Storm drain services connect (34) roof drains in the riser system assembly with main located in basement. The system consist of cast iron pipes. There is mix of H&S and MJ fittings. Significant portion of the drainage in basement was replaced in 1980.

Note: Price for life extension too high, should be 5,000\$ a year for 10 years (total 50,000\$)

Component Condition & Anticipated Replacement Date

The storm piping is in poor condition and of standard quality. Some of the piping has been replaced while older sections show minor traces of deterioration in certain areas. Replacement to these sections is an on going process. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1962 partial replacements in 1980
 CAPS theoretical service life: 40 years
 Assessed service life: 40 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Cost of pipe life extension should be 50,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Biological growth/contamination
- Clogged drain
- Corrosion
- Damaged Insulation and cover
- Damaged piping and/or fittings
- Damaged valves
- Lack of backflow prevention
- Leakage
- Scaling

X

X



Storm piping

03.3A-010 Plumbing Piping Storm Event #: 1

Brief Description

RP Component life extension [03.3A-010 Plumbing Piping Storm]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2012

\$443,248

medium priority

Building Condition Report

Event Description

On an as-need basis replace the piping section that is deteriorated. This will extend the life of the piping for over 10 years, which is above the scope of this project.

Note: Split this amount approximately 5,000\$ a year to extend the life determined by engineering experience

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

**Implication of Event
Deferral (Risks)**

Failure to repair/maintain the piping at the end of normal service life will reduce the availability, efficiency and capacity.

03.3A-015 Plumbing Fixtures and Accessories

Element Instance: 03.3A-015 Plumbing Fixtures and Accessories

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1978
Component Condition (For BCR use only)	Average
Quantity	45
Measurement unit/ Metric	ea

Component Description

Wash rooms, kitchen, cafeteria and services room are equipped with variety of plumbing fixtures. Most of the fixtures are dated from original building construction to current which were replaced on as need repair bases. WC, Urinals and lavatories vitreous china with flush valves and faucets suitable for application. Kitchen sinks are SS construction. Specialty fixtures are build to industry standards. There are:

- (28) Service sinks and mop sinks
- (10) kitchen sinks and counter sinks
- (187) lavatories (counter mount and wall mount
- (152) WC (flush valve and tank)
- (41) urinals
- (9) showers
- (6) drinking fountains
- (5) eye wash stations
- (10) hook-ups for ice machines, washers
- (14) commercial kitchen fixtures

**Component Condition &
Anticipated Replacement
Date**

The plumbing fixtures are in average condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1978
CAPS theoretical service life: 30 years
Assessed service life: 50 years
Remaining service life: 16 years
Replacement Date: 2028

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Leakage
- Outdated
- Physical damage
- Staining



Fixture.

Element Instance: 03.3A-015 Plumbing Fixtures and Accessories (Basement)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	100
Measurement unit/ Metric	ea

Component Description

Plumbing system accessories consist of temperature mixing valves, back flow preventers, floor drains, shock stops. Most of components were replaced and very few are part of original installation. All BFP were replaced and added to comply with Code requirements. All BFP are by Watts.

Component Condition & Anticipated Replacement Date

The back flow preventers and valves are in good condition and of above standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2001
CAPS theoretical service life: 30 years
Assessed service life: 30 years
Remaining service life: 19 years
Replacement Date: 2031
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Leakage
- Outdated

Physical damage

Staining



Plumbing Valves.

Element Instance: 03.3A-015 Plumbing Fixtures and Accessories Suppression & Load Wash Down System

(6th floor)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Combination of fire suppression and wash down system for commercial kitchen hoods consist of package unit piped to the hood. The suppression and load wash down system is located on the 6th floor in the MP kitchen.

Component Condition & Anticipated Replacement Date

The suppression and load wash down system is in average condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life. Installation and equipment is NFPA 96 compliant.

Original installation year: 1998
CAPS theoretical service life: 30 years
Assessed service life: 30 years
Remaining service life: 11 years
Replacement Date: 2023
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
----------------------------	------------------	-----------------

Corrosion

Leakage

Outdated

Physical damage

Staining



Circulating Pump.

03.3A-020 Plumbing Pumps Circulating (Basement) Event #: 1

Brief Description		RP Component life extension [03.3A-020 Plumbing Pumps Circulating (Basement)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$7,223	high priority	Building Condition Report
Event Description	Pump servicing, replace bearings, bushings, fix leaks etc. as needed.			
Event Justification & Strategy	Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.			
	Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.			
Implication of Event Deferral (Risks)	Failure to repair/maintain the pump at the end of normal service life will reduce the availability, efficiency and capacity.			

Element Instance: 03.3A-020 Plumbing Pumps Circulating (CBUS)

Details	Values
Expected Life	25
Component Cost	14,446
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description Dedicated circulating pumps are added to main hot water heating distribution system to maintain desire flow and pressure drop for building heating section or individual HVAC unit. There are two (2) condensate pumps located on level 1 CBUS in room B/55 125. They are manufactured by Performa Pumps, model: A6P34DC8 and are 1/2hp each.

Component Condition & Anticipated Replacement Date The condensate pumps are in average condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Note: AVS does not allow a reduction of price based on professional experience.
 This component should cost approximately \$4000 to replace.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Circulating Pumps.

03.3A-020 Plumbing Pumps Circulating (CBUS) Event #: 1

Brief Description

RP Component life extension [03.3A-020 Plumbing Pumps Circulating (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2022

\$14,446

N/A

Building Condition Report

Event Description

Pump servicing, replace bearings, bushings, fix leaks etc. as needed.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the pump at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-020 Plumbing Pumps Circulating (CBUS)

Details

Values

Expected Life	25
Component Cost	14,446
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters are transfer from the devices or receiver tanks and pumped out back to the plant. There are two (2) circulator pumps P-10 and P-11 located on level 1 CBUS in room B/55 125. They are cartridge circulator pumps manufactured by Taco, model: 0011-F4. They are 1/2hp each.

Component Condition & Anticipated Replacement Date

The circulator pumps are in average condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary

findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Note: AVS does not allow a reduction of price based on professional experience. This component should cost approximately \$4000 to replace.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Circulating Pumps.

03.3A-020 Plumbing Pumps Circulating (CBUS) Event #: 1

Brief Description

RP Component life extension [03.3A-020 Plumbing Pumps Circulating (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2022

\$14,446

N/A

Building Condition Report

Event Description

Pump servicing, replace bearings, bushings, fix leaks etc. as needed.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

Implication of Event Deferral (Risks)

Failure to repair/maintain the pump at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-020 Plumbing Pumps Condensate (6th floor)

Details

Values

Expected Life
 Component Cost
 Last Major Action Year

20
 7,710
 1980

This report was generated without using Virtual Events.

Component Condition (For BCR use only) Poor
 Quantity 1
 Measurement unit/ Metric ea

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters are transfer from the devices or receiver tanks and pumped out back to the plant. The condensate pump is located on the 6th floor in the kitchen and has a 1/2hp motor. It was not possible to discern the manufacturer.

Component Condition & Anticipated Replacement Date

The condensate pump is in poor condition and of standard quality. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1980
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 0 years
 Replacement Date: 2012

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

X

Excessive noise

Excessive vibration

Inefficient operation

Leakage

X

Physical damage



Condensate Pump.

03.3A-020 Plumbing Pumps Condensate (6th floor) Event #: 1

Brief Description

RP Component replacement or new [03.3A-020 Plumbing Pumps Condensate (6th floor)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component replacement or new

2012

\$7,895

high priority

Building Condition Report

Event Description

Replace condensate pump at the end of normal service life.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

**Implication of Event
Deferral (Risks)**

Failure to replace the condensate pump at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-020 Plumbing Pumps Condensate (Basement)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2008
Component Condition (For BCR use only)	Excellent
Quantity	2
Measurement unit/ Metric	ea

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters are transfer from the devices or receiver tanks and pumped out back to the plant. There are two (2) condensate pumps located in the basement. These pumps are 3hp manufactured by Armstrong, model: 1179808.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

**Component Condition &
Anticipated Replacement
Date**

The condensate pumps are in excellent condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2008
CAPS theoretical service life: 20 years
Assessed service life: 25 years
Remaining service life: 21 years
Replacement Date: 2033
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Condensate Pump.

Element Instance: 03.3A-020 Plumbing Pumps Condensate (Basement-vacuum)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	1992
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters are transfer from the devices or receiver tanks and pumped out back to the plant. The condensate vacuum system is fitted with two (2) condensate pumps by Nash. The pumps are located in the basement and are 5hp each. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The condensate pumps are in average condition and above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1992
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Vacuum Condensate Pumps

Element Instance: 03.3A-020 Plumbing Pumps Condensate Receiver (Basement)

Details	Values
Expected Life	25
Component Cost	14,446
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	2
Measurement unit/ Metric	ea

Component Description

Low Pressure LP steam condensate from heating coils, heat exchangers, humidifiers and domestic water heaters are transfer from the devices or receiver tanks and pumped out back to the plant. There are two (2) condensate receiver pumps manufactured by Leitch located in the basement. They are 1hp, model: EC200.

Cost of service for pumps should be 6,000\$ as opposed to AVS generated.

Component Condition & Anticipated Replacement Date

The condensate receiver pumps are in poor condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1969
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Cost of service for pumps should be 6,000\$ as opposed to AVS generated.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

Corrosion	X	
Excessive noise		
Excessive vibration		
Inefficient operation		
Leakage	X	
Physical damage		



Condensate Pump

03.3A-020 Plumbing Pumps Condensate Receiver (Basement) Event #: 1

Brief Description		RP Component life extension [03.3A-020 Plumbing Pumps Condensate Receiver (Basement)]		
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component life extension	2012	\$14,446	high priority	Building Condition Report
Event Description		Testing and condition assessment: check gland and mechanical seals for water leaks, check tightness of electrical terminals, inspect for water leaks around flanged connections, check direction of rotation, clean air intake and extract grilles on motor fan guard, and blow out windings, clean labels, identification markers and manufacturers' name plate markings, test starting and running currents, supply voltage and record results.		
Event Justification & Strategy		Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.		
		Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.		
Implication of Event Deferral (Risks)		Failure to repair/maintain the condensate receiver pumps at the end of normal service life will reduce the availability, efficiency and capacity.		

Element Instance: 03.3A-020 Plumbing Pumps DCW Booster and jockey pump (CBUS)

Details	Values
Expected Life	35
Component Cost	30,420
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	3
Measurement unit/ Metric	ea
Component Description	
Main domestic water booster pump maintain sufficient water pressure throughout the building. There are two (2) domestic cold water booster pumps located on level 1 CBUS in Pump Room 117. They are manufactured by Armstrong, type Super-E with 15hp motors.	
Fire Protection jockey/booster pump maintain water flow at sufficient volume for use in sprinkler and standpipe system. The jockey pump is located on level 1 CBUS and in Pump Room 117. It is manufactured by WEG, model: F56A with a 40hp motor.	
Component Condition & Anticipated Replacement Date	The DCW booster pumps are in good condition and of standard quality. The typical service life has been extended to 35 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts,

manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 20 years
 Assessed service life: 35 years
 Remaining service life: 20 years
 Replacement Date: 2032
 Reason for service life adjustments: N/A

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



DCW Booster Pumps

03.3A-020 Plumbing Pumps DCW Booster and jockey pump (CBUS) Event #: 1

Brief Description

RP Component replacement or new [03.3A-020 Plumbing Pumps DCW Booster (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component replacement or new

2022

\$50,045

N/A

Building Condition Report

Event Description

Replace domestic cold water booster pumps at the end of normal service life.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle.

Implication of Event Deferral (Risks)

Failure to replace the domestic cold water booster pumps at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-020 Plumbing Pumps DHW Booster (Basement)

Details

Values

Expected Life	20
Component Cost	7,223
Last Major Action Year	1982
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	ea

Component Description

Main domestic water booster pump maintain sufficient water pressure throughout the building. There is (1) base mounted booster pump located in basement mechanical

Component Condition & Anticipated Replacement Date

space. It is 2hp pump by Darling.

The domestic water booster pump is in poor condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1982
 CAPS theoretical service life: 20 years
 Assessed service life: 20 years
 Remaining service life: 0 years
 Replacement Date: 2012
 Reason for service life adjustments: N/A

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

X

Excessive noise

Excessive vibration

Inefficient operation

Leakage

X

Physical damage



Domestic Hot Water Pump.

03.3A-020 Plumbing Pumps DHW Booster (Basement) Event #: 1

Brief Description

RP Component life extension [03.3A-020 Plumbing Pumps DHW Booster (Basement)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component life extension

2012

\$7,223

high priority

Building Condition Report

Event Description

Testing and condition assessment: check gland and mechanical seals for water leaks, check tightness of electrical terminals, inspect for water leaks around flanged connections, check direction of rotation, clean air intake and extract grilles on motor fan guard, and blow out windings, clean labels, identification markers and manufacturers' name plate markings, test starting and running currents, supply voltage and record results.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

Centre Block structural is due for total overhaul in 10 years. Any expenditures to maintain mechanical services should be reduced to service or life extension procedure unless absolutely necessary.

**Implication of Event
Deferral (Risks)**

Failure to repair/maintain the domestic water booster pump at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-020 Plumbing Pumps Domestic Hot Water Booster (Basement)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

Main domestic water booster pump maintain sufficient water pressure throughout the building. There is (1) base mounted booster pump located in basement mechanical space. It is Model 1531AD, 1hp pump by Bell & Gosset.

**Component Condition &
Anticipated Replacement
Date**

The domestic hot water booster pump is in good condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2002
CAPS theoretical service life: 20 years
Assessed service life: 25 years
Remaining service life: 15 years
Replacement Date: 2027
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Domestic Hot Water Booster Pump.

Element Instance: 03.3A-020 Plumbing Pumps Domestic Water Booster (Peace Tower)

Details	Values
----------------	---------------

This report was generated without using Virtual Events.

Expected Life	20
Component Cost	5,000
Last Major Action Year	1979
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description

Main domestic water booster pump maintain sufficient water pressure for Peace Tower. The domestic water booster pump is located on the third level of the peace tower. It is manufactured by Plad, model: TD265. It has a 10hp motor and supports 50GPM.

Component Condition & Anticipated Replacement Date

The domestic water booster pump is in excellent condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2011
 CAPS theoretical service life: 20 years
 Assessed service life: 20 years
 Remaining service life: 19 years
 Replacement Date: 2031
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Domestic Water Booster Pump.

Element Instance: 03.3A-020 Plumbing Pumps Hot Water Recirculation (6th floor)

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	2005
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

This report was generated without using Virtual Events.

Component Description

Dedicated domestic hot water re-circulating pumps are installed to maintain sufficient water temperature in the distribution system. There is (1) pump located on 6th floor. It is Model H32 by Armstrong.

