St. Lawrence Centre for the Arts – Condition Assessment

Client:	City of Toronto
Prepared by:	+VG Architects (Toronto) Ltd.
Consultants:	Tacoma Engineering - Structural
	Integral Group - Mechanical
	Axiom Engineering – Electrical
	Theatre Consultants Collaborative – Theatre systems

December, 2016

+VG ARCHITECTS
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EXECUTIVE SUMMARY

Scope of Work

+VG Architect was retained by the City of Toronto, in late Spring 2016, to conduct an assessment for the building identified as St. Lawrence Centre for the Arts, located at 27 Front Street East, Toronto.

Primary scope of the audit was to review existing fire/life safety, Mechanical, Electrical and Plumbing systems, document deficiencies, and recommend a 20 year capital cost expenditure to adequately renew and maintain the facility.

A key evaluation criterion was to provide a comprehensive overview on the current status of major structural and envelope building components and identify elements requiring replacement or immediate repair.

The St. Lawrence Centre for the Arts

Based upon the multi-disciplinary assessment, the estimated capital cost expenditures forecasted to complete the recommended restoration and improvements to the St Lawrence Centre for the Arts are as follows:

Immediate Repairs
$3,381,875.00 plus HST
Within 10 years
$20,011,062.50 plus HST
Between 10 to 15 years
$3,068,562.50 plus HST
Between 16 to 20 years
$2,154,000.00 plus HST

Refer to other sections of the report for the detailed condition, summary of deficiencies and breakdown of the costs identified above.

Summary of General Conditions

To our knowledge no major repair intervention or maintenance work has been carried out to the building in recent years other than the installation of a new roofing membrane in the early nineties (over 20 years ago, now failing), and a relatively recent renovation work completed in 2006.

Our visual observations conclude and confirm that the conditions of the building with respect to its major envelope components including mechanical & electrical systems have been progressively deteriorating.

Summary of Recommendations

There is evidence that funding for principal asset renewals, maintenance or replacement (generally set forth within the first 30 years of the life cycle of a building), was not adequately established.

This has contributed to the accelerated deterioration of major building's components and systems (i.e. roofs and windows in particular) that are long past the end of their useful service cycles - as we observe today - and that will require immediate replacement.

Additional Investigations, Maintenance Programme and Code Review

The storm water drainage system appears to be not fully functional. The connection to the existing underground storm system needs to be tested as down pipes have clear signs of obstructions. There are indications that the underground system may also be compromised.

A programme of maintenance has never been developed for the entire facility; immediate repairs - when reported and addressed have been carried out on an as-needed, reactive basis. A budget should be considered for the establishment of an ongoing programme of building maintenance and repairs.

Accurate as-built drawings should be prepared of the existing building including architectural, mechanical and electrical.

In regards to the Building Code analysis there are a number of non-compliant conditions that will require further detailed review to confirm compliance alternatives (as per Part 11 of the Code) or to confirm if an existing non-compliant condition can be grandfathered by the authority having jurisdiction.

Barrier-Free Accessibility

The scope of this condition assessment excludes an in-depth review of barrier free accessibility. It is noted that this building was designed and constructed prior to stringent Barrier-Free requirements being introduced into local building codes. For the most part there are no retro-active requirements to comply with, as long as no renovations are planned.

Effective January 2015, major accessibility amendments to the OBC have come into effect as part of the Accessibility for Ontarians with Disabilities Act. This has resulted in more stringent requirements whether future renovations will be minor or major, for all building occupants, including staff.

Portfolio Name:	St Lawrence Centre for the Arts – Building Condition Assessment			
Field Observers:	Architectural: Structural Mechanical: Plumbing: Electrical: Theatre Systems:	Pietro Frenguelli Gerry Zegerius Niall Byrne Niall Byrne John Gulino Athos Zaghi & Jason Prichard	**Office:**	+VG Architects Tacoma Engineering Integral Group Integral Group Axiom Engineering Theatre Consultants Collaborative
Date Observed:	July, August and Sept. 2016		**Phone No.:**	416-588-6370 (+VG Architects)
Building Review:	External: Internal:	Yes Yes		
Interview Conducted	Yes	**Name/Position of Interviewee:**	Jim Roe, Facilities General Manager Sean Tasson, Director of Production	

A. GENERAL DESCRIPTION AND PROPERTY DATA					
Asset No.:	N/A	Property Name:	St Lawrence Centre for the Arts		
Street Address	27 Front Street East.		City: Province:	Toronto ON	
Building Type	Theatre Facility Events Venue	Age:	48 years	Years Renovated	2006 (last)
Size (Area sq.ft.):	Total 100,000 sf	# Buildings	1	# Floors Basement	2 plus Yes (full)
Rooms/Suites: Other Buildings or Amenities	Approx. 75				
Canadian Seismic Rating PGA:	0.111		Flood Zone Determination:	Unknown	
# Parking Spaces	Not available on site				

B. BUILDING AUDIT	
Terms of Reference	+VG Architect was retained by the City of Toronto, in late Spring 2016, to conduct an assessment for the building identified as St. Lawrence Centre for the Arts, located at 27 Front Street East, Toronto. Primary scope of the audit is to review existing fire/life safety, Mechanical, Electrical and Plumbing systems, document deficiencies, and recommend a 20 year capital cost expenditure to adequately renew and maintain the facility.
Scope of Work	The objective of the inspections was to review the visible site conditions and major building's systems to determine deficiencies and to provide the cost estimates referenced above. In general, the scope of work included the review of available reports and drawings, interviews with building's staff, on-site surveys and investigations, and the preparation of this report.

	The building systems examined were: Exterior grounds and Pavements Building Envelope Structural components Mechanical including HVAC, Plumbing and Fire Suppression system Electrical Fire Protection systems Interior Finishes Theatre Systems Condition Assessment and Costing information has been organized by the above-mentioned major building systems.
Studies, Reports and Publications	The following documents and reports were made available by the Owner to the Consulting Team, or were produced by the Consulting Team as part of previous surveys an investigations commissioned by the City of Toronto for the preparation of this report: 1) City of Toronto – Staff Report with recommendations for the "Inclusion on the City of Toronto Inventory of Heritage Properties – 27 Front Street East (St. Lawrence Centre)" December 20, 2012. 2) St Lawrence Centre for the Arts - Renovations and Addition – Drawings set (incomplete) by The Thom Partnership, Project No. 7929, Rev. No.16 Nov. 2/ !982, General Installations. 3) St Lawrence Centre for the Arts – Theatre and Town Hall – Drawing set (incomplete) by Gordon S. Adamson and Associates, Project No.6712, April 15/1968 4) St Lawrence Centre – Renewal Project – Drawing set (incomplete) by Paul Syme Architect and 3RD Uncle Design, Rev. No.4 April 2/2006, Issued for Tender. 5) Fire Alarm System Annual Test and Inspection by Firetronics Inc. August 5, 2015 6) Designated Substances Survey Report by Pinchin Ltd. dated December 3, 2015 – File: 103037 7) Roof Condition Assessment Report by +VG Architects (Toronto) Ltd. December 2014. 8) Fire Extinguisher Annual Report by Classic Fire Protection Inc. September 10, 2015 9) Automatic Sprinkler System Annual Report by Firetronics Inc. August 5, 2015 10) Global Risk Report (preliminary) by FM Global, August 19, 2015 11) St. Lawrence Centre for the Arts, Toronto. The Canadian Architect, May 1970 DISCLAIMER Excerpts from the above-mentioned documents and reports are reproduced without citation in various sections of this report. +VG makes no representations or warranties express or implied, with respect to the content, accuracy, or reliability of any information contained in the referenced material. Copyright of the excerpted or referenced material including text, graphics, or photographs is property of the respective authors.

Background Information, History of the Centre and Heritage Significance	
Background Information and brief History of the Centre	In 1963, the federal and provincial governments announced Centennial grants for cultural and recreational purposes. Toronto's City Council invited a group of citizens to form the Toronto Arts Foundation which in turn commissioned a Toronto firm of management consultants to prepare a report on the city's cultural requirements. This report recommended a theatre seating 850, a concert hall for 500, a facilities building, renovations to Massey Hall and the Art Gallery of Ontario, and the restoration of the old St. Lawrence Hall. The Art gallery and Massey Hall were later deleted from the program because both sites were privately owned and could not comply with the Centennial regulations. The facility building was also postponed because of lack of funds leaving only the theatre and the Concert hall. These two buildings were let out to tender in the fall of 1966. Since its original conception, the project went through a number of scaled down budgets, and ultimately with a reduced scheme comprised of the Theatre on the north side of Front Street East at Scott Street and the Town Hall directly across on the south side of Front Street East. Still over budget the entire project laid in limbo until the fall of 1967, when a modified plan combined the two buildings under one common roof, on the site south of Front Street East. This modified plan gained financial support but only on condition that the site for the St. Lawrence Centre (as it is now known) become part of an area for urban redevelopment. The cultural complex of St. Lawrence Centre at 27 Front Street was finally commissioned by the City of Toronto to the architectural firm of Gordon S. Adamson and Associates and completed in 1969. In 1982, the complex was altered extensively under the direction of Ron Thom. Further work was carried out in 2007, including the expansion of the ground floor lobbies.
Heritage Significance	St. Lawrence Centre is an important example in Toronto of Brutalist architecture, the style that originated in post-World War II England as a reaction to the International Movement in architecture. The St. Lawrence Centre showcases the naturally textured "béton brut" concrete, monochromatic surfaces, heavy visual quality, and limited and randomly placed openings that are the predominant features of the style. In its colouring and asymmetrical form, it complements the neighboring O'Keefe Centre for the Performing Arts (now known as the Sony Centre) that predates it. Historically, the St. Lawrence Centre is an important cultural venue in Toronto. With two theatre spaces on the interior, the smaller Jane Mallet Theatre (originally known as the Town Hall) was specifically designed as the forum for the complex's long-standing series of political, social and cultural debates and lectures and evolved to include musical and theatrical performances. The larger Bluma Appel

Theatre, named in honour of the dedicated Toronto arts supporter, opened as a showcase for classical and contemporary theatre and continued as the permanent base for the Canadian Stage Company and Toronto Operetta Theatre. Both stages have welcomed celebrated Canadian and internationally renowned performers.