Component Condition & Anticipated Replacement Date

The hot water recirculation pump is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005
CAPS theoretical service life: 20 years
Assessed service life: 20 years
Remaining service life: 13 years
Replacement Date: 2025
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria**Existence****Comments**

Corrosion

Excessive noise

Excessive vibration

Inefficient operation

Leakage

Physical damage

Element Instance: 03.3A-020 Plumbing Pumps Recirculation (CBUS)**Details****Values**

Expected Life	25
Component Cost	7,710
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Dedicated domestic hot water re-circulating pumps are installed to maintain sufficient water temperature in the distribution system. There is (1) pump located on level 1 CBUS. It is Model in line circulator ½ hp by Armstrong.

Component Condition & Anticipated Replacement Date

The recirculation pump is in average condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Recirculation Pump.

03.3A-020 Plumbing Pumps Recirculation (CBUS) Event #: 1

Brief Description RP Component replacement or new [03.3A-020 Plumbing Pumps Recirculation (CBUS)]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2022	\$7,895	N/A	Building Condition Report

Event Description Replace recirculation pump at the end of normal service life.

Event Justification & Strategy Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle.

Implication of Event Deferral (Risks) Failure to replace the recirculation pump at the end of normal service life will reduce the availability, efficiency and capacity.

Element Instance: 03.3A-020 Plumbing Pumps Sump (CBUS)

Details	Values
Expected Life	25
Component Cost	78,950
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	10
Measurement unit/ Metric	ea

Component Description To evacuate ground water, sanitary or storm drain from services below main drain inverts and collected in the sumps, sump pumps are used. There are seven (7) sump pumps on level 2 CBUS. The Factory nameplate is missing/un-readable. No historical data available.

Two outside lunch room
 2 outside office
 2 outside lunch room (sanitary)
 2 outside elevator
 2 CBUS tunnel

Component Condition & Anticipated Replacement Date

The sump pumps are in average condition and of standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 20 years
 Assessed service life: 25 years
 Remaining service life: 10 years
 Replacement Date: 2022
 Reason for service life adjustments: N/A

Note: AVS does not allow a reduction of price based on professional experience. This component should cost approximately \$35000 to replace.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Excessive noise
- Excessive vibration
- Inefficient operation
- Leakage
- Physical damage



Sumps Pumps

03.3A-020 Plumbing Pumps Sump (CBUS) Event #: 1

Brief Description

RP Component replacement or new [03.3A-020 Plumbing Pumps Sump (CBUS)]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component replacement or new

2022

\$78,950

N/A

Building Condition Report

Event Description

Replace sump pumps at the end of normal service life.

Event Justification & Strategy

Equipment deteriorates with use and at the end of normal service life reliability decreases and repairs increase.

CBUS is a new structure that won't undergo extensive renovation, thus equipment replacement is justified at the end of life cycle.

**Implication of Event
Deferral (Risks)**

Failure to replace the sump pumps at the end of normal service life will reduce the availability, efficiency and capacity.

03.4 Special Systems

03.4A-015 Compressed Air Systems

Element Instance: 03.4A-015 Compressed Air Systems (Basement)

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	1988
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	sum

Component Description

Instrument compressed air for pneumatic control is generated in air compressors and stored in pressure tanks. Two (2) air compressor systems are found in the basement complete with air dryer. Both compressors are manufactured by Devilbus, model BDB5060 with 15hp motor each. The air dryer is also manufactured by Devilbus, model 8055180100 with a 1/2hp motor.

There is a third system in room 131 but it is owned by house of common and falls outside of contract.

**Component Condition &
Anticipated Replacement
Date**

The air compressor systems are in average condition and of below standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1988
CAPS theoretical service life: 75 years
Assessed service life: 50 years
Remaining service life: 26 years
Replacement Date: 2038
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Leakage
- Malfunctioning Compressor
- Physical damage



Compressed air system

Element Instance: 03.4A-015 Compressed Air Systems (CBUS)

Details	Values
Expected Life	75
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	ea

Component Description

Instrument compressed air for pneumatic control is generated in air compressors and stored in pressure tanks.

There are four (3) air compressors located in CBUS.

One (1) air compressor is located on level 1 in room B155-141A and is manufactured by Parker.

Two (2) air compressors located on level 2 in room SB/DSS-245. They are manufactured by Devair, model: Tapv 5052. They have 5hp motors. The compressed air dryer is manufactured by Devair, model: 8025.

Component Condition & Anticipated Replacement Date

The air compressors are in good condition and of standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1994 (but one installed in 1971)
 CAPS theoretical service life: 75 years
 Assessed service life: 75 years
 Remaining service life: 36 years
 Replacement Date: 2046
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Leakage
- Malfunctioning Compressor

Physical damage



Air Compressor.

03.4A-030 Water Distillation Units

Element Instance: 03.4A-030 Water Distillation Units (5th floor)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description

To improve purity of domestic water for dedicated use (ice machines) coffee makers, "clean" steam generation water filtration unit are used. The water purification system is located on the 5th floor and is manufactured by Aquapure, model: AP802.

Owned by house of common, not part of contract.

Component Condition & Anticipated Replacement Date

The water purification system is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no trace of leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2001
CAPS theoretical service life: 40 years
Assessed service life: 40 years
Remaining service life: 29 years
Replacement Date: 2041
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Corrosion
- Leakage
- Malfunctioning Units
- Physical damage



Water Purification.

Element Instance: 03.4A-030 Water Distillation Units Filter (CBUS)

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	192,735
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

To improve quality of make-up water for heating system; water filtration in unit is used. The filter is located on level 1 CBUS in room B/55 125 and is manufactured by Filterite (a Memtec Group), model: 910031-000, type: LM010-3/4.

Component Condition & Anticipated Replacement Date

The filter is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 40 years
 Assessed service life: 40 years
 Remaining service life: 25 years
 Replacement Date: 2037
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Leakage
- Malfunctioning Units
- Physical damage



Filter.

Element Instance: 03.4A-030 Water Distillation Units Water Conditioner (CBUS)

This report was generated without using Virtual Events.

Details	Values
Expected Life	40
Component Cost	192,735
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description To improve quality (reduce hardness) of domestic water for dedicated use, "clean" steam generation water conditioning and softening system is used. The water conditioner is located on level 1 CBUS in room B/55 125. It is manufactured by Myers, model: 01279801.

Component Condition & Anticipated Replacement Date The water conditioner is in good condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
 CAPS theoretical service life: 40 years
 Assessed service life: 40 years
 Remaining service life: 25 years
 Replacement Date: 2037
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria	Existence	Comments
Corrosion		
Leakage		
Malfunctioning Units		
Physical damage		



Water Conditioner.

03.4A-035 Sterilization System

Element Instance: 03.4A-035 Sterilization System Grease Interceptor (1st floor)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

This report was generated without using Virtual Events.

Component Description

As part of sanitary drainage system grease collecting system is installed. There are two (2) grease interceptors.

One (1) grease interceptor is located on the first floor across from the guard booth. It is fiberglass construction measuring 45"x25"x25" with a 4" inlet. The Factory nameplate is missing/un-readable. No historical data available.

One (1) grease interceptor is located on the 5th floor and is manufactured by Zurn, model: z1160/1170. It allows for a 50GPM flow rate.

Component Condition & Anticipated Replacement Date

The grease interceptors are in good condition and of above standard quality. The typical service life has been extended to 40 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2002
CAPS theoretical service life: 15 years
Assessed service life: 40 years
Remaining service life: 30 years
Replacement Date: 2042
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Leakage

Malfunctioning Units

Physical damage



Grease Interceptor.

Element Instance: 03.4A-035 Sterilization System Grease Interceptor (5th floor)

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

As part of sanitary drainage system grease collecting system is installed. The

This report was generated without using Virtual Events.

grease interceptor is located on the 5th floor and is manufactured by Zurn, model: z1160/1170. It allows for a 50GPM flow rate.

Component Condition & Anticipated Replacement Date

The grease interceptor is in good condition and of above standard quality. The typical service life has been extended to 25 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2001
 CAPS theoretical service life: 15 years
 Assessed service life: 25 years
 Remaining service life: 14 years
 Replacement Date: 2026
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Leakage
- Malfunctioning Units
- Physical damage



Grease Interceptor.

03.4A-045 Vacuum Systems

Element Instance: 03.4A-045 Vacuum Systems (Basement)

Details	Values
Expected Life	30
Component Cost	0
Last Major Action Year	1980
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	ea

Component Description

The central vac system consists of a compressor, tank and receiver tank.

Compressor
 20hp
 Turtle brand
 Model: 36499

Tank
39" long x 36" diameter
6" connection

Receiver tank
84" high x 34" diameter

The Factory nameplate is missing/un-readable. No historical data available.

Note: The system is abandoned and it is not recommended to replace or repair the system. Central vacuum system appears to be NOT IN USE.

**Component Condition &
Anticipated Replacement
Date**

The central vac system is in poor condition and below standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1980
CAPS theoretical service life: 30 years
Assessed service life: 30 years
Remaining service life: 0 years
Replacement Date: 2012
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Leakage

Malfunctioning Vacuum Pump

Physical damage

03.4A-060 Diesel Generator Fuel Supply Systems

Element Instance: 03.4A-060 Diesel Generator Fuel Supply Systems Coloured Deisel Tank (CBUS)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description

Fuel system for emergency diesel generator consist of day tank indoor storage tank. The colored diesel tank is located on level 2 of CBUS and is manufactured by DTE Industries. It holds 935L. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The colored diesel tank is in excellent condition and of above standard quality. The typical service life has been extended to 35 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of leaks or rust. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005
 CAPS theoretical service life: 30 years
 Assessed service life: 40 years
 Remaining service life: 33 years
 Replacement Date: 2045
 Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Fuel leakage
- Inadequate capacity
- Physical damage



Coloured Diesel Tank.

Element Instance: 03.4A-060 Diesel Generator Fuel Supply Systems Pump (CBUS)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	2005
Component Condition (For BCR use only)	Excellent
Quantity	2
Measurement unit/ Metric	ea

Component Description

Fuel system for emergency diesel generator consist of fuel transfer pumps. There are two (2) diesel fuel supply pumps located on level 2 of CBUS. They are manufactured by Leeson, model: C4T17FC16B. They are 1/2hp each.

Component Condition & Anticipated Replacement Date

The diesel pumps are in excellent condition and of above standard quality. The typical service life has been extended to 45 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts,

manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005
CAPS theoretical service life: 30 years
Assessed service life: 40 years
Remaining service life: 33 years
Replacement Date: 2045
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List
Assessment Criteria **Existence** **Comments**
Corrosion
Fuel leakage
Inadequate capacity
Physical damage



Diesel Pumps.

Element Instance: 03.4A-060 Diesel Generator Fuel Supply Systems Tank (CBUS)

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	2005
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description

Fuel system for emergency diesel generator consist of main indoor storage tank. The diesel tank, FT-1, for the generators is a custom manufactured tank.

Component Condition & Anticipated Replacement Date

The diesel tank is in excellent condition and of above standard quality. The typical service life has been extended to 50 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no traces of rust or leaks. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2005
CAPS theoretical service life: 30 years
Assessed service life: 40 years
Remaining service life: 33 years
Replacement Date: 2045

Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State:	Excellent	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Corrosion			
Fuel leakage			
Inadequate capacity			
Physical damage			



Diesel Tank.

03.5 Fire Protection

03.5A-020 Fire Pumps

Element Instance: 03.5A-020 Fire Pumps (Basement)

Details	Values
Expected Life	45
Component Cost	0
Last Major Action Year	1980
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

Component Description

There are 3 fire pumps for Centre Block and Peace Tower. The two pumps for Centre Block are 780 GPM with a rated pressure boost of 250 feet and 75 HP motor. The peace tower pump is 500 GPM with a rated pressure of 150 psi and 60 HP motor. The Factory nameplate is missing/un-readable. No historical data available.

Component Condition & Anticipated Replacement Date

The fire pumps is in average condition and of standard quality. The typical service life has been extended to 45 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: estimate 1980

CAPS theoretical service life: 25 years

Assessed service life: 45 years

Remaining service life: 13 years

Replacement Date: 2025

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Corrosion			
Inadequate pressure			
Lack of test documentation			
Leakage			
Physical damage			

Element Instance: 03.5A-020 Fire Pumps (CBUS)

<u>Details</u>	<u>Values</u>
Expected Life	45
Component Cost	253,462
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	3
Measurement unit/ Metric	ea

Component Description

Fire Protection main pump maintain water flow at sufficient volume for use in sprinkler and standpipe system. There are two (2) fire pumps located on level 1 CBUS in Pump Room 117. They are labeled National Wilron but it is unclear whether this is a manufacturer or service contractor as there are only French labels. They are model: AD37A with 75hp motors.

Jockey pump for fire protection, in room 117, manufactured by weg, 3 hp motor.

Component Condition & Anticipated Replacement Date

The fire pumps is in good condition and of standard quality. The typical service life has been extended to 45 years due to quality and professional experience. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies and no unusual noise or vibrations. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1997
CAPS theoretical service life: 25 years
Assessed service life: 45 years
Remaining service life: 30 years
Replacement Date: 2042

Reason for service life adjustments: Reassuring visual inspection, regular maintenance practice, lack of major deficiencies along with interview with the staff indicates no problem with the equipment.

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

Element State:	Good	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Corrosion			
Inadequate pressure			

Lack of test documentation

Leakage

Physical damage



Fire Pumps.

03.5A-050 Sprinkler Systems

Element Instance: 03.5A-050 Sprinkler Systems

Details	Values
Expected Life	45
Component Cost	0
Last Major Action Year	1978
Component Condition (For BCR use only)	Fair
Quantity	75600
Measurement unit/ Metric	m2

Component Description

The centre block building is not completely sprinklered and there are many deficiencies.

The NBC and Treasury Board standards require the entire building to be sprinklered due to the building height and the heritage designation of the building.

Component Condition & Anticipated Replacement Date

The sprinkler system is in fair condition and of above standard quality. Various interior spaces were modified as a request from tenants. As a result, sprinkler coverage in some areas is deficient and not code compliant. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1978
CAPS theoretical service life: 35 years
Assessed service life: 45 years
Remaining service life: 11 years
Replacement Date: 2023

Reason for service life adjustments: Since the building is having a major renovation in 10 years there is no use doing a major renovation of the sprinkler system.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion

Damaged heads

Inadequate coverage

Inadequate pressure

This report was generated without using Virtual Events.

Lack of test documentation

Leakage



Sprinkler

Element Instance: 03.5A-050 Sprinkler Systems Pre-Action Panel (CBUS)

<i>Details</i>	<i>Values</i>
Expected Life	35
Component Cost	0
Last Major Action Year	2008
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description

Fire Protection sprinkler system consist of pre-action control cabinet serving sprinklers in areas of special use. The pre-action panel for the sprinkler system is located on level 2 CBUS in the mezzanine area of the mechanical room. It serves the computer room and is manufactured by Viking, model: TotalPAC.

Component Condition & Anticipated Replacement Date

The pre-action panel is in excellent condition and of standard quality. The equipment is well maintained and functioning as designed. There are no noticeable deficiencies. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 2008
CAPS theoretical service life: 35 years
Assessed service life: 35 years
Remaining service life: 31 years
Replacement Date: 2043
Reason for service life adjustments: N/A

Note: since replacement of this component is beyond the 30 year scope of this report a cost is not associated with it.