Contextually, with its placement at the southeast corner of Front Street East and Scott Street, one block east of Yonge Street, the St. Lawrence Centre is visually and functionally linked to the neighboring O'Keefe Centre at 1 Front Street East that predated it as another significant performing arts venue in Toronto. The pair of buildings anchors the west end of Front Street East, which is a prominent corridor in the St. Lawrence neighborhood where the St. Lawrence Market (housing the Market Gallery arts facility) at 91 Front, the Young People' Theatre at 165 Front, and the Canadian Opera Company's Joey and Toby Tanenbaum Opera Centre at 227 Front are other important cultural destinations.

While altered over time, the property was identified in the 2005 SLNFA Urban Design Guidelines as requiring research and evaluation to determine its cultural heritage value. In 2012 the City engaged Diamond Schmidt Architects Inc. to propose further changes to the site that would enable it to meet the contemporary needs of the resident Canadian Stage Company. To assist in the review of the proposed renovations to St. Lawrence Centre, City of Toronto staff was requested by city stakeholders to complete a heritage assessment.

As a result of the assessment, it was determined that the property meets Ontario Regulation No. 9/06, the provincial criteria prescribed for municipal designation under the Ontario Heritage Act that is also applied by the City when evaluating sites for the City of Toronto Inventory of Heritage Properties.

In summary, the property at 27 Front Street East was included on the City of Toronto Inventory of Heritage Properties for its cultural and architectural heritage value.

Description of the Site, Building, and Theatres

Site and Entrances

The Centre is located in a neighborhood predominantly comprised of three-storey, late nineteen century architecture. The diamond shaped site is 200 feet *by* 180 feet and has a downhill slope of approximately 9 feet from Front Street East towards the lake at the south lot line.

The adjacent property to the south – originally a large public parking lot - has been redeveloped over the years and it now comprises a mix of residential condo towers with commercial uses at street level. A vehicular and pedestrian lane divides the Centre from the property to the south.
The Centre is adjacent to an existing three-story, nineteen century,

	mixed-use building along the east property line. The narrow, full-height space between the two building structures is approximately one foot wide and completely inaccessible. The main public entrance and foyer are located along Front Street East and were originally set back under a continuous soffit. In 2006 new exterior canopies and signs have been added and the interior lobbies and public areas refurbished. Along the same façade there are a number of doors discharging directly onto the sidewalk. These provide exit from lobbies and interior stairwells serving the lower basement level and the second floor. The stage doors and main receiving door are located along Scott Street towards the south west corner of the Centre. A sloping vehicular ramp connects the main receiving door from Scott Street. A set of alternate receiving doors are located along the south façade and accessible through the vehicular lane. These opens directly into the back of the larger Bluma Appel Theatre. There is no dedicated on-site parking for the exclusive use of the facility. However, on-street parking is available along the curbs of Front Street and Scott Street or at several parking structure facilities (either municipally or privately owned) located in the vicinity of the Centre. There are no designated barrier free spaces identified by either markings or signage. Public concrete sidewalks flank the perimeter of the Centre around Front and Scott street, as well as a continuous strip of dark-grey stone (slate) paving, marking the façade along Scott Street. The stone apron along Scott Street was installed as part of the 2006 renovation.
Building & Theatres	From the common foyer and ticket office accessible from Front Street the public can enter directly into either the Jane Mallet Theatre or the Bluma Appel Theatre. Taking advantage of the slope to the site, the seats rake from a cross aisle at the Front Street level down to the stage and orchestra level at the rear lane elevation, where the receiving doors are located. Equipment, costumes and scenery can therefore be loaded directly onto either stage without the necessity of an elevator. Performers' dressing rooms, vomitories, storage and rehearsal rooms are located under the seating at a level slightly lower but convenient to both stages. Below this level and under the larger Bluma Appel Theatre is the orchestra pit with ancillary storage spaces, trap room and lower basement areas. Male and female usher's change rooms are respectively located on the west and east side of the Bluma Appel theatre and accessible by a set of independent corridors. Technical areas ancillary to the theatres such as sound, light and projection rooms are located on mezzanines and split levels over the balcony and upper lobby, respectively one mezzanine for each theatre and accessible from independent set of stairs. These stairs

also provide access to the roof level by means of wall mounted ship ladders and roof hatches.

Administrative offices are located at the north-west corner of the main floor level directly connected to the ticket office, adjacent to the main lobby. Additional offices and staff rooms are clustered directly behind the stage of the Jane Mallet theatre, on a split level immediately above the receiving area and dock to the south. These are connected by a set of stairs to the stage entrance.

Public washrooms as well as the main staircases, lobbies and bars, coat room and lounges are conveniently located on both ground and second floor levels, immediately adjacent to the theatres and accessible from the north side. Additional washrooms and showers for performers' use are located in the lower level either within the dressing rooms or adjacent to the rehearsal spaces. These include a number of washrooms for staff and janitorial use.

Given the size of the facility, the mechanical, electrical, service, storage and janitorial rooms are not centralized in one single location but rather distributed throughout the building of separate floors. The mechanical room located between the two theatres is a two-storey high space. From the large mechanical room located on the north side of the second floor there is an exterior door which provides access to the cooling towers located within an open-air roof well.

The St. Lawrence Centre has undergone alterations that include an expansion of the ground floor lobby, changes to the glazing on the principal (north) façade, the installation of a new continuous canopy to protect the entrances along Front Street and, on the interior entrance and lobbies, the replacement of some of the original materials and the reconfiguration of staircases.

The interior spaces of the two theatres remain generally intact; however the larger Bluma Appel Theatre has been completely rebuilt in the early eighties by Ron Thom.

The original stage was at the time considered "a bold experiment to provide a multiple configuration stage" that functioned in three ways: as a conventional proscenium stage with or without adjustable apron extension, as a thrust stage similar to the one at the Stratford Festival, (which required a wider than usual auditorium and impacted on the number of theatre seats) and, as a triptych or three-sided stage by the use of movable panels to permit large wing areas at the sides of the proscenium arch to embrace the audience in caliper fashion.

The replacement of the stage and the original stadium seating, including the removal of the thrust stage and the introduction of a balcony and suspended box seats was ultimately deemed necessary to increase the overall seating capacity. The current total seating capacity is 876. The orchestra section is barrier-free accessible through the use of a lift located in the lobby.

	The 497 seats Jane Mallet theatre, with a semi-circular thrust stage and very steeply raked seating, can accommodate many types of theatrical or corporate presentations including concerts, plays, award ceremonies, small scale musicals as well as broadcast, recording and webcasting. Performers' entrances are concealed behind arches at either side of the stage. Performers' galleries are located on either side of the projection room and in the west wall over the stage. The Jane Mallet Theatre has been less impacted visually with new seats and improved lighting and sound systems.
Building Envelope	
Concrete Surfaces (refer to structural section for additional information)	Exterior walls are typically constructed in cast-in-place, naturally textured, reinforced concrete with monochromatic surfaces. Interior faces are either exposed or insulated by 1" rigid insulation and finished by cement plaster or 6" concrete block walls. Total thickness of assembly varies from 12" to 30" according to the location and structural requirement. Vertical and horizontal reveals, of different width and depth, typically mark the location of the concrete formwork and provide an overall panelized look. Also evident on the concrete surfaces is the regular pattern of pins used for the concrete form ties. The dimensions of the concrete panels vary in size. A number of free-standing concrete columns, typically 18" in diameter, punctuate the structural grids along the Front Street façade and within the interior public lobby spaces, on both ground and second floor.
Windows, Entrances and Clerestories	Windows, door entrance frames and clerestory are made of anodized aluminium frames, dark-bronze in colour, typically with double insulating glass at windows and single glazed for doors. Frames dimension varies in size but are predominantly 2" x 2-1/4" deep c/w pressure plates and caps. Glass is held in place by rubberized gaskets. Windows are typically fixed (non-operable) except for those providing fireman' access to the building's interior. The majority of frames and insulated glass units are original to the building except for those located along Front Street at the ground floor level, where windows and doors have been replaced to allow for an expansion and re-configuration of the Main Lobby (in front of the Bluma Appel theatre), the Vestibule, Foyer and Ticket Office. The new storefront windows at the ground floor sits on a shallow, raised concrete curb, are full-height and tapered from top to bottom, with aluminum frames and structural silicon vertical joints. New 2nd floor windows (on the north elevation facing Front Street) were installed to increase natural light within the upper lobby as part of the 1982 renovation. These windows match the remainder of the building in type, profile and finish. A number of larger windows – including all clerestory windows - have metal panel transoms located from above the top frame and