<i>Element State:</i>	Excellent	<i>ACL:</i>	ACL 2 - Check List
<i>Assessment Criteria</i>		<i>Existence</i>	<i>Comments</i>

- Corrosion
- Damaged heads
- Inadequate coverage
- Inadequate pressure
- Lack of test documentation
- Leakage



Pre-action Panel.

03.5A-060 Standpipe Systems

Element Instance: 03.5A-060 Standpipe Systems and Fire Extinguisher

Details	Values
Expected Life	65
Component Cost	0
Last Major Action Year	1960
Component Condition (For BCR use only)	Fair
Quantity	30
Measurement unit/ Metric	ea

Component Description

Each fire hose cabinet reviewed also had a fire extinguisher either pressurized water or dry chemical. Mechanical service rooms have dry chemical extinguishers from 10 BC to 40 BC, tags were up to date.

Peace tower has hose reels complete with 23 meter of rubber hose, while CBUS has 3 fire hose cabinets with 23 meter hose.

Component Condition & Anticipated Replacement Date

The standpipe system is in fair condition and of above standard quality. Various interior spaces were modified as a request from tenants. As a result, sprinkler coverage in some areas is deficient and not code compliant. Visual observation did not reveal any extraordinary findings for the age and industry standards for the examined equipment. Third party reports are not available, however good maintenance practice and regime permit. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original installation year: 1960
 CAPS theoretical service life: 26 years
 Assessed service life: 65 years
 Remaining service life: 13 years
 Replacement Date: 2025

Reason for service life adjustments: Since the building is having a major renovation in 10 years there is no use doing a major renovation of the standpipe system.

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Fire hose cabinets in poor condition
- Inadequate coverage
- Inadequate pressure
- Lack of test documentation
- Leakage

04. Electrical

04.1 Main Service Electrical

04.1A-010 Primary Switch Gear

Element Instance: 04.1A-010 Primary Switch Gear - Centre Block Basement

Details	Values
Expected Life	50
Component Cost	413,177
Last Major Action Year	2000
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

The primary switchgear, VT-898, is located in the high voltage room in the basement. It consists of switchboard #1 347/600V, 1600A and switchboard #2 347/600V, 1600A.

Component Condition & Anticipated Replacement Date

The primary switchgear is in excellent condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

A Level 3 study is recommended to assess condition of the wiring and loading of the switchgear.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2000
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 50 years
Replacement Date: 2050

Reason for service life adjustment:

- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Clearance requirements not met
- Enclosure corrosion
- Equipment obsolete
- Inaccessible
- Inadequate labelling
- Infra red test documentation not available
- Inoperable devices

Loose connections
 Other code related issues



Primary Switchgear.

04.1A-020 Primary Transformer & Vault

Element Instance: 04.1A-020 Primary Transformer & Vault - Centre Block Basement

Details	Values
Expected Life	40
Component Cost	401,132
Last Major Action Year	2000
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

The primary transformer is located in the high voltage room in the basement.

Switchboard #1, Cell #3, MT1: 3000 kVa, 13200-347/600V
 Switchboard #2, Cell #11, MT2: 3450 kVa, 13200-347/600V

Component Condition & Anticipated Replacement Date

The primary transformer is in good condition and of standard quality. The transformer shows typical wear for its age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

A Level 3 study is recommended to assess condition of the wiring and loading of the transformer.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2000
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 18 years
 Replacement Date: 2040

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage

04.2 Secondary Service Electrical

04.2A-010 Secondary Switchgear

Element Instance: 04.2A-010 Secondary Switchgear - CBUS

Details	Values
Expected Life	50
Component Cost	464,974
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description One secondary switchgear is located in electrical room 216 of CBUS. It consists of Switchboard #4 , 347/600V, 3000A.

Component Condition & Anticipated Replacement Date The secondary switchgear is in good condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

A Level 3 study is recommended to assess condition of the wiring and loading of the switchgear.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
CAP Theoretical service Life: 30 years
Assessed Service Life: 50 years
Remaining Service Life: 35 years
Replacement Date: 2047

Reason for service life adjustment:
- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Switchboard #4.

Element Instance: 04.2A-010 Secondary Switchgear - Centre Block Basement

Details	Values
Expected Life	50
Component Cost	464,974
Last Major Action Year	2000
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

One secondary switchgear is located in the high voltage room in the basement. It consists of Switchboard #3 , 347/600V, 1600A.

Component Condition & Anticipated Replacement Date

The secondary switchgear is in excellent condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

A Level 3 study is recommended to assess condition of the wiring and loading of the switchgear.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2000
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 50 years
 Remaining Service Life: 38 years
 Replacement Date: 2050

Reason for service life adjustment:

- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Enclosure corrosion
- Equipment obsolete
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

This report was generated without using Virtual Events.



Switchboard #3.

04.2A-011 MCC

Element Instance: 04.2A-011 MCC - CBUS

<u>Details</u>	<u>Values</u>
Expected Life	45
Component Cost	178,278
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	sum

Component Description

MCC Unit #1 is located in the electrical room (room 216) and MCC Unit #2 is located in the mechanical room (room B155). Both units consist of 5 compartments and are 600V, 3PH.

Component Condition & Anticipated Replacement Date

The MCC units are in good condition and of standard quality. The units show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 45 years
 Assessed Service Life: 45 years
 Remaining Service Life: 30 years
 Replacement Date: 2042

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Control problems
- Enclosure corrosion
- Equipment obsolete
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



MCC Unit #2.

04.2A-011 MCC - CBUS Event #: 1

Brief Description	RP Component replacement or new [04.2A-011 MCC - CBUS]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2042	\$182,557	N/A	Building Condition Report
Event Description	Remove and replace MCC units at the end of normal service life.			
Event Justification & Strategy	The MCC units will have reached the end of normal service life.			
Implication of Event Deferral (Risks)	Failure to replace the MCC units will run the risk of motor starter failure for HVAC and pumping loads.			

04.2A-020 Secondary Transformer**Element Instance: 04.2A-020 Secondary Transformer - CBUS**

Details	Values
Expected Life	40
Component Cost	802,266
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	6
Measurement unit/ Metric	sum

Component Description There are two secondary transformers (TN-1EA, 15 kVA and TN-T1B, 30 kVA) located in the mechanical room B155 of the CBUS basement and four secondary transformers located in room CB/SS 299.

Component Condition & Anticipated Replacement Date The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 25 years
Replacement Date: 2037

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria	Existence	Comments
Corrosion		
Dirty coils or radiator fins		
Equipment obsolete		
Inadequate space for ventilation		
Oil leakage		
Unbalanced load		



TN-1EA (left) and TN-T1B (right).

04.2A-020 Secondary Transformer - CBUS Event #: 1

Brief Description	RP Component replacement or new [04.2A-020 Secondary Transformer - CBUS]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2037	\$821,520	N/A	Building Condition Report
Event Description	Remove and replace secondary transformers at the end of normal service life.			
Event Justification & Strategy	The secondary transformers will have reached the end of normal service life.			
Implication of Event Deferral (Risks)	Failure to replace the secondary transformers may result in the failure of the normal power supply.			

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement A

Details	Values
Expected Life	40
Component Cost	267,422
Last Major Action Year	2005
Component Condition (For BCR use only)	Excellent
Quantity	2
Measurement unit/ Metric	sum

Component Description In 2005, two secondary transformers were installed in the basement. One 15kVA secondary transformer is located in the South-West mechanical room of the basement, and the other 75 kVA transformer is located under the South-West entrance to the House of Common Chamber.

Component Condition & Anticipated Replacement Date The secondary transformers are in excellent condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2005
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 33 years
 Replacement Date: 2045

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Excellent	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Corrosion			

- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



75 kVA Transformer.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement B

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	267,422
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	sum

Component Description

In 2002, two secondary transformers were installed in the basement. Both 300 kVA transformers (TN-11 and TN-12) are located just outside the South-West stairwell.

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2002
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 30 years
 Replacement Date: 2042

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-11 (left) and TN-12 (right).

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement C

<u>Details</u>	<u>Values</u>
Expected Life	40
Component Cost	534,844
Last Major Action Year	2000
Component Condition (For BCR use only)	Good
Quantity	3
Measurement unit/ Metric	sum

Component Description

In 2000, four secondary transformers were installed in the basement. The four transformers are located on the outside wall of the storage rooms located on the West wing of the basement.

- TE-1 : Size could not be identified
- TE-2 : 25 kVA, 600V
- TN-15 : 75 kVA, 600V
- TN-16 : 75 kVA, 600V

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

- Original Installation Year: 2000
- CAPS Theoretical Service Life: 40 years
- Assessed Service Life: 40 years
- Remaining Service Life: 28 years
- Replacement Date: 2040

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-16.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement D

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	1,337,110
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	10
Measurement unit/ Metric	sum

Component Description

In 1997, ten secondary transformers were installed in the basement. Five transformers (TE-11, TN-25, TN-26, TN-27 and TN-28) are located in the electrical room off the main corridor and three transformers (TN-7, TN-10, and TN-13) are located outside the fan room underneath the House of Commons chambers. One transformer (TN-63) is located in the mechanical room off the South corridor on the East side of the basement and the last transformer (TN-MTC) is located in the North corridor on the far east wall.

- TE-11 : 112.5 kVA, 600V
- TN-7 : 112.5 kVA, 600V
- TN-10 : 225 kVA, 600V
- TN-13 : 45 kVA, 600V
- TN-25 : 300 kVA, 600V
- TN-26 : 300 kVA, 600V
- TN-27 : 75 kVA, 600V
- TN-28 : 225 kVA, 600V
- TN-63 : 75 kVA, 600V
- TN-MTC : 30 kVA, 600V

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

- Original Installation Year: 1997
- CAPS Theoretical Service Life: 40 years
- Assessed Service Life: 40 years
- Remaining Service Life: 25 years
- Replacement Date: 2037

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion
Dirty coils or radiator fins
Equipment obsolete
Inadequate space for ventilation
Oil leakage
Unbalanced load



TN-10.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement E

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	534,844
Last Major Action Year	1987
Component Condition (For BCR use only)	Average
Quantity	4
Measurement unit/ Metric	sum

Component Description

In 1987, four secondary transformers were installed in the basement. One transformer (TN-61) is located on the outside wall of the storage rooms located underneath the House of Commons chamber. One transformer (TN-23) is located outside the entrance to the mechanical tunnel and the last two transformers (TE-10 and TN-24) are located in the electrical room off the main corridor.

TE-10 : 75 kVA, 600V
TN-23 : 10 kVA, 600V
TN-24 : 225 kVA, 600V
TN-61 : 75 kVA, 600V

Component Condition & Anticipated Replacement Date

The secondary transformers are in average condition and of standard quality. The transformer shows typical wear for its age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1987
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 14 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Average **ACL:** ACL 2 - Check List
Assessment Criteria **Existence** **Comments**

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-61.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement F

Details	Values
Expected Life	40
Component Cost	401,133
Last Major Action Year	1980
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	sum

Component Description

In 1980, three secondary transformers were installed in the basement. One transformer (TE-9) is located in the electrical room off the main corridor and two transformers (TN-20 and TN-59) are located along the West wall of the main corridor in the basement.

- TE-9 : 225 kVA, 600V
- TN-20 : 25 kVA, 600V
- TN-59 : 50 kVA, 600V

Component Condition & Anticipated Replacement Date

The secondary transformers are in average condition and of standard quality. The transformer shows typical wear for its age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

- Original Installation Year: 1980
- CAPS Theoretical Service Life: 30 years
- Assessed Service Life: 30 years
- Remaining Service Life: 8 years
- Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion
Dirty coils or radiator fins
Equipment obsolete
Inadequate space for ventilation
Oil leakage
Unbalanced load



TE-9.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Basement G

<u>Details</u>	<u>Values</u>
Expected Life	40
Component Cost	401,133
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	3
Measurement unit/ Metric	sum

Component Description

In 1969, three secondary transformers were installed in the basement. One transformer (TN-29, 45 kVA, 600V) is located on the South-West corner underneath the House of Commons chamber and two transformers are located along the West wall of the West corridor and outside the telecommunications room in the East corridor.

Component Condition & Anticipated Replacement Date

The secondary transformers are in poor condition and of standard quality. The transformers show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1969
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 0 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Corrosion
Dirty coils or radiator fins

- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-21.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Fifth Floor Mezzanine A

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	802,266
Last Major Action Year	1980
Component Condition (For BCR use only)	Fair
Quantity	6
Measurement unit/ Metric	sum

Component Description

In 1980, six secondary transformers were installed on the fifth floor mezzanine. Five transformers (TN-48,TN-49,TE-24,TE-25 and TE-26) are located in the North-West electrical room and one transformer (TE-19) is located in the South-West storage room 504S.

- TE-19 : 15 kVA, 600V
- TE-24 : 45 kVA, 600V
- TE-25 : 45 kVA, 600V
- TE-26 : 15 kVA, 600V
- TN-48 : 45 kVA, 600V
- TN-49 : 112.5 kVA, 600V

Component Condition & Anticipated Replacement Date

The secondary transformers are in fair condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

- Original Installation Year: 1980
- CAPS Theoretical Service Life: 40 years
- Assessed Service Life: 40 years
- Remaining Service Life: 8 years
- Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Fair **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-49.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Fifth Floor Mezzanine B

Details	Values
Expected Life	40
Component Cost	267,422
Last Major Action Year	1974
Component Condition (For BCR use only)	Poor
Quantity	2
Measurement unit/ Metric	sum

Component Description

In 1974, two secondary transformers (TE-23, 45 kVA, 600V and TE-28, 15 kVA, 600V) were installed in the North-West electrical room on the fifth floor mezzanine.

Component Condition & Anticipated Replacement Date

The secondary transformers are in poor condition and of standard quality. The transformers show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1974
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 2 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Poor **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation

X

Oil leakage
Unbalanced load



TE-23.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Fifth Floor Mezzanine C

Details	Values
Expected Life	40
Component Cost	133,711
Last Major Action Year	1965
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	sum

Component Description

In 1965, one secondary transformer (TE-27, 15 kVA, 600V) was installed in the North-West electrical room on the fifth floor mezzanine.

Component Condition & Anticipated Replacement Date

The secondary transformer is in poor condition and of standard quality. The transformer shows typical wear for its age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1965
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 0 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TE-27.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block First Floor

Details	Values
Expected Life	40
Component Cost	538,844
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	sum

Component Description

In 1997, four secondary transformers were installed on the first floor. Two transformers (TN-36, 75 kVA, 600V and TN-37, 75 kVA, 600V) are located in the electrical rooms off the main corridor. The other two transformers (TN-34, 75 kVa, 600V and TN-35, 45 kVa, 600V) are located in the electrical room in the North Annex.

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 25 years
 Replacement Date: 2037

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-35 (left) and TN-34 (right).