	extending vertically up to roof's parapets or curbs. Panels are typically un-insulated and are installed over plywood sheathing directly over the concrete wall substrates. The colour of the panels matches the dark-bronze of the window frames. The large clerestory windows at the roof level sit on a raised concrete curb. A small number of metal-framed windows are located on the vertical face of concrete parapet walls, above the roof level, where they provide fireman access to interior building spaces such as the Bluma Appel's light and sound & light control mezzanine. The 2-storey high windows (i.e. facing Scott Street) are constructed in two separate units; the top one being supported on horizontal steel "C" channels spanning the full width of the opening, wall-to-wall. The channel is entirely cladded in metal on the outside and inside matching the frames in colour. The vertical mullions of the clerestory windows are deeper (4") and consist of steel rectangular sections with aluminium covers. Where window frames are abutting concrete walls these are typically set into concrete's vertical reveals. Frames are smaller in width at these locations and glass is held in place by an aluminium stop (rather than a pressure plate w/cap) set into the reveal and removable from the outside. Pre-finished aluminium flashing (with colour to match frames) is typically installed at all windows' sills. Entry doors are typically made of aluminium with double insulated glass and finish matching the windows. Panic hardware and door closers including aluminium thresholds are typically provided to all entry doors. A number of doors for staff use are provided with card access control, complete with electric strikes. The main receiving entrance is located at the bottom of the vehicular ramp along Scott Street and it is raised approx. 3' from the top of the ramp. It is provided with a single, motorized roll-up door. A set of large steel doors and frame complete with extruded rubber weatherstripping is located at the rear of the building to provide direct access from the lane into the back stage of the Bluma Appel theatre. Window and door frames generally appear to be structurally sound.
Roof Construction and Drainage	The roof of the St. Lawrence Centre is typically divided in large flat areas and organized in sections at different heights, separated by shallow curbs or high parapets where roofs are connected by exterior wall-mounted ship ladders. The perimeter of the different roof areas generally corresponds to the volume of the main spaces they cover, such as the fly tower (being the highest roof) the 2 theatres, the lobbies, etc. The canopies at

	street level are the lowest roofs. The exit corridor and stairwell to the east side is covered by a set of smaller cascading roofs with clerestory windows installed in between the roofs. Two large clerestory windows extend above the main roofs at the north side, one over each of the two 2nd floor's lobbies. The glass portion of the clerestory faces north. The back side of the clerestory is a mono-pitch slope that faces south and it is covered with batten-and-seam aluminium roofing. The interior side of the concrete parapets at the roof side of the Front St. and Scott St. elevations is typically cladded in aluminium panels fastened directly onto the concrete wall substrate. The top of curbs and parapet walls are generally protected by pre-finished metal flashing. There are a number of pre-fabricated fiberglass roof hatches as well as several curb-mounted, mechanical exhaust fans located throughout the roofs. A single HVAC unit and a penthouse louvre are installed over two smaller roof areas towards the south of the building. A total of 10 large 6' x 6' square steel smoke hatches are installed along the north edge of the roof over the stage fly tower. Sanitary stacks and vents are noted in several locations, generally corresponding to the location of washrooms in the floor below. No walkway material noted at location of roof hatches or mechanical equipment or at any areas where pedestrian traffic would be anticipated. In 2014 +VG was retained by the City of Toronto to conduct a condition assessment of the roofs. The following is the summary of findings: Core samples indicated that the existing original 1968 roof construction is poured in place concrete roof deck, 1-ply organic felt and coal tar pitch vapour barrier, 1.5"glass fiber insulation, 4-ply organic felt and coal tar pitch roof membrane, slag aggregate embedded in coal tar pitch. A new roof was installed over the original (in the early nineties) and it is made of ½" wood fibre insulation, 45 mil EPDM roof membrane complete with loosely laid, river washed rock ballast. The existing roof deck is constructed dead flat with no positive drainage. Cast iron roof drains are located throughout the roof; the total number and general location of drains appears to be adequate for the roof areas they serve. Water is collected in drain pipes internal to the building that ties into pipe collectors within ceiling spaces, down into the sub-drainage system.
Projections, Canopies & Soffits	As part of the 2006 renovations the façade along Front Street and the stage door entrance at Scott Street were upgraded with canopies to enhance protection from weather at entrances and to

	improve lighting condition over the public sidewalk (at Front St.) and over entry steps (at stage door). The supporting framing structure of the continuous canopy along Front St. is made of cantilevered steel joists typically 4' o/c, perpendicular to the building, and anchored to a higher concrete beam (at the building) with steel plates and bolts. The cantilever extends approx. 5'-6" from the face of the building. The roof is made of a 2-ply membrane over ½" plywood sheathing over a ½" metal roof deck. Water is collected in a continuous built-in gutter along the north edge of the canopy. Drain pipes bring water into the building and down the subgrade drainage system. Stainless steel panels clad the 12" high fascia on the exterior face of the canopy. The soffit is made of removable, double-skinned white acrylic sheets suspended by steel angles. Fluorescent trip lights are concealed inside the soffit. The canopy construction above the stage door at Scott Street is similar in construction to the canopy at Front Street; main structure spans between the two existing concrete side walls and has and deep cantilever. The exit doors located at the foremost east corner of the building, along Front Street are recessed from the façade and protected from the weather by the overhang of a concrete flat roof. The soffit is comprised of removable 5" wide, pre-finished metal boards fastened (clipped-on) to a metal suspension system. Similar soffit conditions exist over the remaining entrances along Front street. The soffit material in these locations is a cement plaster finish on metal mesh over furring channels supported by a metal suspension system. The soffit is continuous from exterior to interior and extends into the building vestibules over and across the aluminium frames of doors and windows. Batt insulation and vapor barrier is installed within the ceiling space above the soffit to mitigate thermal bridging from the exterior to the interior spaces.
Metal panels &cladding, Display Units & Louvres	Ribbed vertical planking made in anodized aluminium is installed as a finish siding material over walls at ground floor level, adjacent to the main entrances. The full-height siding extends from t/o slab (at sidewalk level) to u/s of suspended soffit. Cladding also runs below window sills and display units. Colour and finish matches the window frames. The cladding is installed over 5/8" plywood sheathing over building paper, either directly over the concrete wall substrates or over wood stud framing i.e. where cladding is above display units. There are a number of recessed wall-mounted, hinged, anodized aluminium display units of varying sizes some currently used to advertise the calendar of events at the facility. These are located next to the main entrance and are framed in profiles with color and finish matching the windows.

	Several large wall-mounted mechanical air intake and exhaust louvres are installed as a transom over and around the staff entrance door at the corner of Front St. and Scott St. Louvres extend towards east on the same wall and are made in anodized aluminium with colour and finish matching the windows.
Sealants and Flashing	Elastic sealant is typically found around window frames and at perimeter of metal panels and cladding where frames and cladding abut concrete walls or other dissimilar materials. Control joints and expansion joints between separate concrete surfaces are also protected by sealants, as well as joints exposed to weather in curbs and parapet walls or at surfaces where curbs and parapets abut walls or other components of the building's façade. Flashing is typically pre-finished aluminium with colour to match existing windows where used at window's sills or pre-finished metal at the roof's curbs and parapets with a light green colour.
Marquees and Signage	It is our understanding that as part of the 2006 renovations the existing recessed marquee installed behind the glass and spandrel panel at the diagonal wall between Front St. and Scott St. was abandoned and replaced by a new steel-framed marquee installed over the roof above the north-west staff entrance. The new marquee has an internally-illuminated fixed signage and a L.E.D. message board. It is supported by a combination of steel posts and diagonal steel braces anchored over the existing concrete roof slab and shear walls. Also removed and replaced was the facility's wall-mounted metal signage over the Front St. elevation already replaced by Ron Thom in 1982 and the replacement of the wall-mounted banner at Scott St.
Building Systems Description	
STRUCTURAL	The building is constructed with a combination of cast-in-place concrete and structural steel framing. Multiple floor and roof levels are largely constructed with reinforced concrete. Several lobby spaces are provided with clerestory windows and sloping roofs intended to improve lighting in the interior spaces, and are constructed with exposed concrete in most locations. Foundation systems appear to be cast-in-place concrete, similar to the rest of the building. Suspended balconies, catwalks, and miscellaneous storage areas are built with structural steel suspended from the superstructure. Several makeshift ramps and walkways have been constructed with wood planking, primarily in storage and service areas. Interior partition walls are constructed with a combination of wood or light gauge steel stud framing, and have been altered over the years to accommodate a variety of office layouts. The roof structures above the two (2) theatre spaces are constructed with steel framing and steel roof deck. Other roof areas above

mechanical, office, and theater tower spaces are constructed with cast-in-place concrete.

MECHANICAL

HVAC System / Equipment

The facility's mechanical equipment is located primarily within three mechanical rooms and on the building roof.

The main mechanical room is located on the Ground Floor and contains steam heat exchangers, the chiller, the domestic hot water heaters, circulation pumps, and air handling units S1 and S2 as well as decommissioned tanks, equipment, and piping.

The mechanical room attached to the wardrobe room contains the lobby supply air unit. The upper level mechanical room contains air handling units S4 and S5.

The cooling tower and exhaust fans are located on the roof of the building. Heating is provided to the building through the use of perimeter fin-tube radiators, fan coil units, and forced flow hydronic heaters. The building's loading areas are heated by hydronic unit heaters. Ventilation and supply air is heated by hydronic coils within air handling units.

Cooling is supplied to the building through ventilation and supply air cooling coils that are located within the air handling units. Thermostatic control for the building is provided by wall mounted thermostats that are situated throughout the building.

MAIN MECHANICAL ROOM

Steam is supplied to the main mechanical room. Two Armstrong OH-480.5 heat exchangers, tagged C-1 and C-2 and manufactured in 2006, transfer heat to the building heating water from the incoming steam.

Hot water is then distributed throughout the building by the main heating circulation pumps. P-8, an Armstrong pump with a VP Motors drive, serves the perimeter heating system and P-7 (inaccessible name plate) with a Powerbloc drive, serves as the panel's recirculation pump.

P-5, an Armstrong pump with a Leeson drive, and P-6, an Armstrong pump with a Brook Hansen drive, are the heating coil circulation pumps.

A York Chiller, tagged CH-1 and manufactured in 2007, provides the building with chilled water. The chiller model number is YKDSDQQ5-CKGS and contains refrigerant R-134a. Chemical treatment for the chilled water system is located in the main mechanical room.
Pumps P-1 and P-2, which are both Armstrong pumps with Armstrong drives and manufactured circa 2004 recirculate chilled water to cooling coils within the facility.

Pumps P-3, an Armstrong pump with a MaxMotion drive manufactured in 2001, and P-4, an Armstrong pump with a Leeson drive manufactured in 2012, circulate returning chilled water in the system.

P-9, an Armstrong pump with a US Motors drive manufactured circa 2010, recirculates domestic hot water as required through the domestic water loop.

Air Handling Unit S1, which is manufactured by Hakkon in 2001 and has the model number AIRPAK and serial number 01-7625-01, is located within the main mechanical room and serves the Town Hall area of the building. Heating is provided by a hot water coil, while cooling is provided by a chilled water coil, and humidification is provided by a DriSteam steam injection system. Pneumatic control piping has been capped and control is provided through the use Belimo control valves and motorized dampers that were manufactured in 2015.

A Sheldons Air Handling Unit (tagged S2), is suspended near the ceiling of the main mechanical room and serves the Dimmer Room.
Domestic hot water pre-heat is provided by two steam heat exchangers. Two Armstrong OH 480.5 heat exchangers, tagged C-3 and C-4 and manufactured in 2006 transfer heat to pre-heat domestic hot water downstream from C-1 and C-2.
Domestic hot water storage and additional heating is provided using three electric RHEEM RUUD EGS120C-9, 9kW 120 USgal hot water heating tanks. These tanks are tagged DHW Tank-1 through DHW Tank-3.
An air compressor and storage tank is located in the main mechanical room. The unit, a 3 HP DV Systems compressor and was observed to be cycling frequently at the time of the site inspection.

UPPER LEVEL MECHANICAL ROOM

Air Handling Units S4 and S5 are located in the upper level mechanical room.

Air Handling Unit S4 is a single supply duct air handling unit and was manufactured by Ventrol with model number VC33-83/114-14 and serves the Theatre. This unit comprises return fan R-4, supply fan S-4, a heating coil, a cooling coil, and a LiveSteam humidification injection system, which was manufactured by Nortec. Pneumatic controls associated with the equipment have been decommissioned and replaced by Belimo control valves and motorized dampers.

Air Handling Unit S5 is configured for dual duct heating and cooling and serves internal areas of the building. Manufactured by Ventrol Air Handling Systems Inc. with model number VC60-135/114-12, this unit comprises return fan R-5, supply fan S-5, a heating coil, a cooling coil, and a LiveSteam humidification injection system, which was

	manufactured by Nortec. Pneumatic controls associated with the equipment have been decommissioned and replaced by Belimo control valves and motorized dampers. The cooling tower variable frequency drive is located in the upper level mechanical room. WARDROBE MECHANICAL ROOM The Lobby Air Handling Unit (S3) is located in the mechanical room that is accessible from the wardrobe room. This Trane Climate Changer, model number 9LPHFTH, includes both a hot water heating coil and a cold water cooling coil. Control is provided by Belimo valves, manufactured in 2015. ROOF Condenser water cooling is provided by a 1,000 GPM Marley Cooling Tower; model number NC8403NAN1BGF, located in a recessed pit on the roof of the facility. The cooling tower was installed circa 2010. One louvered penthouse, as well as exhaust fans and Woods exhaust fan roof units are also located on the roof of the building. Nameplate information was illegible for exhaust fans located on the roof as the nameplate had weathered significantly.
Plumbing System / Equipment	Domestic water enters the building through the Main Mechanical Room through a municipal water meter. The insulation on the water meter header appears relatively new and is in good condition indicating recent work on the water meter. Domestic water is piped to end-uses from the meter header. Domestic hot water is produced in the Main Mechanical Room and is distributed throughout the building from storage tanks. Storm water is drained internal to the building. Roof storm water drains are located on all levels of the roof accessed during the site inspection. The sanitary piping system serves both the plumbing system drainage and floor drains throughout the building. Drains are located in washrooms and mechanical rooms. A combination of floor drains, funnel floor drains, and indirect drains serve the mechanical rooms.
Fire Protection System / Equipment	The facility is served by a sprinkler system with sprinkler heads located throughout the facility. The main sprinkler distribution is located in the Main Mechanical Room adjacent to the municipal water meter. Sprinkler zones are fed from the main distribution in the Main Mechanical Room.

ELECTRICAL **Electrical Main and Branch Distribution**	The building is serviced via a utility collector-bus system with an incoming capacity of 2500amp; 208/120volt, 3phase, 4wire at a main switchboard in the basement level main electrical room that services distribution panels. The distribution panels service branch electrical panelboards serving the various building loads.
Interior Lighting	The lighting has been revised / updated to fluorescent T8 lamping for service and corridor areas. However, lobby and theatre lighting remains incandescent and is inefficient. Overall, lighting is of poor quality and there is insufficient illumination along paths of egress and food preparation areas to meet Code requirements.
Fire Alarm System	The building is sprinklered. An existing "Edwards" Custom-6500 series conventional (hardwired) fire alarm system is located in the basement main electrical room and is being replaced with a new "Mircom" FX2000-series intelligent (addressable) system. Additional signaling appliances and fire detectors are required to bring the system to present Code requirements.
Emergency Lighting	No emergency generator on site. Emergency lighting is achieved via emergency battery units, remote emergency light heads, and combination exit sign / light heads.
THEATRE SYSTEMS	Refer to Section "E" for complete description.
Interiors	
Assessment Format	All primary rooms have been reviewed. Minor rooms such as closets, storages, and similar spaces have not been reviewed unless critical issues are present. Floor plans for each level have been attached for reference to help in identification of rooms and spaces. Where possible, images of elements and conditions have been attached.
Public Entrances, Vestibules, Lobbies & Washrooms	The main public entrance from Front St. including the vestibule and lobbies adjacent to theatres were (relatively) recently renovated and upgraded with new floor finishes, wall-mounted displays & paneling, and millwork. The floor material in the vestibule is the extension of the dark green/black slate stone flooring found over the apron at the sidewalk level, along Front St. Also in slate is a 5' wide strip of flooring along the interior face of the storefront glazing on the north side of the lower Bluma Appel lobby. Slate tiles are typically rectangular in shape, 24" x 12" in size and installed with staggered joints. Through a floor transition at the vestibule's doors, the finish changes to a grey broadloom carpet flooring as the material installed throughout the remainder of public spaces. Only exception is the finish in the washrooms which is a combination of 2"x2" and 3"x3" mosaic porcelain tile; typically black in colour for the male

washrooms and a lighter beige colour for the female washrooms. The washroom's ceramic flooring is provided with a coved ceramic tile base.

A 4" high carpeted – recessed – wall base is installed at the transition between floor and wall material, wherever the floor finish is carpet and the wall material is gypsum wall board. A 4" carpet wall base is simply installed (glued) over exposed concrete finishes i.e. around the concrete columns. Also carpeted are the treads (c/w rubber nosing) of both public stairs, located in each of the 2 lobbies adjacent to the theatres. There are a number of in-floor aluminum supply air grilles typically located at the base of the windows and storefronts glazing.

The flooring material behind the serving counter at the bars within the main public lobbies varies to ceramic tile to resilient rubber flooring.

Interior walls are generally finished in gypsum wall board, painted white. Drywall is either directly laminated onto concrete wall substrates or installed over ¾" wood strapping. There are a number of surface-mounted plastic corner guards installed along corridors and in areas where pedestrian traffic is more pronounced. Washroom stall partitions are floor-mounted, metal-paneled partitions and doors, typically black in colour. With few exceptions (2nd floor washrooms), washrooms walls are typically tiled with ceramic tiles matching the floor in size and colour.

The structural concrete columns along the façade at Front St. and the free-standing columns within the building spaces are generally painted finished in white colour.

There are two large public stairs providing access to/from the 2nd floor balcony level. The stair within the lobby of the Bluma Appel theatre was rebuilt in steel as part of the most recent expansion and renovation whereas the stair within the lobby of the Jane Mallet theatre has the original exposed and unpainted poured-in-place concrete structure.

Also exposed (and unpainted) are the edges of the concrete floor slab around the stair openings, the edges of the roof slab around the clerestory windows including the concrete parapet walls and concrete beams spanning perpendicular to the stair. Both stairs are provided with glass balustrades supported by metal shoes, standoffs c/w pins, pickets and solid brass/bronze handrails.