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Fourth Floor

Details	Values
Expected Life	40
Component Cost	538,844
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	ea

Component Description

In 1998, four secondary transformers were installed on the fourth floor. Three transformers (TN-39, TN-40 and TN-41) are located in the South-East electrical room and one transformer (TE-18) is located in electrical room 429S.

- TE-18 : 30 kVA, 600V
- TN-39 : 15 kVA, 600V
- TN-40 : 15 kVA, 600V
- TN-41 : 15 kVA, 600V

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed.

Preventative maintenance is required to maintain life expectancy. The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

- Original Installation Year: 1998
- CAPS Theoretical Service Life: 40 years
- Assessed Service Life: 40 years
- Remaining Service Life: 26 years
- Replacement Date: 2038

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-39 (left), TN-40 (middle), TN-41 (right).

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Second Floor

Details	Values
Expected Life	40
Component Cost	133,711
Last Major Action Year	1989
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

In 1989, one secondary transformer (TN-38, 30 kVA, 600V) was installed in room 241N on the second floor.

Component Condition & Anticipated Replacement Date

The secondary transformers is in average condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1989
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 17 years
 Replacement Date: 2019

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-38.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Sixth Floor A

Details	Values
Expected Life	40
Component Cost	267,422
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	sum

Component Description

In 1998, two secondary transformers (TN-50, 150 kVA, 600V and TN-54, 45 kVA, 600V) were installed in room CB-669C and electrical room 634N on the sixth floor.

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 26 years
 Replacement Date: 2038

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-50.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Sixth Floor B

Details	Values
Expected Life	40
Component Cost	267,422
Last Major Action Year	1983
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	sum

Component Description

In 1983, two transformers (TN-51, 45 kVA, 600V and TN-52, 112.5 kVA, 600V) were installed near storage room 601S-D and near washroom 643C on the sixth floor.

Component Condition & Anticipated Replacement Date

The secondary transformers are in average condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 19983
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 11 years
 Replacement Date: 2023

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria Existence Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-52.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Sixth Floor C

Details	Values
Expected Life	40
Component Cost	267,422
Last Major Action Year	1995
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	sum

This report was generated without using Virtual Events.

Component Description

In 1995, two secondary transformers (TE-29, 5 kVA, 600V and TN-53, 30 kVA, 600V) were installed in the North-West and South-East towers on the sixth floor.

Component Condition & Anticipated Replacement Date

The secondary transformers are in good condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1995
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 23 years
Replacement Date: 2035

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TE-29.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Third Floor A

Details	Values
Expected Life	40
Component Cost	133,711
Last Major Action Year	2005
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

In 2005, one secondary transformer (25 kVA, 600V) was installed in room B56S on the third floor.

Component Condition & Anticipated Replacement Date

The secondary transformers is in excellent condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 200
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 33 years
Replacement Date: 2045

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it. There are not many

Element State: Excellent

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TN-44.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Third Floor B

Details	Values
Expected Life	40
Component Cost	267,422
Last Major Action Year	1978
Component Condition (For BCR use only)	Fair
Quantity	2
Measurement unit/ Metric	sum

Component Description

In 1978, two transformers (TE-16, 10 kVA, 600V and TE-17, 45 kVA, 600V) were installed in room 356S and room 329S on the third floor.

Component Condition & Anticipated Replacement Date

The secondary transformers are in fair condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1978
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years

Remaining Service Life: 6 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TE-17.

Element Instance: 04.2A-020 Secondary Transformer - Centre Block Third Floor Mezzanine

Details

Values

Expected Life	40
Component Cost	133,711
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

In 1998, one secondary transformer (TE-15, 150 kVA, 600V) was installed in the electrical room on the third floor mezzanine.

Component Condition & Anticipated Replacement Date

The secondary transformer is in good condition and of standard quality. The transformer shows typical wear for its age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
CAPS Theoretical Service Life: 40 years
Assessed Service Life: 40 years
Remaining Service Life: 26 years
Replacement Date: 2038

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins
- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TE-15.

Element Instance: 04.2A-020 Secondary Transformer - Peace Tower

Details

Values

Expected Life	40
Component Cost	267,422
Last Major Action Year	1980
Component Condition (For BCR use only)	Fair
Quantity	2
Measurement unit/ Metric	sum

Component Description

In 1980, two secondary transformers (45 kVA, 600V and 30 kVA, 600V) were installed on the third level and in the machine room of the Peace Tower.

Component Condition & Anticipated Replacement Date

The secondary transformers are in fair condition and of standard quality. The transformers show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1980
 CAPS Theoretical Service Life: 40 years
 Assessed Service Life: 40 years
 Remaining Service Life: 8 years
 Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Corrosion
- Dirty coils or radiator fins

- Equipment obsolete
- Inadequate space for ventilation
- Oil leakage
- Unbalanced load



TE-30.

04.2A-030 Electric Power Meter

Element Instance: 04.2A-030 Electric Power Meter - CBUS

Details	Values
Expected Life	50
Component Cost	21,682
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description

There are two electric power meters located in the high voltage room in the basement.

Component Condition & Anticipated Replacement Date

The electric power meters are in good condition and of standard quality. The meters show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 50 years
 Assessed Service Life: 50 years
 Remaining Service Life: 35 years
 Replacement Date: 2047

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Not operating
- Physical damage
- Suspect accuracy

04.2A-070 Distribution Panels

Element Instance: 04.2A-070 Distribution Panels - CBUS

Details	Values
Expected Life	40
Component Cost	60,220
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	10

This report was generated without using Virtual Events.

Measurement unit/ Metric

ea

Component Description

There are 10 electrical circuit panels found in CBUS.

- EP ILPB - Mechanical Room
- EP IRPB - Mechanical Room
- EP IELPA - Mechanical Room
- EP IERPA - Mechanical Room
- EP E6SD3 - Mechanical Room
- EP E6SD3A - Mechanical Room
- EP IRCA - Mechanical Room
- EP ZELPA - Electrical Room
- EP ZERPA - Electrical Room
- EP 2RPE - Room CB/SS 299

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 40 years
 Remaining Service Life: 25 years
 Replacement Date: 2037

Reason for service life adjustment:
 - Reassuring visual inspection
 - Regular maintenance practice
 - interview with staff indicates no problem with the equipment

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel ILPB (right) and Panels IRPB (left).

04.2A-070 Distribution Panels - CBUS Event #: 1

Brief Description	RP Component replacement or new [04.2A-070 Distribution Panels - CBUS]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2037	\$61,665	N/A	Building Condition Report
Event Description	Remove and replace distribution panels at the end of normal service life.			
Event Justification & Strategy	The distribution panels will have reached the end of normal service life.			
Implication of Event Deferral (Risks)	Failure to replace the distribution panels may result in local power failures.			

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement A

Details	Values
Expected Life	30
Component Cost	42,154
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	7
Measurement unit/ Metric	ea

Component Description There are seven recently installed electrical distribution panels, two of which are located on the East side of the basement underneath the Senate chamber (EP RDPE2 and RCPE3) while the other five (EP BBS4-1,RDPB2,RDPB3,DP-AUD, and PP1E) are located on the West side of the building underneath the House of Commons chamber.

Component Condition & Anticipated Replacement Date The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2002
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 20 years
Replacement Date: 2032

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Good	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Enclosure corrosion			
Equipment obsolete			
Functional defects			
Inaccessible			
Inadequate labelling			
Inoperable devices			
Loose connections			



Panel DP-AUD.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement B

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	24,088
Last Major Action Year	2000
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	ea

Component Description Four electrical distribution panels (EP GBN4,GBN5,HBS1, and MDW) were installed in 2000 on the East side of the basement underneath the House of Common Chambers.

Component Condition & Anticipated Replacement Date The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2000
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 18 years
Replacement Date: 2030

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Enclosure corrosion		
Equipment obsolete		
Functional defects		
Inaccessible		
Inadequate labelling		
Inoperable devices		
Loose connections		

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement C

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	18,066
Last Major Action Year	1998
Component Condition (For BCR use only)	Good

This report was generated without using Virtual Events.

Quantity
Measurement unit/ Metric

2
ea

Component Description

Two electrical distribution panels (EP EBS2 and EBS3) were installed in 1998 near the South-East of the Basement.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 16 years
Replacement Date: 2028

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel EBS2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement D

Details

Values

Expected Life 30
Component Cost 30,110
Last Major Action Year 1997
Component Condition (For BCR use only) Average
Quantity 5
Measurement unit/ Metric ea

Component Description

Five electrical distribution panels were installed in 1997. Four panels (EP PPL, RDPE, RDPEE, and EBS1E) are located in the electrical room under the Senate chamber and one panel (EP HBS2) is located under the entrance to the House of Commons chamber.

Component Condition & Anticipated Replacement Date

The electrical panels are in average condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 15 years
 Replacement Date: 2027

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel HBS2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement E

Details	Values
Expected Life	10
Component Cost	30,110
Last Major Action Year	1995
Component Condition (For BCR use only)	Poor
Quantity	5
Measurement unit/ Metric	ea

Component Description

There are five electrical distribution panels that are due for replacement due to deterioration. Three panels (EP RDPB, RDPBE, and PPH) are located underneath the South entrance to the House of Commons chamber and two panels (EP ZBS1 and DBS1E) are located at the South entrance to the main corridor.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of inferior quality. The typical service life has been shortened to 10 years due to deterioration of the components. Third party reports were not available.

The availability of spare parts, manufacturer support and age were taken into

consideration when assessing Service Life.

Original Installation Year: 1995
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 10 years
Remaining Service Life: 0 years
Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date. Preventative maintenance is required to maintain service life until restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel ZBS1 (left) and Panel DBS1E (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement F

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	6,022
Last Major Action Year	1990
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

Distribution electrical panel ZBS2 is located in room 13 on the East side of the basement.

Component Condition & Anticipated Replacement Date

The electrical panel is in average condition and of standard quality. The panel shows typical wear for its age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1990
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years

Remaining Service Life: 8 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State:	Average	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Enclosure corrosion			
Equipment obsolete			
Functional defects			
Inaccessible			
Inadequate labelling			
Inoperable devices			
Loose connections			



Panel ZBS2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement G

Details	Values
Expected Life	30
Component Cost	54,198
Last Major Action Year	1986
Component Condition (For BCR use only)	Fair
Quantity	9
Measurement unit/ Metric	ea

Component Description

There were 9 electrical distribution panels installed in 1986. Five panels are located in the electrical room off the main corridor. Panel BBS1E and BBS2 are found underneath the south hallway of House of Commons chamber and Panel SS'B' NCC and ZBS3 are found underneath the South-East entrance to the committee rooms and near the entrance to the tunnels.

Component Condition & Anticipated Replacement Date

The electrical panels are in fair condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1986
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 4 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State:	Fair	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>
Enclosure corrosion		X	
Equipment obsolete			
Functional defects			
Inaccessible			
Inadequate labelling			
Inoperable devices			
Loose connections			



Panel BBS1E.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement H

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	18,066
Last Major Action Year	1970
Component Condition (For BCR use only)	Poor
Quantity	3
Measurement unit/ Metric	ea

Component Description Three electrical distribution panels were installed in 1970. Two panels (EP PPJ and EP PPZ) are located in the electrical room along the main corridor and the third is located near the South entrance of the East corridor.

Component Condition & Anticipated Replacement Date The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1970
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State:	Poor	ACL:	ACL 2 - Check List
<u>Assessment Criteria</u>		<u>Existence</u>	<u>Comments</u>

Enclosure corrosion X
 Equipment obsolete
 Functional defects
 Inaccessible
 Inadequate labelling
 Inoperable devices
 Loose connections



Panel PPZ (right) and Panel PPJ (left).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement I

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	6,022
Last Major Action Year	1965
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	ea

Component Description

Electrical distribution panel PPHE is located along the West wall of the chamber underneath the House of Commons chamber.

Component Condition & Anticipated Replacement Date

The electrical panel is in poor condition and of standard quality. The panel shows typical wear for its age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1965
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Enclosure corrosion
 Equipment obsolete
 Functional defects
 Inaccessible
 Inadequate labelling
 Inoperable devices

Loose connections



Panel PPHE.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Basement J

Details	Values
Expected Life	30
Component Cost	36,132
Last Major Action Year	1960
Component Condition (For BCR use only)	Poor
Quantity	6
Measurement unit/ Metric	ea

Component Description

There were six electrical distribution panels installed in 1960 and are overdue for replacement. Three panels (EP KBD1, KBD2, and KBD3) are in the fan room off the East corridor. Two panels (EP GBN6 and GBN7) are located in the North mechanical room in the West Corridor and one panel (EP EBS1-1) is located in the janitor storage room in the South-East corner of the basement.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1960
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fifth Floor A

Details	Values
----------------	---------------

This report was generated without using Virtual Events.

Expected Life	30
Component Cost	36,132
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	6
Measurement unit/ Metric	ea

Component Description

In 2001, nine electrical distribution panels were installed on the fifth floor. Two panels (EP M5N11 and M5N12) are located in the cafeteria kitchen. One panel is located in each of the following rooms: washroom 562D (EP D5D1), room 543 (EP C5C1), room 529S (EP B5S3), and room 565S (E5S3).

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2001
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 19 years
 Replacement Date: 2031

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel D5D1.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fifth Floor B

Details	Values
Expected Life	35
Component Cost	36,132
Last Major Action Year	1979
Component Condition (For BCR use only)	Fair
Quantity	6
Measurement unit/ Metric	ea

This report was generated without using Virtual Events.

Component Description

In 1979, six electrical distribution panels were installed on the fifth floor. Two panels (EP M5N7 and M5N8) are located in the cafeteria kitchen and two panels (EP F5F2E and F5F1) are located in Corridor 'F'. The other two panels (EP C5C1E and C5C2) are located in Corridor 'C' next to room 543C.

Component Condition & Anticipated Replacement Date

The electrical panels are in fair condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1979
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 35 years
Remaining Service Life: 2 years
Replacement Date: N/A

Reason for service life adjustment:

- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

<u>Existence</u>	<u>Comments</u>
X	

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel M5N8 (left) and Panel M5N7 (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fifth Floor C

Details	Values
Expected Life	30
Component Cost	30,110
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor

This report was generated without using Virtual Events.

Quantity
Measurement unit/ Metric

5
ea

Component Description

In 1969, five electrical distribution panels (EP B5S2,D5D1E,D5D2,B5S1E and B5S1) were installed in room 529S on the fifth floor.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1969
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 0 years
Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel B5S2 (left) and Panel B5S1E (top right) and Panel B5S1 (bottom right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fifth Floor Mezzanine A

Details

Values

Expected Life 30
Component Cost 42,154
Last Major Action Year 2000
Component Condition (For BCR use only) Good
Quantity 7
Measurement unit/ Metric ea

Component Description

In 2000, seven electrical distribution panels (EP PPM, Q5N1E, U5N3E, PD,N5M5, M5N6 and M5N3) were installed in the North-West electrical room on the fifth floor mezzanine.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2000
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 18 years
Replacement Date: 2030

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel U5N3E.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fifth Floor Mezzanine B

Details	Values
Expected Life	30
Component Cost	36,132
Last Major Action Year	1980
Component Condition (For BCR use only)	Poor
Quantity	6
Measurement unit/ Metric	ea

Component Description

In 1980, six electrical distribution panels were installed on the fifth floor mezzanine. Five panels (EP M5N1,M5N4,M5N9,R5N1E and R5N2E) are located in the North-West electrical room and one panel (EP M5S1) is located in South-West storage room 504S.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into

consideration when assessing Service Life.