The majority of the ceilings in public areas and corridors are made of a suspended, acoustical assembly comprised of 4" wide continuous metal "C" slats with 1" gaps between slats. The metal slats support a layer of black-painted acoustical fabric material (or paper in other cases) with a single layer of loosely installed acoustical batt insulation on top. It appears that for the most part this type of ceiling is original to the building. Also original to the building are the gypsum board

ceilings and bulkheads around the clerestory openings, along the interior face of the exterior walls, and around the perimeter of the theatre's curved walls. The bulkheads along the theatres incorporate a continuous, wide reveal with spot lighting fixtures and continuous, aluminum linear diffuser. Suspended drywall ceilings c/w recessed pot lights are installed over the bars located in the public lobbies. Ceiling material in public washrooms is mostly drywall, painted white.

Doors in public spaces are typically wood solid core doors set in steel frames. Doors located along public paths of travel are typically provided with push plates, pulls and bottom kicks, generally made of brass metal. Doors to non-public areas, service rooms, etc. have lockable hardware of different types, and generally provided with door knobs. A ½" reveal is built around door frames where frames are set in drywall. Frames are full height where doors are located within spaces with high ceilings. In these cases, transoms fill the space between the head of the door and the underside of the ceiling and are typically constructed as blank, fixed panels. Doors at washrooms have air transfer grilles centered in bottom portion of the door. Doors are generally equipped with door closers which are mounted in different configurations.

Most of the original wood doors have been retained. Metal hardware including hinges is also typically original to the building. Doors finish and material is varied and changes according to the door's location i.e. natural stained finish (appears to be mahogany) at theatres entrances, painted or laminated in other locations. Metal frames are typically painted to match the colour of the adjacent walls.

Vanities countertops in public washrooms have integral back splash and valances typically finished with plastic laminate of varying colours according to the location i.e. typically black for male or lighter in colour for female washroom. Vanities are wall mounted and in the most cases supported by metal brackets or leg extensions. Continuous overhead light valances c/w with egg-crate diffusers are installed over the vanities and at the back wall of the stalls, above the toilets.

The (newer) bar's millwork and cabinetry (respectively located on the ground and second floor lobbies) is made of solid Corian countertops (white) installed over light-colored wood veneered gables and panels c/w solid brass edging. The back-bar is typically finished with black plastic laminate or stainless steel surfaces. Also in stainless steel are the sinks and bar wet counters.

A number of wall mounted shelves are installed along the perimeter of the lobbies for the convenience of patrons (to place beverages, etc.) during show's intermissions. The round-cornered shelves are typically made of laminated wood core material with a large, brass pipe at the outer edges.

Administration Areas, Offices, and Box Office	Offices and administrative areas are typically finished with broadloom carpet flooring c/w carpet wall base, gypsum board wall finish, and a combination of either drywall ceilings or a typical 24" x 48" suspended acoustic tile ceilings. Doors are made of solid wood core or hollow metal and are generally set in metal door frames. Frames have a continuous reveal where they are installed in gypsum board walls. The offices located on the mezzanine at south side of the building (above the receiving areas) have a number of demountable full-height modular partitions complete with fabric-lined acoustical panels and glazed vision lites. Built-in millwork (i.e. in staff room) is typically plastic laminate countertops with integral backs and wood veneered cabinetry. The Box Office counter adjacent to the main entry is of newer construction and it spans along the west side of the public vestibule. Its construction and materials is similar to the bars in the public lobbies i.e. made of solid white Corian countertop and wood veneered gables and panels c/w solid brass edging. A glazed screen, supported by metal posts and complete with a continuous pass-through gap at the bottom, separates the box office from the public vestibule. A large wood-veneered, illuminated display is installed on the east wall of the vestibule opposite to the box office counter. From the vestibule, the display extends into the lobby of the Jane Mallet theatre.
Theatres and areas ancillary to the theatres	Finishes in the theatres, boxes and connecting stairwells are similar in kind to the finishes of other building's public spaces i.e. broadloom carpet flooring, painted gypsum board walls and ceilings, acoustical paneling, etc. The overall palette of colours is very dark. Handrails in the stairwells are original to the 1982 renovation and are made of brass in a large 2-1/2" round section. Stairs that are interior to the theatres are typically finished with rubber treads and nosing. Balustrade and guards are generally made in wood or brass and supported by wood, brass or painted metal pickets. Stages: refer to section "E" for details. Sound and Light control rooms located on the mezzanines above the theatres are finished with a simpler, utilitarian type of materials, similar in kind to the finishes seen in the back-of-house spaces of the basement level, such as resilient tile flooring, acoustic tile ceiling and painted gypsum wall board with acoustical treatments. Male and female usher's change rooms are respectively located on the west and east side of the Bluma Appel theatre and accessible by a set of independent corridors. Finishes are similar in kind to office and admin area i.e. carpet flooring, ACT/drywall ceilings, etc.
Lower levels and service spaces	Lower levels (basement, orchestra pit, etc.) are primarily comprised of performers' dressing and rehearsal rooms, wardrobe, storage, janitorial service rooms, corridors and mechanical/electrical rooms.

There are a number of other large mechanical rooms/areas located on the upper floor levels; however type and general condition of finishes are consistent throughout.

Service, mechanical/electrical rooms and lower-basement rooms including have a sealed, poured-in-place concrete flooring (without base), walls are generally exposed painted and sealed concrete block walls, ceilings are typically exposed to the underside of above concrete floor slabs, and are painted finished.

Corridors, staff washroom, stage door receiving areas, and stairs are typically provided with VCT flooring complete with a rubber wall base, walls are exposed, painted and sealed concrete block walls, ceilings generally consist of 24" x 48" suspended acoustical ceiling tiles. Washroom has no ceilings and stairs treads are typically covered with hard rubber treads and metal (or rubber) nosing.

The staff kitchen has a ceramic tile flooring and wall base, walls are finished with gypsum wall boards, and ceiling is ACT. Millwork consists of base and upper wood cabinets with plastic laminate countertops and a ceramic tile backsplash.

The Green Room has carpet flooring with a 4" high recessed carpet wall base. Walls are finished in gypsum wall boards and ceilings are made with ACT over metal suspension system.

The large rehearsal room has sheet vinyl flooring with a combination of rubber and wood wall base; walls are typically finished with gypsum wall board painted finished over wood strapping. The east wall is covered with floor-to-ceiling mirrors for dance rehearsals. A pair of black-out curtains on tracks can be opened or retracted to cover the mirrors. Ceilings are made with a combination of ACT – acoustical panels over suspended metal system and gypsum boards.

The dressing rooms of the Jane Mallett Theatre are typically provided with a VCT tile flooring with rubber wall base over exposed, sealed and painted concrete block walls. A couple of larger dressing rooms have wall-mounted acoustical paneling. Ceilings are finished with painted gypsum boards. Rooms are configured as "suites" with adjacent, similarly finished washrooms, except for the showers flooring made of 1" x 2" mosaic ceramic tiles, c/w a ceramic tile wall base. Fixed wood slatted bench are wall mounted in the shower and supported by metal brackets. The wood veneered, built-up make-up counter and millwork has lockable drawers, over-counter power receptacles and make-up lights with overhead wood shelving storage.

The dressing rooms of the Bluma Appel Theatre are similarly configured (as "suites") and have similar type of finishes and built-in millwork. Several dressing rooms bigger in size can provide accommodations for larger groups of actors. The washrooms adjacent to the larger rooms have separate metal, floor-mounted,

	washrooms stalls and a "gang" type of shower room for males, rather than individual shower stalls (as for the female). The wardrobe area is finished with sheet vinyl flooring and rubber wall base over exposed, sealed and painted concrete block walls, or concrete walls. Ceilings are exposed to the underside of concrete floor slabs above, painted finished. An open, steel framed mezzanine located to the north side is accessible through a steel stair. Guards and handrails are made with steel piping, stair treads are metal pans filled with concrete. Mezzanine floor is a metal deck with concrete topping finished in VCT tiles. There are a number of wall mounted cabinets and working counters. Doors to dressing rooms, rehearsal room, staff kitchen, etc. are typically made of wood and finished with a wood laminate. Doors in corridors, storage rooms, mechanical and electrical rooms are typically hollow metal. All doors are set in steel frames and typically provided with door closers. Doors located along exit paths of travel are typically provided with push plates, pulls and bottom kicks as well as doors to non-public areas, service rooms, etc. which also have lockable hardware.
Hazardous Materials	
	A separate independent consultant was retained by the City of Toronto in 2015 to conduct a Designated Substance Survey Report which confirmed the presence of designated substances in various building materials. A complete, detailed, intrusive survey including destructive testing and sampling of all materials should be carried out prior to any building renovation or demolition activity. Refer to report prepared by Pinchin (File 103037) dated December 3, 2015 for complete list findings and recommendations (not attached).
Codes and Regulations	
	The scope of the report is limited to a review for compliance with current Ontario Building Code regulations as related to fire and life safety. Refer to other sections in this report for finding and recommendations.
Barrier Free Accessibility	
	The scope of this condition assessment excludes an in-depth review of barrier free accessibility. It is noted that this building was designed and constructed prior to stringent Barrier-Free requirements being introduced into local building codes. For the most part there are no retro-active requirements to comply with, as long as no renovations are planned. Effective January 2015, major accessibility amendments to the OBC have come into effect as part of the Accessibility for Ontarians with Disabilities Act. This has resulted in more stringent requirements

whether future renovations will be minor or major, for all building occupants including staff.

We note that the building's ground floor is only partially barrier-free accessible, and there are a number of major deficiencies such as:

- Insufficient number (and general configuration/design) of accessible public washrooms
- Insufficient clearance from doors and door's widths in barrier-free path of travels
- Incorrect door hardware
- etc.

Refer to other sections of this report for additional information on findings. Recommendations aimed at rectifying existing, non-conforming conditions - including a cost analysis - is outside the scope of this report as it would require detailed in-situ measurements and the development of design options to determine a feasible approach and a viable, cost-effective solution.

B. GENERAL CONDITION

ARCHITECTURAL

Preface:
To our knowledge no major repair intervention or maintenance work has been carried out to the building in recent years other than the installation of a new roofing membrane in the early nineties (now over 20 years old and failing), and the relatively recent renovation work completed in 2006. Our visual observations conclude and confirm that the conditions of the building with respect to its major envelope components have been progressively deteriorating.

We understand that testing related to principal fire/life safety building's systems (fire alarm, emergency lighting, etc.) are conducted on a scheduled basis, however an ongoing programme of maintenance has never been developed for the entire facility; immediate repairs - when reported and addressed – have been carried out on an as-needed, reactive basis.

Every building is unique and the need for maintenance, repairs and asset renewals varies depending on many factors, including: use of the building, the quality of construction, design details, exposure and environmental conditions, and the standard of care given by the owner and facility management team.

Notwithstanding differences between individual buildings, it has been determined that the majority of buildings follow a similar pattern as they pass through different stages in their respective life cycles. In this regard, we can identify five principal life cycle stages as follows:

- ***Stage-1 (under 1 year).*** During this stage, the building is in the process of being handed over from the builder/contractor to the first owner. The assets are new and are covered under a variety of warranties. Maintenance requirements are focused on cleaning activities and periodic inspections

- ***Stage-2 (1-16 years).*** During this period, the owner has assumed full responsibility for all the maintenance, repairs and long-range renewal planning for the building. With two years of expenditure experience, the owner has established a preventive maintenance program and is allocating monies to the long-range reserve fund. The owner is starting to address some relatively small renewal projects, which are addressed in more detail in the next section.

- ***Stage-3 (17-29 years).*** It is during this 3rd stage that the owner may find that the maintenance budgets established during the 2nd life stage are no longer adequate to address the impending replacement of building assets that have deteriorated and reached the end of their useful service lives. This phase is represented by a noticeable increase in the number of capital renewal projects. This stage often compels owners to seriously reconsider their historical budgeting practices and to make more reasonable funding allocations for asset renewals as the building moves through Stage-3 and into Stage-4.

- ***Stage-4 (30 to 49 years).*** The largest and most expensive of all asset renewal projects tend to occur during the 4th stage. As a result, significant funds will need to be reinvested in the building and the standard operating and maintenance budgets will need to be revisited. Some of the assets have been replaced over the preceding 30-40 years and the owner and manager are now operating a building with assets at a variety of different

ages. There is no longer a single baseline and the facility manager is tasked with tracking the age and conditions of different assets.

- ***Stage-5 (50 plus years).*** At this juncture, all the major assets have been through one renewal cycle. Therefore Stage-5 is essentially a return to Stage-2. The owner must now prepare for the next cycle of asset renewals as the building moves beyond its 50th anniversary and embarks upon the next 50 years of operations.

Although the above cycle stages are generalizations they enable owner and facility manager to anticipate future capital renewal requirements and to make informed decisions about budgeting and other resources for maintenance, repairs and asset renewals.

Maintenance costs are generally consistent over the life of a building; however, asset renewal expenditures vary dramatically at different times, particularly during facility Stage-3 and Stage-4. The requirements for effective stewardship of the facility are similar for all types of property, whether it is a high-rise building, low-rise building, fire station or office building, privately or municipally owned.

Considering the age, history of past repairs/upgrades, and based on the evidence gathered from our surveys and investigations we can confirm that the current conditions of the St. Lawrence Centre for the Arts are rated at the end of Stage-4 life cycle and consistent with the description above.

In the case of the St. Lawrence Centre for the Arts there is evidence that funding for asset renewals, maintenance or replacement of major building components, typically set forth in Stage-2 and 3, was not adequately established. This has contributed to the accelerated deterioration of several major principal building assets (i.e. roofs and windows in particular) that are long past the end of their useful service lives, as we observe today.

Exterior elements

Accessibility

The main building public entrance at Front Street is generally barrier-free accessible as one set of doors is provided with an automatic door operator c/w pushbutton, however we note that there are no designated, accessible, barrier free parking spaces for visitors, or staff's exclusive use adjacent to the entrance.

Exterior paved areas

In general, there are no issues related to the sidewalks, curbs and ramps that are of immediate concern in regards to fire and life safety with the exception of some noted damage of the paving structure around the corner of Front St. and Scott St. In this location both concrete and stone surfaces show substantial unevenness and displacement including joints open to the weather. In the worst case the sidewalk has dropped approximately 4" below the original elevation. This is mostly visible along the junction between sidewalk and building façade, immediately south of the corner at Scott Street.

The exact cause of the sag and cracking is unknown; we can anticipate it is probably the heaving action of freeze/thaw cycles, possibly coupled with an insufficient or inadequate drainage of the substrates below the slabs. Further, according to the reviewed set of documents we note an existing underground vault adjacent to the north-west corner of the building which (we would anticipate) is covered by a concrete slab roof. The sub-grade elevation of the vault's roof is unknown, but cracks in the sidewalk could be the result of differential settlements of the sidewalk, where sidewalk spans across the roof of the vault.

Typical wear (normal considering its age), is noted over the ramp's concrete surfaces located at the receiving doors. Apart from a limited number of cracks no major deficiencies noted. Also in fair condition is the concrete access stair at the stage doors accessible from Scott St.

Particularly evident is the wear of the slate stone paving at the apron along the façade at Front St. and mostly around the entrances. In the worst cases the material is spalled with numerous open mortar joints. Given that this installation only dates back to 2006 we anticipate that the noted accelerated aging is due to the high volume of pedestrian traffic combined with the aggressive action of chemical salts (or other agents) to prevent icing in the winter months. As slate paving material is not among the most resilient types of natural stone it should be avoided in exterior applications where high volume of traffic and salting is anticipated.

Drainage and foundations (Refer to Structural section for additional information)

Generally, the paved surfaces adjacent to the perimeter of the building have positive slopes; there are signs of water erosion but no substantial damage or staining at the base of the walls that would indicate consistent back-flowing or ponding of water against the building.

Some debris is found collected around the area drain located at the bottom of the vehicular ramp from Scott St. At the time of the review there was no indication that the drain is not functioning properly, however drain should be tested to ensure it isn't clogged.

There are a number of locations showing issues that are of concern and these should be investigated further:

Signs of water runoff are evident at the lowest roof located over the north east entrance and between the concrete shear walls separating the building from the adjacent neighboring property to the east. Also noted were water markings over the interior walls at the north west corner of the stage tower. Facility's staff reported that a major leak occurred in the past from the downpipe or roof drain located in this area. Following visual inspection at the roof level we note that the drain is now completely clogged and there is a substantial amount of ponding water.

Markings and peeling paint are also noted in several locations at the base of basement foundation walls. From the reviewed documents we understand that the majority of concrete foundation walls are finished with a layer of cement parging over the interior faces containing metallic oxide waterproofing. This system is one of the oldest methods for the waterproofing of walls and generally remains effective as long as the wall substrate (over which the waterproofing is installed) is not compromised. This method is poorly effective to fill or accommodate larger cracks and voids, particularly at construction joints since it's not elastic as rubber or plastic membranes.

These found conditions suggest that the existing drainage system could no longer be 100% functional. A complete video inspection of sumps, drains, downpipes, collectors and subgrade system is recommended as an order of priority to determine exact conditions.

The recommended long-term solution is to ensure that: 1) the sub-drainage system is properly working so that storm water is positively discharged into the municipal grid and, 2) Investigate the cost/benefit option of installing a proper vertical wall drainage system connected to the existing sub-drainage/weeping tile system so that water will not collect, pond and penetrate in the foundation concrete walls or erode the soil at the base of the footings. The new wall drainage system will relieve the existing walls from the soil pressure as the main cause of water and vapour being driven from the exterior to the interior. Note: a new wall drainage system would be a considerable investment and it would be a feasible option only for those locations where it can be effectively installed i.e. exterior perimeter of exterior foundation walls.

In situations where it is not practical to apply a new waterproofing/drainage system to the outside of the construction (e.g. elevator pits), an interior applied system of waterproofing is still the most cost effective option.

Concrete Surfaces (Refer to Structural section for additional information)

Concrete wall surfaces are generally in fair condition, with caulked joints (between different pours) and control joints beginning to show signs of deterioration. This is particularly evident near grade and on walls at roof level facing north and east, where drying is less likely to be effective.

Water courses (locations where the wall thickness changes) have many weathered joints that show accelerated water damage. This is also noted at horizontal surfaces that are exposed to continuous action of rain water such as sills and curbs where sills and curbs are not protected by cap flashing as well as at the underside of exposed concrete beams and lintels where water is not effectively diverted by drip edges.

Inappropriate mortar has been used in previous repair work and should eventually be replaced with mortar matching colour and profile of the original surfaces. Many line cracks have been noted as well as spalling of the exterior layer of concrete where (in several cases) the rebar below is exposed to weather and corroding. Given the substantial heights of the walls, we were unable to completely survey and determine the exact condition throughout the building, but these should be confirmed through additional inspection prior to carry out repairs.