Original Installation Year: 1980
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 0 years
Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel M5N1.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fifth Floor Mezzanine C

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	6,022
Last Major Action Year	1974
Component Condition (For BCR use only)	Poor
Quantity	1
Measurement unit/ Metric	ea

Component Description

In 1974, one electrical panel (EP U5N2E) was installed in the North-West electrical room on the fifth floor mezzanine.

Component Condition & Anticipated Replacement Date

The electrical panel is in poor condition and of standard quality. The panel shows typical wear for its age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1974
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 0 years
Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor **ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Enclosure corrosion		
Equipment obsolete		
Functional defects		
Inaccessible		
Inadequate labelling		
Inoperable devices		
Loose connections		

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor A

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	24,088
Last Major Action Year	2007
Component Condition (For BCR use only)	Excellent
Quantity	4
Measurement unit/ Metric	ea

Component Description In 2007, four electrical distribution panels were installed on the first floor. The panels (EP F1E1E-A, TEMP2A, TEMP2A-A and TEMP1A) are located in the storage rooms in the North Annex.

Component Condition & Anticipated Replacement Date The electrical panels are in excellent condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2007
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 25 years
 Replacement Date: 2037

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Enclosure corrosion		
Equipment obsolete		
Functional defects		
Inaccessible		
Inadequate labelling		

Inoperable devices

Loose connections



Panels F1E1E-A (left), TEMP 2A (middle), and TEMP3A (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor B

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	24,088
Last Major Action Year	2003
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	ea

Component Description

In 2003, four electrical distribution panels were installed on the first floor. Three panels (EP B1B3E, B1B3, and B1B4) are located in room 113B and one panel (EP B1S2) is located in room 129S.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2003
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 21 years
Replacement Date: 2033

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel B1S2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor C

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	42,154
Last Major Action Year	1997
Component Condition (For BCR use only)	Average
Quantity	7
Measurement unit/ Metric	ea

Component Description

In 1997, seven electrical distribution panels were installed on the first floor. Two panels (EP J1C1 and J1C2) are located in the in the electrical rooms on either side of the entrance to the main corridor. Two of the panels (EP F1F1 and L1N1) are found in rooms 179F and 169E, while three panels (EP TEMP1, TEMP2 and TEMP3) are located in the electrical room in the North Annex.

Component Condition & Anticipated Replacement Date

The electrical panels are in average condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 15 years
 Replacement Date: 2027

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel TEMP (left), TEMP2 (middle), and TEMP3 (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor D

Details	Values
Expected Life	45
Component Cost	6,022
Last Major Action Year	1980
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

In 1980, one electrical distribution panel (EP G1N1) was installed in room 119-N-D on the first floor.

Component Condition & Anticipated Replacement Date

The electrical panel is in average condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1980
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 45 years
 Remaining Service Life: 13 years
 Replacement Date: 2025

Reason for service life adjustment:
 - Reassuring visual inspection
 - Regular maintenance practice
 - interview with staff indicates no problem with the equipment

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State:	Average	ACL: ACL 2 - Check List
Assessment Criteria	Existence	Comments
Enclosure corrosion		
Equipment obsolete		
Functional defects		
Inaccessible		
Inadequate labelling		
Inoperable devices		
Loose connections		



Panel G1N1.

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor E

Details	Values
Expected Life	30
Component Cost	24,088
Last Major Action Year	1975
Component Condition (For BCR use only)	Poor
Quantity	4
Measurement unit/ Metric	ea

Component Description

In 1975, four electrical distribution panels were installed on the first floor. Two panels (EP F1E1 and F1E1E) are located in room 170E and two panels (EP Q1N2E and Q1N1E) are located in room 135N.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2002
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel Q1N2E (left) and Panel Q1N1E (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor F

Details	Values
Expected Life	30
Component Cost	24,088
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	4
Measurement unit/ Metric	ea

Component Description

In 1969, four electrical distribution panels were installed on the first floor. Two panels (EP H1N1E and B1N1) are located in Corridor 'N' and two panels (EP D1N1 and D1N1E) are located in room 135N.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1969
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel D1N1 (left) and Panel D1N1E (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor G

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	36,132
Last Major Action Year	1965
Component Condition (For BCR use only)	Poor
Quantity	6
Measurement unit/ Metric	ea

Component Description

In 1965, six electrical distribution panels were installed on the first floor. Two panels (EP C1C1 and C1C1E) are located in Corridor 'C' and two panels (EP D1D1 and D1D1E) are located in Corridor 'D'. The last two panels (EP B1S1 and B1S1E) are located in room 1295.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1965
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel C1C1E (top) and Panel C1C1 (bottom).

Element Instance: 04.2A-070 Distribution Panels - Centre Block First Floor H

Details	Values
Expected Life	30
Component Cost	12,044
Last Major Action Year	1960
Component Condition (For BCR use only)	Poor
Quantity	2
Measurement unit/ Metric	ea

Component Description

In 1960, two electrical distribution panels (EP E1S1 and E1S1E) were installed in room 165S on the first floor.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1960
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fourth Floor A

Details	Values
Expected Life	30
Component Cost	18,066
Last Major Action Year	2002
Component Condition (For BCR use only)	Good
Quantity	3

This report was generated without using Virtual Events.

Measurement unit/ Metric

ea

Component Description

In 2002, three electrical distribution panels were installed on the fourth floor. Two panels (EP C4C1 and D4D1) are located in washrooms 443S and 462D, and one panel (EP E4S2) is located in electrical room 465S.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2002
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 20 years
Replacement Date: 2032

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence **Comments**

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel E4S2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fourth Floor B

Details	Values
Expected Life	30
Component Cost	12,044
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description

In 1998, two electrical distribution panels were installed on the fourth floor. One panel (EP B4S2) is located in room 429S and one panel (EP L4S1) is located in the South-East electrical room.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 16 years
 Replacement Date: 2028

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel B4S2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Fourth Floor C

Details	Values
Expected Life	50
Component Cost	54,198
Last Major Action Year	1968
Component Condition (For BCR use only)	Fair
Quantity	9
Measurement unit/ Metric	ea

Component Description

In 1968, nine electrical distribution panels were installed on the fourth floor. Four panels (EP B4S1, B4S1E, E4S1 and E4S1E) are located in the electrical rooms and one panel (EP B4S2E) is located in the mechanical room. Two panels (EP C4C1E and C4C2) are located next to room 443S and the last two panels (EP D4D1E and D4D2) are in Corridor 'D' next washroom 462D.

Component Condition & Anticipated Replacement Date

The electrical panels are in fair condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed.

Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1968
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 50 years
Remaining Service Life: 6 years
Replacement Date: N/A

Reason for service life adjustment:

- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel E4S1E.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Second Floor A

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	12,044
Last Major Action Year	1989
Component Condition (For BCR use only)	Fair
Quantity	2
Measurement unit/ Metric	ea

Component Description

In 1989, two electrical distribution panels (EP B2S2 and E2S5) were installed in the South electrical room on the second floor.

Component Condition & Anticipated Replacement Date

The electrical panels are in fair condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1989
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 7 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel E2S5.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Second Floor B

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	48,176
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	8
Measurement unit/ Metric	ea

Component Description

In 1969, eight electrical distribution panels were installed on the second floor. Four electrical panels (EP B2S1,B2S1E,E2S1 and E2S1E) are located in the in the South-East and South-West electrical rooms. The other four electrical panels (D2D1,D2D1E,C2C1 and C2C1E) are located in the North-East and North-West electrical cabinets.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age.Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1969
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State:	Poor	ACL:	ACL 2 - Check List
Assessment Criteria		Existence	Comments
Enclosure corrosion		X	
Equipment obsolete			
Functional defects			
Inaccessible			
Inadequate labelling			
Inoperable devices			
Loose connections			



Panel D2D1 (top) and Panel D2D1E (bottom).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Sixth Floor A

Details	Values
Expected Life	30
Component Cost	24,088
Last Major Action Year	2001
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	ea

Component Description In 2001, four electrical distribution panels were installed on the sixth floor. One panel was installed in each of the following rooms: room 662D (EP D6D1), room CB-669C (EP L6S3), room 629S and washroom 643C (EPC6C1).

Component Condition & Anticipated Replacement Date The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2001
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 19 years
 Replacement Date: 2031

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel D6D1.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Sixth Floor B

Details

Values

Expected Life	30
Component Cost	54,198
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	9
Measurement unit/ Metric	ea

Component Description

In 1998, nine electrical distribution panels were installed on the sixth floor. Four panels (EP O6N1,O6N2,Q6N1E and Q6N2E) are located in the kitchen and three panels (EP P6N1,P6N2 and P6N3) are located in electrical room 634N. The last two panels (EP B6S1 and B6S1E) are located in room 629S.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 16 years
 Replacement Date: 2028

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

This report was generated without using Virtual Events.

Enclosure corrosion
 Equipment obsolete
 Functional defects
 Inaccessible
 Inadequate labelling
 Inoperable devices
 Loose connections



Panel P6N1 (left), P6N2 (middle) and P6N3 (right).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Sixth Floor C

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	18,066
Last Major Action Year	1996
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

Component Description

In 1995, three electrical distribution panels were installed on the sixth floor. One panel is located in each of the following areas: room 669S-D (EP L6S2), washroom 614N (EP P6N4) and outside room 601S-D (EP B6S2E).

Component Condition & Anticipated Replacement Date

The electrical panels are in average condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1995
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 13 years
 Replacement Date: 2025

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Enclosure corrosion
 Equipment obsolete
 Functional defects
 Inaccessible
 Inadequate labelling

Inoperable devices

Loose connections



Panel P6N4.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Sixth Floor D

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	30,110
Last Major Action Year	1986
Component Condition (For BCR use only)	Fair
Quantity	5
Measurement unit/ Metric	ea

Component Description

In 1986, five electrical distribution panels were installed on the sixth floor. One panel (EP L6S1) is located in room 669S-A and one panel (EP O6S1) is located in the South-West fan room. Two panels (EP D6D1E and D6D2) are located in the cabinet next to room 662D and one panel (EP PP0) is located near washroom 643C.

Component Condition & Anticipated Replacement Date

The electrical panels are in fair condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1986
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 4 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

<u>Existence</u>	<u>Comments</u>
-------------------------	------------------------

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel D6D2 (bottom) and Panel D6D2E (top).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Sixth Floor E

Details	Values
Expected Life	30
Component Cost	30,110
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	5
Measurement unit/ Metric	ea

Component Description

In 1969, five electrical distribution panels were installed on the sixth floor. Two panels (EP C6C1 and C6C1E) are located next to room 643C and two panels (EP E6S1 and E6S1E) are located in room CB-667A. The last panel (EP F6F1) is located in Corridor 'F'.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1969
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel C6C1 (bottom) and Panel C6C1E (top).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Sixth Floor F

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	12,044
Last Major Action Year	1995
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	ea

Component Description

In 1995, two electrical distribution panels (EP PPP and FP) were installed in the North-West tower off the sixth floor.

Component Condition & Anticipated Replacement Date

The electrical panels are in average condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1995
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 13 years
 Replacement Date: 2025

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Average ***ACL:*** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel PPP.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Third Floor A

Details	Values
Expected Life	30
Component Cost	6,022
Last Major Action Year	2005
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description In 2005, one electrical distribution panel (EP IRP-3-1) was installed in room B56S on the third floor.

Component Condition & Anticipated Replacement Date The electrical panel is in excellent condition and of standard quality. The panel shows typical wear for its age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2005
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 23 years
 Replacement Date: 2035

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria Existence Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel IRP-3-1.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Third Floor B

Details	Values
Expected Life	30
Component Cost	30,110
Last Major Action Year	1989
Component Condition (For BCR use only)	Fair
Quantity	5
Measurement unit/ Metric	ea

This report was generated without using Virtual Events.

Component Description

In 1989, five distribution panels were installed on the third floor. Two panels (EP C3C1 and C3C1E) are located in room 343C, and two panels (EP B3S2 and B2S2E) are located in room 329S. The last panel (EP E3S2) is located in room 365S.

Component Condition & Anticipated Replacement Date

The electrical panels are in fair condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1989
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 7 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel E3S2.

Element Instance: 04.2A-070 Distribution Panels - Centre Block Third Floor C

Details	Values
Expected Life	40
Component Cost	6,022
Last Major Action Year	1978
Component Condition (For BCR use only)	Fair
Quantity	1
Measurement unit/ Metric	ea

Component Description

In 1978, one electrical distribution panel (EP R3S1) was installed in room 356S on the third floor.

Component Condition & Anticipated Replacement Date

The electrical panel is in fair condition and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life

Original Installation Year: 1978
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 40 years
Remaining Service Life: 6 years
Replacement Date: N/A

Reason for service life adjustment:

- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

Element Instance: 04.2A-070 Distribution Panels - Centre Block Third Floor D

Details	Values
Expected Life	30
Component Cost	36,132
Last Major Action Year	1969
Component Condition (For BCR use only)	Poor
Quantity	6
Measurement unit/ Metric	ea

Component Description

In 1969, six electrical distribution panels were installed on the third floor. Two panels (EP B3S1 and B3S1E) are located in room 329S and two panels (EP E3S1 and E3S1E) are located in room 365S. The last two panels (EP D3D1 and D3D1E) are located next to room 356D.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into

consideration when assessing Service Life.

Original Installation Year: 1969
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 0 years
Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections

X



Panel D3D1 (bottom) and Panel D3D1E (top).

Element Instance: 04.2A-070 Distribution Panels - Centre Block Third Floor Mezzanine

Details

Values

Expected Life	30
Component Cost	12,044
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	2
Measurement unit/ Metric	ea

Component Description

In 1998, two electrical distribution panels (EP U3S1E and U5S1E) were installed in the electrical room on the third floor mezzanine.

Component Condition & Anticipated Replacement Date

The electrical panels are in good condition and of standard quality. The panels show typical wear for their age and no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 16 years

Replacement Date: 2028

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel U3S1E (left) and Panel U5S1E (right).

Element Instance: 04.2A-070 Distribution Panels - Peace Tower A

Details

Values

Expected Life	30
Component Cost	24,088
Last Major Action Year	1982
Component Condition (For BCR use only)	Poor
Quantity	4
Measurement unit/ Metric	ea

Component Description

In 1982, four electrical distribution panels (EP X3T2E,X3T1E,X7T1E, and X3T2E) were installed on the third level in the Peace Tower.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1982
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling
- Inoperable devices
- Loose connections



Panel X3T1E (left) and Panel X3T2E (right).