Roofs

The single-ply EPDM main roof membrane is approximately 21 years old and is now showing typical and advanced signs of deterioration common with roofing of this type and age such as "tenting" which is extreme at transitions between horizontal and vertical surfaces. It is to be noted that the EPDM membrane was installed over the original built-up pitch roof adhered to the concrete deck as the most inexpensive option to address the water infiltration problems at the time. This condition has certainly contributed to the prematurely ageing of the roof due to the confirmed presence of moisture trapped between the two roofing systems. A venting system was later on installed as a retroactive measure to mitigate condensation between the various roof layers but it has proved to be completely ineffective.

Caulking sealants at joints of flashing and caps was found mostly deteriorated and dry. Open joints noted at reglets and starting strips. Sheet metal flashing and caps is generally secured in reglets but the material is old and deteriorated, and generally loose due to poor fastening to the substrates.

Substantial atmospheric growth (moss), some vegetation growth and substantial accumulation of debris noted throughout the roof areas, particularly within lower roofs (wells), shaded areas facing north and interior corners. Due to the fact that the existing roof is flat it is no surprise that drainage from roof areas to drains is poor at best.

The standing seam metal roofing on sloped surfaces is generally in fair to poor conditions with predominantly damaged cap flashing and severely deteriorated caulking.
Several cracks and spalling of surfaces were noted to the concrete walling and parapets around the roof areas. Rusting of the rebar exposed to weather was noted in several locations.

Run-off and spills from roofs areas onto walls and windows below is noted in several locations as an indication that roof drainage may no longer be 100% functional. Several active leaks noted in a number of locations within the building.

Flat roof is at the end of its life-cycle. The replacement of the entire roofing system including insulation, flashing, counter flashing, sealants, curbs, roof hatches, roof drains, etc. is to be considered a priority. Replacement should be carried out as soon as possible to avoid major and prolonged damage to the deck, substrates and interior finishes.

Particular attention needs to be given to all locations where flat roof abuts vertical walls. The height of the curb between roofs is very low, and such that with heavy precipitations or with heavy accumulations of snow the joints at transitions between different roofs and materials needs to remain waterproofed. A correct detailing is critical to ensure a continuous waterproofed barrier at all roof transitions.

Following the removal of the old roof the condition of the existing concrete deck should be thoroughly reviewed for signs of damage.

Projections and Soffits

The metal slat paneled soffit and the stucco finish is starting to shows sign of aging and wear, particularly on the north elevation, where materials, if become moist or wet are not drying quickly. Environmental staining and mildew is noted particularly within interior corners of north-facing walls where drying times are longer. There are a number of joints - where the stucco soffit is abutting the side wall that are starting to detach and can potentially allow water to penetrate the wall substrates.

Metal Panels & Cladding, Display Units & Louvres

The ribbed vertical planking made in anodized aluminium, (located along Front St.) shows signs of damage and deterioration particularly where the material is closer to the sidewalk level and therefore exposed to traffic and salting. There is no visible damage suggesting a structural component's failure but conditions are generally fair to poor.

The wall-mounted, anodized aluminium display units located close the main entrance is as well as the large wall-mounted mechanical air intake and exhaust louvres over and around the staff entrance door at the corner of Front St. and Scott St. show signs of ageing and wear. Exterior surfaces of frames and louvres facing west are weathered and the anodic coating of the finishes is starting to fade and chalk. A number of open joints and past repairs noted, particularly at corner intersections of frames and were frames abut walls.

Windows and Doors

At this time and from our observations we note that all glazed systems generally appear in fair to poor condition. Systems are structurally sound and without evident signs of stress, or component's failure, however, there are numerous, obvious visible conditions - common to all glazed systems reviewed - suggesting major deterioration which will have to be addressed in a relatively short time.

There are typical, noticeable signs of damage caused by water vapour condensing on the interior surfaces of frames, and/or water infiltration within the interior finishes as observed from the inside of the building. This is particularly evident around the large windows facing Scott St. and at the clerestory windows. The worst case noted is at the windows and spandrel panels in front of the existing recessed marquee that was abandoned and replaced by a new one.

Several open joints were noted especially at change of material between window/door frames and concrete wall surfaces.

It is our opinion that the observed damage is the combination of several causes: open joints between frames and concrete walls no longer completely weather tight (deteriorated sealants), run-off of moisture condensation over wall surfaces and interior wall substrates (because of poor thermal performance of frames), and in several cases failure of the insulating glass units showing noticeable severe "fogging" which is typically associated with failure of seals and penetration of moisture within the layers of glass.

The bottom portion of doors frames, including door thresholds typically show severe wear and damage from pedestrian traffic and chemical de-icing salts. There are traces of past repairs particularly concentrated around sealed joints, at pre-formed corners and base cap flashing over curb parapets and window sills. Generally all flashing material is old and deteriorated and requires replacement.

It is anticipated that if caps are removed for inspections screws (supporting pressure plates) would be found to be rusted and gaskets (between pressure plates, glass panes, and between frames and wall substrates) would be found to be degraded, oxidized and/or mechanically deformed due to aging.

For the most part, exterior surfaces of frames and metal panels facing west are weathered and the anodic coating of the finishes is starting to fade and chalk. This only affects the visible appearance of the frames, caps, etc. and do not pose a concern in terms of weather tightness of the systems.

In regards to the sealed insulated glass, it is important to note the difficulty in predicting exactly how long units will last as it depends on many variables and factors i.e. quality of the original

components, quality of manufacturing process, quality of installation, fluctuating environmental conditions, direct exposure to sunlight and UV, etc. Insulating glass units incorporated in glazing systems have finite service lives and will need to be replaced, possibly several times in the life of a building. Visual review of insulating glass units typically reveals very little information that is of use in assessing timing for replacement units unless fogging is occurring – as in this case - replacement needs are immediate.

From our observations and as reported above, fogging has been noted in many of the existing units and considering the age we can anticipate that these are at the end of their serviceable life. Rubber stops and gaskets will also need replacement as they appears cracked and past its useful life. Lubrication of all hardware (for operable windows and hatches) is recommended however - if frames are to be replaced in the near future - not necessary. The deterioration of horizontal portions of the exposed sills is more pronounced and some localized repair will be necessary.

It is a general assumption that - on the long term - glazing structural frames should last the life of the building however, given the poor thermal performance, age, and current condition of the existing systems as observed, we would recommend replacing frames with new to match existing in kind (profile and colour) but with improved thermal performance and characteristics. Also recommended is the replacement of all metal spandrel panels and sealants including the aluminium caps at the top of the wall parapets and curbs.

In addition, we recommend carrying out regular seasonal inspections to monitor the systems for signs of major failures in the glass or gaskets, until a complete replacement can be carried out.

Flashing and Sealants

Sealant at exterior joints between frames and masonry is typically old, dry and deteriorated, as well as cap flashing at the top of the wall's parapets and window sills which is found loose and missing in the worst cases, resulting in open joints exposed to weather. A complete replacement of all sealants and flashing is recommended – as a priority work - to avoid continuous and prolonged damage to wall substrates.

Interior elements

Compared to the structural frame or permanent components of a building, interior finishes or elements such as paint, flooring, door's hardware, etc. are replaced more frequently over the life cycle of a building, and potentially have significant environmental impacts. Lifetime of interior finishes are affected by occupant's behavior and use to a much higher degree compared to permanent components of a building, such as roofing or exterior cladding which are typically affected by environmental conditions.

The average service lifetime of interior finishes as related to public buildings such as The St. Lawrence Centre for the Arts, in regards to public areas of moderate use/traffic, is typically between 8 to 10 years. This is based on regular recommended maintenance and conditions of normal wear and tear, and not extreme weather (or other) conditions, neglect, over-use or abuse.

To simplify the reader's identification we have assigned a rating for each item or element. The rating spectrum is identified as:

- Very good
- Good
- Fair
- Poor
- Replace

We suggest that:

- "Very good" rating suggest that the product/element has been fairly recently acquired or refinished/recovered and therefore is reasonable to assume that no funds should be allocated to the product/element in the near future
- "Good" rating would indicate a reasonable level of finish with a 5 year remaining life before replace or refurbish.
- "Fair" rating would indicate a tired but acceptable finish (perhaps starting to date in style, but adequate in performance)
- "Poor" rating indicates that the product is nearing its life cycle end and is not worth replacing or refurbishing/refinishing
- "Replace" as the term infers suggests that the product/element has reached a point where replacement is necessary

Accessibility

At present full accessibility is impaired by several factors; the principal is related to public barrier-free washrooms. Existing washrooms are generally not barrier free accessible as per current standards and regulations; particularly in regards to the minimum required number of stalls, type, design and location of fixtures, vanities, type and mounting height of washroom accessories, etc.

Several doors in barrier-free path of travel are not provided with adequate barrier-free hardware and there isn't adequate clearance from door swings at vestibules, along corridors and barrier-free path of travel for proper wheelchair's use. I.e. current regulations require that a door to a washroom for public use required to be barrier-free must be equipped with a power operator. The lift currently used to provide access to the orchestra section is adequate for wheelchair use but not large enough to accommodate, or facilitate the maneuver, of motorized mobility devices.