Element Instance: 04.2A-070 Distribution Panels - Peace Tower B

<i>Details</i>	<i>Values</i>
Expected Life	30
Component Cost	42,154
Last Major Action Year	1980
Component Condition (For BCR use only)	Poor
Quantity	7
Measurement unit/ Metric	ea

Component Description

In 1980, seven electrical distribution panels (EP PPXE, X3T5E, X11-T2E, X11-T3E, X11-T1E, J3S1 and J3S2) were installed on the third level and the machine room of the Peace Tower.

Component Condition & Anticipated Replacement Date

The electrical panels are in poor condition and of standard quality. The panels show typical wear for their age. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1980
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Poor

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling

Inoperable devices

Loose connections



Panel PPXE.

Element Instance: 04.2A-070 Distribution Panels - Tunnels

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	6,022
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	ea

Component Description

There is one electrical distribution panel found in the electrical room of the old tunnel.

Panel DA1 - 24 cct., 100A, 120/208V, Cutler Hammer panel

Component Condition & Anticipated Replacement Date

The electrical panel is in good and of superior quality. The typical service life has been extended due to quality and professional experience. There are no noticeable deficiencies and no unusual noise or vibrations. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
CAPS Theoretical Service Life: 30 years
Assessed Service Life: 40 years
Remaining Service Life: 26 years
Replacement Date: 2038

Reason for service life adjustment:
- Reassuring visual inspection
- Regular maintenance practice
- interview with staff indicates no problem with the equipment

Note: Since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence ***Comments***

- Enclosure corrosion
- Equipment obsolete
- Functional defects
- Inaccessible
- Inadequate labelling

Inoperable devices

Loose connections



Panel DA1.

04.3 Lighting Fixtures

04.3A-010 General Lighting

Element Instance: 04.3A-010 General Lighting - Centre Block

Details	Values
Expected Life	30
Component Cost	35,700
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	300
Measurement unit/ Metric	ea

Component Description

The general lighting in Centre Block consists of different fixtures depending on the area. The lighting in the hallways and corridors is mainly surface-mounted incandescent pendant type or wall sconce fixtures. Offices have ceiling mounted fluorescent 2' x 4' fixtures (newer offices), wall scones, lamps and task lighting. Washrooms consist of single or two tube T-12 type fixtures installed in valances. Heritage lighting fixtures are found throughout the building with incandescent or compact fluorescent lamps. They are regularly refurbished with an existing maintenance program.

A database exists for the lighting system with information on the existing fixtures, including: type, voltage, power source and maintenance history. No control systems were evident and it was assumed lighting was controlled form individual local switches.

Component Condition & Anticipated Replacement Date

The general lighting is in good condition and of standard quality. The fixtures show typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998 (Estimated)
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 16 years
 Replacement Date: 2028

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

This report was generated without using Virtual Events.

- Control problems
- Damaged fixtures
- Failed ballasts
- Inadequate lighting levels
- Inefficient operation
- Obsolete fixtures



Chandelier.

04.3A-010 General Lighting - Centre Block Event #: 1

Brief Description	RP Component replacement or new [04.3A-010 General Lighting - Centre Block]			
Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2014	\$30,000	high priority	Building Condition Report
Event Description	Replace existing T12 fixtures with LED style light fixtures.			
Event Justification & Strategy	Replacement parts for the existing fixtures are being phased out and replacement part will become inaccessible.			
Implication of Event	Once the T12 fixtures run their service life, there will be no parts available to replace the fixtures due to the halt in their production.			
Deferral (Risks)				

Element Instance: 04.3A-010 General Lighting - Centre Block Basement & CBUS

Details	Values
Expected Life	30
Component Cost	53,040
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	80
Measurement unit/ Metric	ea

Component Description The general lighting in the basement and CBUS is fluorescent strip fixtures complete with two tubes and a few recessed 2' x 4', fixtures. The lamps are T-8 and T-12 depending on the installation year (older fixtures using T-12 lamps).

Component Condition & Anticipated Replacement Date The general lighting is in good condition and of standard quality. The fixtures show typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998 (Estimated)
 CAPS Theoretical Service Life: 30 years
 Assessed Service Life: 30 years
 Remaining Service Life: 16 years
 Replacement Date: 2028

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Control problems
- Damaged fixtures
- Failed ballasts
- Inadequate lighting levels
- Inefficient operation
- Obsolete fixtures



Typical ceiling mounted fluorescent lighting.

04.3A-010 General Lighting - Centre Block Basement & CBUS Event #: 1

Brief Description

RP Equipment Obsolescence [04.3A-010 General Lighting - Centre Block Basement & CBUS]

<u>Event Type</u>	<u>Event Year</u>	<u>Event Cost</u>	<u>Priority</u>	<u>Data Origin</u>
RP Equipment Obsolescence	2028	\$40,612	N/A	Building Condition Report

Event Description

Replace all T12 and T8 light fixtures with LED style light fixtures.

Event Justification & Strategy

Replacement parts for the existing fixtures will be almost inaccessible, especially for the T12 light fixtures.

Implication of Event

Once the T12 light fixtures run their service life, there will be no parts to replace them with due to the halt in their production.

Deferral (Risks)

Element Instance: 04.3A-010 General Lighting - Tunnels

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	16,575
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	25
Measurement unit/ Metric	ea

Component Description

The tunnel's general lighting is 120V and fed from emergency power. The lighting consists of strip fluorescents, incandescent valance and sconces along the perimeter of the tunnels.

Component Condition & Anticipated Replacement Date

The general lighting is in good condition and of standard quality. The fixtures show typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998

CAPS Theoretical Service Life: 30 years
Assessed Service Life: 30 years
Remaining Service Life: 16 years
Replacement Date: 2028

Note: since replacement of this component is beyond the 10 year scope of this report a cost is not associated with it.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Control problems
- Damaged fixtures
- Failed ballasts
- Inadequate lighting levels
- Inefficient operation
- Obsolete fixtures



Typical wall mounted fluorescent lighting.

04.3A-020 Exit Lighting

Element Instance: 04.3A-020 Exit Lighting - Centre Block

<u>Details</u>	<u>Values</u>
Expected Life	30
Component Cost	90,450
Last Major Action Year	1967
Component Condition (For BCR use only)	Poor
Quantity	150
Measurement unit/ Metric	ea

Component Description

The exit lighting found in the building is bilingual "EXIT/SORTIE" fixtures with incandescent lamps. As of January 1, 2006, exit lights must have an input demand of 5 watts per single wording and less than 10 watts for double wording by using light emitting diodes (LED) in accordance to CSA C860.

There are some self-luminous exit signs in the basement that provide direction without the use of electricity, however this type of signage is not in accordance with CSA C860-07.

Component Condition & Anticipated Replacement Date

The exit lighting fixtures are in poor condition and of standard quality. The fixtures show typical wear for their age and show no noticeable deficiencies. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1967
CAPS Theoretical Service Life: 30 years

Assessed Service Life: 30 years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Element State: Poor **ACL:** ACL 2 - Check List

Assessment Criteria **Existence** **Comments**

Failed lamps

Inadequate coverage X

Obsolete fixtures X

Physical damage



Typical non-code compliant exit lighting.

04.3A-020 Exit Lighting - Centre Block Event #: 1

Brief Description RF Building Code/Canada Labour Code [04.3A-020 Exit Lighting - Centre Block Basement]

Event Type	Event Year	Event Cost	Priority	Data Origin
RF Building Code/Canada Labour Code	2013	\$92,621	low priority	Building Condition Report

Event Description Replace all existing exit lighting fixtures with "running man" style exit light.

Pricing does not include allowance for emergency support wiring if non-existent. This pricings is for fixture replacement only throughout the entire basement.

Event Justification & Strategy The "running man" style exit light fixture has been adopted by the National Building Code (ISO 7010 and ISO 3864-1) since 2010. It is estimated by 2013/2014 that these type of exit lights will be mandatory in new installations.

Implication of Event Deferral (Risks) Failure to install the new "running man" style exit signs may result in the building being non code compliant in the future and could pose a safety risk for occupants during an emergency

04.3A-030 Exterior Lighting

Element Instance: 04.3A-030 Exterior Lighting - Centre Block

Details	Values
Expected Life	15
Component Cost	32,264
Last Major Action Year	1997
Component Condition (For BCR use only)	Poor
Quantity	24
Measurement unit/ Metric	ea

Component Description The perimeter of the building, including the centre courtyard, consists of character defining multi-globe cast iron light standards.

Component Condition & Anticipated Replacement Date The exterior lighting is in poor condition and of standard quality. There is no evidence that the outdoor lighting is fully functional. Some fixtures are on during the daytime and others are not which may suggest they have burnt out. Third party reports were not available. Preventative maintenance is required to maintain life expectancy.

Due to character defining status, the light fixtures are scheduled for refurbishment every 15 years rather than replacement. With regular refurbishment the character defining element lighting fixtures will last indefinitely. As a result, it is not possible to give an accurate estimate of remaining service life.

Original Installation Year: 1997 (Refurbished)
 CAPS Theoretical Service Life: 15 years
 Assessed Service Life: N/A years
 Remaining Service Life: 0 years
 Replacement Date: Overdue

Element State: Poor

ACL: ACL 2 - Check List

<u>Assessment Criteria</u>	<u>Existence</u>	<u>Comments</u>
Corrosion		
Damaged fixtures	X	
Failed lamps	X	
Inadequate lighting levels		
Obsolete fixtures		



Typical character defining element lighting standard.

04.3A-030 Exterior Lighting - Centre Block Event #: 1

Brief Description	RP Component life extension [04.3A-030 Exterior Lighting - Centre Block]				
Event Type	Event Year	Event Cost	Priority	Data Origin	
RP Component life extension	2013	\$34,062	high priority	Building Condition Report	
Event Description	Refurbish the historic luminaires at the end of normal service life.				
Event Justification & Strategy	Regular refurbishment is required to maintain this character defining feature and to ensure proper functionality.				
Implication of Event Deferral (Risks)	If proper maintenance and regular refurbishment are not taken, there is a risk of the luminaires failing which could pose a safety risk to occupants walking the ground.				

04.3A-030 Exterior Lighting - Centre Block Event #: 2

Brief Description	RP Component replacement or new [04.3A-030 Exterior Lighting - Centre Block]				
Event Type	Event Year	Event Cost	Priority	Data Origin	
RP Component replacement or new	2014	\$5,000	high priority	Building Condition Report	
Event Description	Retrofit character defining element fixtures with new LED lamps. LED lamp features should mimic incandescent fixtures to maintain heritage status.				
Event Justification & Strategy	Replacement of existing fixtures with LED lamp fixtures will significantly reduce cost of maintenance and will minimize the potential for accidental damage during maintenance/replacement of the fixtures.				
Implication of Event Deferral (Risks)	If existing lamps aren't upgraded with LED lamps, the building will be losing potential savings in maintenance and energy.				

04.3A-040 Emergency Lighting

Element Instance: 04.3A-040 Emergency Lighting - Centre Block

Details	Values
Expected Life	20
Component Cost	132,200
Last Major Action Year	1997
Component Condition (For BCR use only)	Fair
Quantity	200
Measurement unit/ Metric	ea

Component Description

The emergency lighting is fed from 120V emergency panels located throughout the building. The on-site fixture database contains information regarding type, wattage and feed for the emergency lighting fixtures.

Component Condition & Anticipated Replacement Date

The emergency lighting is in fair condition and of standard quality. The fixtures show typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997
 CAPS Theoretical Service Life: 20 years
 Assessed Service Life: 20 years
 Remaining Service Life: 5 years
 Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence Comments

- Battery - failure to hold charge
- Damaged fixtures
- Failed lamps
- Inadequate coverage



Typical newer model battery lighting.

04.5 Electrical Systems

04.5A-010 Fire Alarm System

Element Instance: 04.5A-010 Fire Alarm System - CBUS

Details	Values
Expected Life	17
Component Cost	280,000
Last Major Action Year	1997

This report was generated without using Virtual Events.

Component Condition (For BCR use only)	Fair
Quantity	4000
Measurement unit/ Metric	m2

Component Description The building is provided with a Simplex 4100 series networked fire alarm system. A two-stage system operation is provided in the CBUS. The main fire alarm panel is located in the computer room (room B137) of the CBUS basement.

Component Condition & Anticipated Replacement Date The fire alarm system is in fair condition and of standard quality. The system shows typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997 (Approximately)
 CAPS Theoretical Service Life: 17 years
 Assessed Service Life: 17 years
 Remaining Service Life: 2 years
 Replacement Date: 2014

Element State: Fair **ACL:** ACL 2 - Check List



Fire Alarm Panel.

04.5A-010 Fire Alarm System - CBUS Event #: 1

Brief Description RP Component replacement or new [04.5A-010 Fire Alarm System - CBUS]

Event Type	Event Year	Event Cost	Priority	Data Origin
RP Component replacement or new	2014	\$286,720	high priority	Building Condition Report

Event Description Remove and replace fire alarm system and devices at the end of their normal service life.

Event Justification & Strategy The fire alarm system and devices will have reached the end of their normal service lives.

Implication of Event Deferral (Risks) Failure to replace the fire alarm system at the end of its normal service life may result in increased false alarms and an overall failure of the system which is a safety risk in an emergency situation.

Element Instance: 04.5A-010 Fire Alarm System - Centre Block

Details	Values
Expected Life	17
Component Cost	5,292,000
Last Major Action Year	1997
Component Condition (For BCR use only)	Fair
Quantity	75600
Measurement unit/ Metric	m2

Component Description The building is provided with a Simplex 4100 series networked fire alarm system. A single-stage fire alarm system operation is provided in the Centre Block. The system

Component Condition & Anticipated Replacement Date

is microprocessor based and is also provided with a computer terminal at the post office security station on the first floor. The fire alarm system consists of pull stations, smoke detectors, heat detectors, duct smoke detectors and signal horns. The fire alarm system is in fair condition and of standard quality. The system shows typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1997 (Approximately)
CAPS Theoretical Service Life: 17 years
Assessed Service Life: 17 years
Remaining Service Life: 2 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List



Fire Alarm Panel at Guard's Desk.

04.5A-020 Emergency Power System

Element Instance: 04.5A-020 Emergency Power System - CBUS

Details	Values
Expected Life	25
Component Cost	2,595,046
Last Major Action Year	1998
Component Condition (For BCR use only)	Average
Quantity	2
Measurement unit/ Metric	sum

Component Description

There are two emergency generators found in room 216 in the subbasement of CBUS which are controlled by an ASCO 7000 series ATS switch. They provide emergency power for East and Center block.

The generators are in parallel to operate as one which leaves no redundancy in the event of a major unscheduled utility outage. The current connected load exceed the capacity of one 750 kW, 600V unit, therefore in the event of a major unscheduled power outage the load will not transfer as designed to.

Generators are tested monthly and are visually inspected weekly. Both generators are 750 kW, 347/600V.

Component Condition & Anticipated Replacement Date

The emergency generators are in average condition and of standard quality. The system shows typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1998
 CAPS Theoretical Service Life: 25 years
 Assessed Service Life: 25 years
 Remaining Service Life: 11 years
 Replacement Date: 2023

Element State: Average

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

- Enclosure corrosion
- Functional defects
- Inaccessible
- Inadequate flow/capacity
- Inadequate labelling
- Inoperable devices
- Loose connections
- Non code compliant
- Not operating



Typical Generator found in CBUS.



ATS switch located in CBUS.

04.5A-020 Emergency Power System - CBUS Event #: 1

Brief Description

RP Component replacement or new [04.5A-020 Emergency Power System - CBUS]

Event Type

Event Year

Event Cost

Priority

Data Origin

RP Component replacement or new

2022

\$2,657,327

N/A

Building Condition Report

Event Description

Remove and replace emergency generators at the end of normal service life.

Event Justification & Strategy

The emergency generators will have reached the end of normal service life.

This report was generated without using Virtual Events.

Implication of Event	Failure to replace the emergency generators may result in total failure of electrical
Deferral (Risks)	systems during an emergency.

04.5A-030 Communication Systems

Element Instance: 04.5A-030 Communication Systems - Centre Block

Details	Values
Expected Life	25
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent
Quantity	0
Measurement unit/ Metric	ea

Component Description Communication systems were not in the scope of work for this building condition report.

Component Condition & Anticipated Replacement Date N/A

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Damaged control wiring		
Inadequate flow/capacity		
Inadequate labelling		
Loose connections		
Non code compliant		
Not operating		
Obsolete		

04.5A-040 Security System

Element Instance: 04.5A-040 Security System - Centre Block

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent
Quantity	0
Measurement unit/ Metric	ea

Component Description Security systems were not in the scope of work for this building condition report.

Component Condition & Anticipated Replacement Date N/A

Element State: Excellent **ACL:** ACL 2 - Check List

Assessment Criteria	Existence	Comments
Functional defects		
Not operating		
Obsolete equipment		

04.6 Special Electrical Systems

04.6A-010 Automatic Door Devices

Element Instance: 04.6A-010 Automatic Door Devices - Centre Block

Details	Values
Expected Life	20
Component Cost	0
Last Major Action Year	1995
Component Condition (For BCR use only)	Fair
Quantity	50
Measurement unit/ Metric	ea

Component Description

The automatic door devices in Centre Block consist of barrier free access door operators and push buttons.

Component Condition & Anticipated Replacement Date

The automatic door devices are in fair condition and of standard quality. The device show typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 1995 (Refurbished)
CAPS Theoretical Service Life: 20 years
Assessed Service Life: 20 years
Remaining Service Life: 3 years
Replacement Date: N/A

Note: Even though a scheduled replacement is due before the 10-year window, we do not recommend replacement due to the typical service life being in close proximity to the restoration date.

Element State: Fair

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Non-operational devices
Obsolete equipment
Physical damage



Typical Automated Door Push Button.

04.6A-015 Clock Systems

Element Instance: 04.6A-015 Clock Systems - Centre Block

Details	Values
Expected Life	25
Component Cost	50
Last Major Action Year	2005
Component Condition (For BCR use only)	Good
Quantity	50
Measurement unit/ Metric	ea

Component Description

The building has a functioning clock system consisting of various types.

Component Condition & Anticipated Replacement Date

The clock systems is in good condition and of standard quality. The fixtures show typical wear for their age and show no noticeable deficiencies. Third party reports were not available, however the equipment is well maintained and functioning as designed. Preventative maintenance is required to maintain life expectancy.

The availability of spare parts, manufacturer support and age were taken into consideration when assessing Service Life.

Original Installation Year: 2005
 CAPS Theoretical Service Life: 25 years
 Assessed Service Life: 25 years
 Remaining Service Life: 18 years
 Replacement Date: 2030

The cost is less than \$5000 for maintenance or replacement of a unit and can be covered under the normal maintenance budget.

Element State: Good

ACL: ACL 2 - Check List

Assessment Criteria

Existence

Comments

Damaged components
 Obsolete equipment
 System faults

X



Example of a Damaged Clock.

09. Renovations

09.1S Cafeteria Renovation

Element Instance: 09.1S Cafeteria Renovation - Centre Block

Details	Values
Expected Life	15
Component Cost	0
Last Major Action Year	2010
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	sum

Component Description

A cafeteria is located on the fifth floor and is available for the staff and occupants of the building only. It was indicated that the cafeteria is privately operated. Elements within the cafeteria include the following:

- laminate counters
- vinyl flooring in the serving area
- carpet in the dining area
- built in booths
- wallpaper
- drywall ceiling with recessed areas
- two service areas
- cash register counter

- cutlery counter
- tables and chairs
- cooking and refrigerating equipment

Component Condition & Anticipated Replacement Date

The cafeteria was in excellent condition and its renovation is not anticipated within the 10-year term of the study.

This component is rated at excellent condition and is of standard quality.

Component Age: 2 years
 Remaining Life: 13 years
 Next Major Action Year: 2025

Element State: Excellent **ACL:** ACL 2 - Check List

09.2S Lobby Renovation

Element Instance: 09.2S Lobby Renovation - Centre Block

Details	Values
Expected Life	50
Component Cost	0
Last Major Action Year	2000
Component Condition (For BCR use only)	Excellent
Quantity	6
Measurement unit/ Metric	ea

Component Description

There are four major entrances to the building and several smaller entrances. The major entrances consist of the main entry at the Peace Tower, the main security entry for the House of Commons, the main security entry for the Senate, and the public entrance to the Visitors' centre.

All of the entrances lead from exterior grade level to the second floor (main floor), except the public entrance which leads to the first floor.

All of the entries are of character defining elements with a high quality of finish and detail. Floors are stone with plush carpets and walls are sandstone with elaborate carvings. The ceilings are ornate gypsum board or plaster with historic light fixtures and chandeliers. The security desks are elaborate wood paneled desks with either laminate tops (Senate) or stone tops (visitor's centre).

The desks are elaborate installations with detailed wood panelling, wood arches and stone counter tops. Ceilings in the main hall are painted plaster with hanging fixtures. Ceilings in the public corridors off of the main hall consist of metal suspended ceiling systems. Lighting in the corridors uses recessed vestibule to the visitors' centre has original cut stone walls and ceiling. The vestibule floor consists of slush as installed wall to wall for year round usage. Doors are of elaborate original wood

Component Condition & Anticipated Replacement Date

The visitor's centre was reportedly retrofitted to meet barrier-free requirements circa 2000, which is also considered to be the last major action year. The finishes at the entrances are considered part of the building's character defining elements.

This component is rated at excellent condition and is of above standard quality.

Component Age: 12 years
 Remaining Life: 38 years

Next Major Action Year: 2050

Element State:

Excellent

ACL:

ACL 2 - Check List



Second Floor Lobby.



Information Desk Millwork.

09.4S Washroom Renovation

Element Instance: 09.4S Washroom Renovation - CBUS

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1998
Component Condition (For BCR use only)	Good
Quantity	4
Measurement unit/ Metric	ea

Component Description

Washrooms are located on the first and second levels of CBUS and are equipped with mosaic tile floors and walls. The following are key features in the CBUS washrooms:

- drywall ceilings
- ceramic sinks
- ceramic jet-flush toilets
- vestibule configured doors
- showers (pre-fabricated vinyl)
- lockers
- benches
- toweling areas
- wheelchair accessible design

The men's washroom has two urinals, two extra shower stalls, as well as a larger locker area.

Component Condition & Anticipated Replacement Date

This component is rated at good condition and is of standard quality.

Component Age: 14 years
 Remaining Life: 26 years
 Next Major Action Year: 2038

Element State:

Good

ACL:

ACL 2 - Check List



Washroom in CBUS.

Element Instance: 09.4S Washroom Renovation - In office suites

<i>Details</i>	<i>Values</i>
Expected Life	40
Component Cost	0
Last Major Action Year	1997
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description

Private washrooms are installed in the office suites within the tower structures. They typically have a a toilet (tank flush), a sink, tile flooring and drywall ceilings.

Some of the larger corner office and Speaker offices have washrooms which include a shower stall. The three speaker suites have granite finishes instead of ceramic.

Component Condition & Anticipated Replacement Date

The private washrooms finishes are renovated on an as-needed basis. Based on appearance and the average age of the finishes. The washrooms were found to be of good condition and are of above-standard quality.

Component Age: 15 years
Remaining Life: 25 years
Next Major Action Year: 2037

Element State: Good **ACL:** ACL 2 - Check List



Private washroom in office suite.

Element Instance: 09.4S Washroom Renovation - Peace Tower

<i>Details</i>	<i>Values</i>
Expected Life	50
Component Cost	0
Last Major Action Year	1975
Component Condition (For BCR use only)	Average
Quantity	3
Measurement unit/ Metric	ea

Component Description

Three washrooms are available to the tourists in the Piece Tower. Two of them (men's and women's) are located one floor below the observation deck. Another washroom is also available on the second level of the tower. This washroom is no longer used however is serviceable.

The washrooms consists of a toilet (tank flush), a linoleum vanity sink, tile flooring and drywall ceilings.

Component Condition & Anticipated Replacement Date

The washrooms are not commonly used or no longer accessible to the main public. All fixtures appeared operational and the renovations of the washrooms are most likely not required within the 10-year term of the study. The washrooms service life is also extended due to infrequent use.

This component is therefore rated at average condition and is of standard quality.

Component Age: 37 years
Remaining Life: 13 years
Next Major Action Year: 2025

Element State: Average **ACL:** ACL 2 - Check List



Washroom in the Peace Tower.

Element Instance: 09.4S Washroom Renovation - Public

Details	Values
Expected Life	40
Component Cost	0
Last Major Action Year	1992
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

Public washrooms are available throughout the entire Centre Block. They all consist of several stalls, sinks and urinals (in the men's washrooms only). A wood and glass partition exists past the washroom doors in order to create a vestibule-type configuration. A window is present in most washrooms. The windows will be further discussed in the Window section of the study (see section 1.3-070 Windows).

One stall in each washroom has been converted to a combination of a janitor and an electrical closet.

The washrooms servicing the sixth floor dining area are newer and have more modern finishes. These consist of a 25 x 25 mm (1 x 1 inch) ceramic tiles floor and a 100 x 100 mm (4 x 4 inch) ceramic tile wall (partial height) with vinyl wall covering above. The washroom stalls are metal. The ceiling is painted gypsum board with recessed lighting. The counter tops are stone with white porcelain sinks.

The first floor main hall washrooms have polished stone floors with painted gypsum board ceilings. The counter and sink are marble with stainless steel fixtures and fittings. The wall has partial height stone with painted gypsum board above (light grey). Lighting consists of hanging glass and chrome fixtures. The doors and frames are wood. Washroom accessories are stainless steel.

Washrooms in the basement are similar to the upper floors with the exception of the barrier-free unisex washroom, which was added at the time of the Visitors' Centre renovations. The walls (full height) and floors have a 100 x 100 mm (4 x 4 inch)

glazed ceramic tiles in light tans. The ceiling consists of painted gypsum board ceiling with recessed 2 x 4 light fixtures. The washroom accessories, fixtures and fittings are all upgraded in stainless steel finishes.

Component Condition & Anticipated Replacement Date

The washroom fixtures are replaced on an as-needed basis. Elements within the washrooms are of different vintages and conditions. As a whole, this component is rated at average condition and is of above standard quality.

Component Age: 20 years
 Remaining Life: 20 years
 Next Major Action Year: 2032

Element State: Average **ACL:** ACL 2 - Check List



Public washroom.



Public washroom.

10. Whole Building Expenditures

10.1 Audit and Assessments

10.1A-010 AMP

Element Instance: 10.1A-010 AMP

Details	Values
Expected Life	5
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent
Quantity	1
Measurement unit/ Metric	ea

Component Description

An Asset Management Plan (AMP) is a report that outlines strategy for managing an asset over its useful life. The AMP will determine if the asset's performance is financial acceptable considering the asset's strategic value in the portfolio.

A previous report was not provided.

Component Condition & Anticipated Replacement Date

Element State: Excellent **ACL:** ACL 2 - Check List

10.1A-015 Building Condition Report

Element Instance: 10.1A-015 Building Condition Report

Details	Values
----------------	---------------

This report was generated without using Virtual Events.

Expected Life	10
Component Cost	45,000
Last Major Action Year	2012
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	ea

Component Description

A Building Condition Report (BCR) is a report that outlines the condition of each component of a building as well as expected expenditures over a 30-year horizon.

Component Condition & Anticipated Replacement Date

PWGSC theoretical service life: 5 years.

The next BCR is scheduled for 2017.

This component is rated at average condition and is of standard quality.

Component Age: 0 years
 Remaining Life: 5 years
 Next Major Action Year: 2017

Element State: Average **ACL:** ACL 2 - Check List

10.1A-015 Building Condition Report Event #: 1

Brief Description

R Whole Building Expenditures [10.1A-015 Building Condition Report]

Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$45,000	medium priority	Building Condition Report

Event Description

Complete a Building Condition Report (BCR) as mandated and specified by PWGSC.

Event Justification & Strategy

PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include Building Condition Reports, on a 5-year cycle.

10.1A-020 Appraisal

Element Instance: 10.1A-020 Appraisal

Details	Values
Expected Life	5
Component Cost	10,000
Last Major Action Year	2007
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description

An Appraisal is an estimate of the market value of the property, based on highest and best use and that of the land if vacant, completed by a professional in that field. It is done in conjunction with the Asset Management Plan.

The asset Appraisal is performed every five (5) years after the BCR. The output of the appraisal report is used in determining the Asset Management Plan for the

asset.
 PWGSC theoretical service life: 5 years.
 A previous report was not provided. The next Appraisal is scheduled for 2017.
 This component is rated at average condition and is of standard quality.
 Component Age: 5 years
 Remaining Life: 5 years
 Next Major Action Year: 2017

Element State: Average **ACL:** ACL 2 - Check List

10.1A-020 Appraisal Event #: 1

Brief Description	R Whole Building Expenditures [10.1A-020 Appraisal]			
Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$10,000	medium priority	Building Condition Report

Event Description Complete an Appraisal as mandated and specified by PWGSC. This should be done in conjunction with the AMP.

Event Justification & Strategy PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include an Appraisal to complete the Asset Management Plan, on a 5-year cycle.

Implication of Event Deferral (Risks) Violation of PWGSC mandate.

10.1A-025 Indoor Air Quality

Element Instance: 10.1A-025 Indoor Air Quality

Details	Values
Expected Life	10
Component Cost	9,000
Last Major Action Year	2007
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description An Indoor Air Quality (IAQ) report reviews samples of air supplied to the occupied areas with respect to ASHRAE guidelines for temperature and humidity, carbon dioxide and contaminates. There should also be a review of occupants' complaints.

Component Condition & Anticipated Replacement Date This report is done on an as-required basis.

A new report should be issued by 2017.

This component is rated at average condition and is of standard quality.

This report was generated without using Virtual Events.

Component Age: 5 years
Remaining Life: 5 years
Next Major Action Year: 2017

Element State: Average **ACL:** ACL 2 - Check List

10.1A-025 Indoor Air Quality Event #: 1

Brief Description R Whole Building Expenditures [10.1A-025 Indoor Air Quality]
Event Type **Event Year** **Event Cost** **Priority** **Data Origin**
R Whole Building 2017 \$9,000 medium priority Building Condition Report
Expenditures

Event Description Following a review of occupant complaints; test air samples throughout the building and complete an IAQ report.

Event Justification & Strategy PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include testing and reporting on indoor air quality to ensure that standards are being met. These reports are completed on a 5-year cycle.

Implication of Event Deferral (Risks) A report should be prepared in about 2017 prior to the preparation of the next BCR. Testing IAQ is essential to ensure that Treasury Board Standards are being met with respect to the ASHRAE guidelines for temperature and humidity, carbon dioxide and contaminants.

10.1A-030 Accessibility Audit

Element Instance: 10.1A-030 Accessibility Audit

Details	Values
Expected Life	9
Component Cost	22,000
Last Major Action Year	2008
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description An Accessibility Audit is a complete audit of all base building components to ensure that they meet the Code and Treasury Board Standards.

Component Condition & Anticipated Replacement Date This report is completed on an as-required basis.

A report should be prepared in about 2017 prior to the preparation of the next BCR.

This component is rated at good condition and is of standard quality.

Component Age: 4 years
Remaining Life: 5 years
Next Major Action Year: 2017

Element State: Good

ACL: ACL 2 - Check List

10.1A-030 Accessibility Audit Event #: 1

Brief Description	R Whole Building Expenditures [10.1A-030 Accessibility Audit]			
Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$22,000	medium priority	Building Condition Report

Event Description Complete an Accessibility Audit as mandated and specified by PWGSC.

Event Justification & Strategy PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. These cyclical evaluations include a review of accessibility, on a 5-year cycle.

An accessibility report should be prepared before the next BCR. However, if the proposed major retrofit of the 1867 wing is undertaken, this will likely be postponed until the retrofit project is completed.

10.1A-035 Threat and Risk Assessment

Element Instance: 10.1A-035 Threat and Risk Assessment

Details	Values
Expected Life	5
Component Cost	6,000
Last Major Action Year	2007
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum

Component Description The Threat and Risk Assessment covers the assets and activities under the control of PWGSC. It includes the building, the grounds, the building life support systems, the spaces occupied by PWGSC or their designates and the main elements of the building systems including HVAC, structural, communications, power, elevators and common spaces. It is usually completed just prior to the completion of a BCR.

Component Condition & Anticipated Replacement PWGSC theoretical service life: 5 years.

Date This report is completed just prior to the BCR and AMP.

No previous report was provided. The next assessment is scheduled in 2017.

A threat and risk assessment should be prepared before the next BCR. However, if the proposed major retrofit of the 1867 wing is undertaken, this will likely be postponed until the retrofit project is completed.

Element State: Not Assessed

ACL: ACL 2 - Check List

10.1A-035 Threat and Risk Assessment Event #: 1

Brief Description	R Whole Building Expenditures [10.1A-035 Threat and Risk Assessment]			
Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$6,000	medium priority	Building Condition Report

Event Description Complete a Threat and Risk Assessment.

Event Justification & Strategy PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. This includes a review of the recent Threat and Risk Assessment on a regular basis.

Implication of Event Deferral (Risks) Deferral could put the departmental operations at risk.

10.1A-040 Seismic Assessment

Element Instance: 10.1A-040 Seismic Assessment

Details	Values
Expected Life	5
Component Cost	0
Last Major Action Year	2011
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum

Component Description A Seismic Assessment of a building is a detailed assessment following an NRC format in order to establish criteria for future development.

Component Condition & Anticipated Replacement Date No further seismic screening is anticipated.

Element State: Not Assessed **ACL:** ACL 2 - Check List

10.1A-045 Energy Audit

Element Instance: 10.1A-045 Energy Audit

Details	Values
Expected Life	11
Component Cost	22,000
Last Major Action Year	2006
Component Condition (For BCR use only)	Average
Quantity	1
Measurement unit/ Metric	sum

Component Description An Energy Audit is a complete review of all energy use in a facility, and a comparison of the results with energy conservation performance indices. It also includes recommendations for further action/study.

Component Condition & Anticipated Replacement Date Although this is a small building, an energy audit should be undertaken in 2017 prior to the next BCR.

This report was generated without using Virtual Events.

This component is rated at average condition and is of standard quality.

Component Age: 6 years
Remaining Life: 5 years
Next Major Action Year: 2017

Element State: Average **ACL:** ACL 2 - Check List

10.1A-045 Energy Audit Event #: 1

Brief Description R Whole Building Expenditures [10.1A-045 Energy Audit]

Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$22,000	medium priority	Building Condition Report

Event Description Carry out an Energy Audit as specified and mandated by PWGSC.

Event Justification & Strategy PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space. In addressing this mandate, PWGSC undertakes a series of evaluations on the entire use of energy in a building and the potential for cost effective reduction in energy costs.

Implication of Event Deferral (Risks) An Energy Audit should reveal the potential to save energy costs. Deferral may mean continued excessive and more costly use of energy in the building.

10.1A-055 Functionality Assessment

Element Instance: 10.1A-055 Functionality Assessment

Details	Values
Expected Life	10
Component Cost	10,000
Last Major Action Year	2007
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description A Functionality Report is a formal report that follows a PWGSC format. It reports on the various functions of a building and its management and how it relates to the occupants. The Functionality assessment is carried out prior to performing a serviceability assessment on an office building.

Component Condition & Anticipated Replacement Date A previous report was not provided. The next Functionality Assessment is scheduled for 2017, just prior to the next BCR in 2017.

This component is rated at good condition and is of standard quality.

Component Age: 5 years
Remaining Life: 5 years
Next Major Action Year: 2017

Element State: Good **ACL:** ACL 2 - Check List

10.1A-055 Functionality Assessment Event #: 1

Brief Description R Whole Building Expenditures [10.1A-055 Functionality Assessment]

Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$10,000	medium priority	Building Condition Report

This report was generated without using Virtual Events.

Event Description Complete a Functionality Assessment as mandated and specified by PWGSC.

Event Justification & Strategy PWGSC, as the service agency responsible for allocating all office accommodation to its tenant departments, is accountable for effectively acquiring and efficiently managing office space.

In addressing this mandate, PWGSC undertakes a series of cyclical evaluations of current and proposed accommodation. These evaluations are performed in order to find the total life cycle cost, which is used to determine the most appropriate management strategy for retention, disposal, maintenance and/or retrofit/renewal of these facilities to satisfy current and future client requirements. This includes a Functionality Assessment on an as-required basis.

Implication of Event Deferral (Risks) Violation of PWGSC mandate.

10.1A-056 Serviceability Assessment

Element Instance: 10.1A-056 Serviceability Assessment

Details	Values
Expected Life	5
Component Cost	10,000
Last Major Action Year	2007
Component Condition (For BCR use only)	Good
Quantity	1
Measurement unit/ Metric	sum

Component Description This assessment determines an asset's ability to support a tenant's functionality requirements, and is normally carried out after a functionality assessment.

Component Condition & Anticipated Replacement Date No previous report was provided. The next Serviceability Assessment is scheduled for 2017, just prior to the next BCR in 2017.

This component is rated at good condition and is of standard quality.

Component Age: 5 years
 Remaining Life: 5 years
 Next Major Action Year: 2017

Element State: Good **ACL:** ACL 2 - Check List

10.1A-056 Serviceability Assessment Event #: 1

Brief Description R Whole Building Expenditures [10.1A-056 Serviceability Assessment]

Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$10,000	medium priority	Building Condition Report

Event Description This assessment determines an asset's ability to support a tenant's functionality requirements, and is normally carried out after a functionality assessment.

Event Justification & Strategy The next Serviceability Assessment is scheduled for 2017, just prior to the next BCR in 2017.

10.1A-060 Telecommunications Infrastructure Audit

Element Instance: 10.1A-060 Telecommunications Infrastructure Audit

Details	Values
Expected Life	5
Component Cost	35,000

This report was generated without using Virtual Events.

Last Major Action Year	0
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum

Component Description A Telecommunications Infrastructure Audit is an evaluation of requirements for telephone, computer, etc in a building, based on PWGSC standard requirements.

Building Managers should have an awareness of the state of their telecommunications assets, which carriers are present, which type of voice and data could be offered and whether the building infrastructure is sufficient to support the tenant requirements. There should be a clear understanding of the responsibilities and scope of work for both the Building Manager and the tenant(s) of the base building and tenant telecommunications assets. An audit will outline code infractions and responsibility for corrections.

Component Condition & Anticipated Replacement Date No previous report was provided. We understand that the telecommunications infrastructure is under the control of the tenant and that PWGSC does not control this.

Element State: Not Assessed **ACL:** ACL 2 - Check List

10.1A-060 Telecommunications Infrastructure Audit Event #: 1

Brief Description R Whole Building Expenditures [10.1A-060 Telecommunications Infrastructure Audit]

Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2017	\$35,000	medium priority	Building Condition Report

Event Description Complete a telecommunications audit outlining all aspects of the telecommunications base building responsibility in the facility, and with the cooperation of the tenant, the tenant's telecommunications.

Event Justification & Strategy PWGSC mandate.

10.1A-065 Water Quality Audit

Element Instance: 10.1A-065 Water Quality Audit

Details	Values
Expected Life	5
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum

Component Description A Water Quality Audit is an assessment of the general water quality as an environmental health and safety due diligence measure. Samples are measured for metals/lead, bacteria and general chemistry.

Component Condition & Anticipated Replacement Date No previous report was provided. We recommend a Water Quality Audit in 2017. Cost of this work can be done as part of the operating budget at a cost below the \$5,000 threshold of this report.

Element State: Not Assessed **ACL:** ACL 2 - Check List

10.2 Level Three Studies

This report was generated without using Virtual Events.

10.2A-010 Architectural & Structural

Element Instance: 10.2A-010 Architectural & Structural - Copper Roof

<i>Details</i>	<i>Values</i>
Expected Life	5
Component Cost	20,000
Last Major Action Year	1975
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum

Component Description Refer to Section 01.4-010C15 Copper Roof - Remainder (All Elevations Excluding Front)

Component Condition & Anticipated Replacement Date N/A

Element State: Not Assessed **ACL:** ACL 2 - Check List

10.2A-010 Architectural & Structural - Copper Roof Event #: 1

Brief Description R Whole Building Expenditures [10.2A-010 Architectural & Structural - Copper Roof]

<i>Event Type</i>	<i>Event Year</i>	<i>Event Cost</i>	<i>Priority</i>	<i>Data Origin</i>
R Whole Building Expenditures	2012	\$20,000	medium priority	Building Condition Report

Event Description Level 3 study on copper roof prior to repairs

Event Justification & Strategy Required to better determine the appropriate scope of work

Implication of Event Potential damage to a character defining element

Deferral (Risks)

Element Instance: 10.2A-010 Architectural & Structural - Exterior Stone Wall

<i>Details</i>	<i>Values</i>
Expected Life	5
Component Cost	81,920
Last Major Action Year	1924
Component Condition (For BCR use only)	Not Assessed
Quantity	2013
Measurement unit/ Metric	sum

Component Description Refer to section 01.3-010C65 Ext. W - Local stone, rough cut, solid - Remainder (All Elevations Excluding Front)

Component Condition & Anticipated Replacement Date N/A

Element State: Not Assessed **ACL:** ACL 2 - Check List

10.2A-010 Architectural & Structural - Exterior Stone Wall Event #: 1

Brief Description R Whole Building Expenditures [10.2A-010 Architectural & Structural]

<i>Event Type</i>	<i>Event Year</i>	<i>Event Cost</i>	<i>Priority</i>	<i>Data Origin</i>
R Whole Building Expenditures	2013	\$81,920	medium priority	Building Condition Report

Event Description Perform a Level 1 study for the building envelope and perform minor repairs where

	possible
Event Justification & Strategy	Required to better understand the extent of damage
Implication of Event Deferral (Risks)	Difficulty in identifying the most appropriate scope for the recommended life extension event.

Element Instance: 10.2A-010 Architectural & Structural - Peace Tower Footing

Details	Values
Expected Life	5
Component Cost	10,240
Last Major Action Year	1924
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum
Component Description	See Section 0.1.1A-010 Footings & Foundations - Peace Tower Foundation
Component Condition & Anticipated Replacement Date	N/A
Element State:	Not Assessed ACL: ACL 2 - Check List

10.2A-010 Architectural & Structural - Peace Tower Footing Event #: 1

Brief Description	R Whole Building Expenditures [10.2A-010 Architectural & Structural - Peace Tower Footing]			
Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2013	\$10,240	medium priority	Building Condition Report
Event Description	Level 3 Structural review of the foundation			
Event Justification & Strategy	Required to better understand defects and determine a proper repair strategy			

Element Instance: 10.2A-010 Architectural & Structural - Rear East Loading Dock

Details	Values
Expected Life	5
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent
Quantity	0
Measurement unit/ Metric	ea
Component Description	Refer to section "01.2-050C35 Loading Docks - Centre block, Rear East Side"
Component Condition & Anticipated Replacement Date	N/A
Element State:	Excellent ACL: ACL 2 - Check List

Element Instance: 10.2A-010 Architectural & Structural - Rear West Loading Dock

Details	Values
Expected Life	5
Component Cost	0
Last Major Action Year	0
Component Condition (For BCR use only)	Excellent

This report was generated without using Virtual Events.

Quantity	0
Measurement unit/ Metric	ea
Component Description	Refer to section "01.2-050C35 Loading Docks - Centre block, Rear West Side"
Component Condition & Anticipated Replacement Date	N/A
Element State:	Excellent ACL: ACL 2 - Check List

Element Instance: 10.2A-010 Architectural & Structural - Stained Glass - Centre Block

Details	Values
Expected Life	5
Component Cost	20,000
Last Major Action Year	1979
Component Condition (For BCR use only)	Not Assessed
Quantity	1
Measurement unit/ Metric	sum
Component Description	See Section "01.3-070C15 Other-Specialties Windows - Stained Glass in Centre Block"
Component Condition & Anticipated Replacement Date	N/A
Element State:	Not Assessed ACL: ACL 2 - Check List

10.2A-010 Architectural & Structural - Stained Glass - Centre Block Event #: 1

Brief Description	R Whole Building Expenditures [10.2A-010 Architectural & Structural - Stained Glass - Centre Block]			
Event Type	Event Year	Event Cost	Priority	Data Origin
R Whole Building Expenditures	2013	\$20,000	medium priority	Building Condition Report
Event Description	Level 3 study on stained glass window prior to repairs			
Event Justification & Strategy	Required to better determine the appropriate scope of work			
Implication of Event Deferral (Risks)	Potential damage to a character defining element			