Based on the total seating capacity the minimum number of barrier-free accessible spaces in the Bluma Appel Theatre should be 9, and a total of 5 for the Jane Mallett Theatre. From our visual observations the current space configuration does not provide adequate floor area for turnaround, etc.

The configuration of the box office counter does not provide accessibility for a wheelchair's forward approach, which would be preferred as compared to the existing parallel type of approach.

Offices and related support areas, work areas and meeting rooms should be accessible to all,

including staff and visitors with varying levels of ability. Individual work spaces should provide an accessible approach and should be accessible based upon workplace accommodation requirements. Circulation areas need to address the space requirements for mobility equipment, workstations and tables need to address space requirements for wheelchairs and have provisions for lighting and equipment adequate for people with different type of impairments (visual, hearing, etc.)

General Observations

In general, and apart from few selected locations, the facility interiors are found to be in fair to poor condition. The public ground and second floor lobbies, vestibules, and the interior of the Jane Mallet theatre are the only exception since these areas were (relatively) recently renovated and finishes are cleaned/maintained regularly, therefore can be considered in fair to good condition.

Interior architectural elements including wall bases, doors and door hardware, etc. in most instances date back to the original building construction and as such, have simply worn down and deteriorated due to continuous use and traffic. Other architectural elements original to the building (such as the drywall ceilings and bulkheads) have performed better simply because are not directly impacted by day-to-day use, wear and tear.

"Back of house" rooms and spaces including circulation corridors and stairwells are in particularly poor condition both on lower and upper levels. Most of the finishes in these areas related to floors, walls and ceilings are either presumed original to the building or to the 1982 renovations. As such they have deteriorated with little upkeep over the years except to paint. Lighting in these areas is generally in poor condition. Mechanical, janitorial, storage and workshop areas are in fair to poor condition.

Floor Finishes

The interior portion of the slate flooring at the ground floor's main vestibule is in very good condition with the exception of a few isolated cracks and chips. In very good condition is also the strip of slate flooring along the interior face of the storefront at the Bluma Appel lobby.

Carpet flooring at the main public lobbies and theatres appears in fair condition with only a minor number of isolated stains and blemishes. The carpet in the remainder of the building (offices, stairs, etc.) however is noticeably old and deteriorated. For these areas a complete replacement is recommended within few years' time as the material is at the end of serviceable life.

VCT and sheet vinyl flooring, including rubber floor finishes and rubber bases, appear to be (in the majority of cases) either original to the building or to the 1982 renovation. Condition varies, with expected wear due to age, but wear and damage is more pronounced in corridors and stairs. Some cracking of surfaces noted throughout, however no major delamination. Generally, VCT and sheet vinyl flooring looks old and tired.

We note that as identified by Pinchin's Designated Substance Survey Report some of the existing resilient flooring was found to contain hazardous material.

Similarly to the resilient flooring, ceramic tile flooring also appears to be either original to the building or to the 1982 renovation. Expectedly the floor tiling is in worst condition than the wall tiles with numerous cracks, signs of past repairs and general wear including the condition of the grout which is stained and old; in general the material appears worn and due for a complete replacement.

Exposed concrete floor surfaces in storage, mechanical and electrical rooms, shop, and basement unfinished areas however poorly maintained (stained or dirty) are not of concern.

Wall Finishes

Gypsum wall board, plaster and exposed concrete wall surfaces are generally in good condition except where damage has occurred due to wear, impact, or damage from moisture mostly noted at exterior corners, base of walls or adjacent to window frames. The existing plastic corner guards are old and in several locations not positively attached to the substrate. Substantial damage is also observed to surfaces adjacent to window frames where condensation has occurred during the winter months, or because of failures at joints no longer weather tight. Other than selected public areas the paint finish of most drywall surfaces is generally old. We would recommend repairing and re-finishing the damaged wall board material and at the same time investigate the condition of the substrates where leaks have occurred to confirm damage.

Concrete block walls (back of house and basement level) are noted to be generally in good condition with very few signs of visible damage, except in highly trafficked areas or corridors, in service rooms and at exterior corners of walls. Finish is due for repainting, particularly in areas of most traffic.

Exposed concrete wall surfaces show signs of staining and markings however this is not a concern as it affects appearance rather than performance. Refer to other sections of this document for conditions of concrete surfaces as related to cracking and recommendations for repair.

A number of rooms have transite boards installed as an acoustical material which was found to be generally in acceptable condition other than in several locations where material has been damaged by wear and impact. We would recommend removing and/or replacing this material completely.

We note that as identified by Pinchin's Designated Substance Survey Report some of the existing paint finish and transite board was found to contain hazardous material.

Ceilings

The acoustical slat metal ceiling and suspension system is still functional but shows signs of aging where ceiling has been repainted a number of times or in locations where past repairs were carried out. Where ceiling was removed and re-installed to allow access to the service space (to mechanical, plumbing and electrical equipment) we note that material is at times no longer positively fastened. In regards to the acoustical material supported by the metal ceiling proper we note that the black fabric and paper is brittle, friable to the touch and deteriorated. We suspect that particles can detach and travel airborne. We recommend a complete removal

and replacement of all acoustical material with new, non-fibrous type of material.
Drywall ceilings and bulkheads are generally in good condition except for those areas were water infiltration has occurred due to the failing of roofing membranes, or water run-off from condensation over windows and door frames. We would recommend repairing and re-finishing the damaged ceiling board material and at the same time investigate the condition of the substrates where leaks have occurred to confirm damage.

Acoustic ceiling tiles are generally in fair to poor condition. A number of rooms have transite boards installed as an acoustical material. Worst cases relate to a number of locations where material has been damaged by water leaks. To a certain extent it is reasonable to assume that suspended ceiling grids may still be functional and adequate for future use, however tiles are generally old and deteriorated and due for a complete replacement.

We note that as identified by Pinchin's Designated Substance Survey Report some of the existing acoustic ceiling tiles (including transite boards) were found to contain hazardous material.

Doors and Door Hardware

Doors are typically a combination of wood core construction with laminate finish (either wood or plastic) or hollow metal. Doors in corridors, storage rooms, mechanical and electrical rooms are typically hollow metal and show wear consistent with their age and use. Doors are set in steel frames which are generally in good condition. For the most part door hardware is old and non-homogeneous but generally functional. We would anticipate that a small percentage of doors including door hardware will require refurbishment.

Cabinetry and built-in Millwork

Except for a small number of cases, millwork in public areas is generally in fair condition and in acceptable working order. The older millwork however, as related to back of house, dressing rooms, etc. shows more damage and wear due to age and prolonged use. We would recommend carrying an allowance for the replacement of all cabinetry and built-in millwork (which we anticipate will be progressively required) within one to ten years' time.

O.B.C. and Fire-Life Safety

This section summarizes the approach for application of Part 3 of the 2015 Ontario Building Code (OBC) in terms of the life safety and fire protection requirements that may have significant design and cost implications for the buildings. It is not intended that this section identifies all applicable requirements of the Code and is limited to the content herein. Technical Code references hereafter are based on Part 3 and Part 11 of Division B, of the 2015 OBC, unless otherwise stated. When renovations are contemplated at these buildings, the specific scope of work should be assessed to confirm exactly what improvements are required to satisfy the authorities having jurisdiction as part of a building permit application.

Considerations within Part 11 of the Ontario Building Code (renovations).
Part 11 applies to basic renovations of existing buildings and provides a practical, flexible approach to ensure that life safety systems and building performance are maintained during the conversion and re-use of such buildings. Where existing interior walls, ceilings floor assemblies or

roof assemblies are substantially removed and/or replaced the renovation would typically be considered extensive and work shall be in compliance with other Parts of the code, i.e. Part 3 (work related to new construction) where requirements are typically more stringent.

A compliance alternative (CA) may be substituted for a requirement contained in other parts of the code (i.e. Part 3) where the chief building official is satisfied that compliance with the requirement is impractical because of structural or construction difficulties or it is detrimental to the preservation of a heritage building.

In general terms Part 11 requires that the performance level of buildings after any renovation must be equal to, or better than, the performance level before the renovations. Where the performance level of an existing building is reduced additional upgrading shall be required so that the performance level is increased accordingly. Typically, a change in Major Occupancy or increase in Occupant Load would be considered a reduction in performance level and as a result compensating construction would be required.

Section 11.4 of the code addresses the Performance Level evaluation and required compensating construction.

The following observations are based upon Part 3 of the OBC and assess the building's compliance if built "new". The following observations do not need to be retroactively applied and do not require immediate action unless otherwise noted. When extensive renovations are contemplated at these buildings the specific scope of work should be assessed to confirm what improvements are required to satisfy the authorities having jurisdiction as part of a building permit application including any Heritage requirement through the development of a Heritage Impact Assessment Study.

3.1 GENERAL

3.1.2.1 – Classification of Building
Major Occupancy Classification: Group A, Division 1, Assembly occupancies intended for the production and viewing of performing arts. It is anticipated that the existing major occupancy and use of the building will not change as a result of future renovations.

3.1.17.1 - Occupant Load Calculation:
Occupant Load is based on the combined, full seating capacity of the two theatres. Building services, storage rooms, washrooms, etc. are assumed to be ancillary spaces to the primary program spaces and do not contribute to the overall occupant load.

BLUMA APPEL THEATRE	Load
Theatre Seating (at full capacity)	876 (rounded to 880)
JANE MALLETT THEATRE	Load
Theatre Seating (at full capacity)	497 (rounded to 500)
Total number of persons:	1,373 (Rounded to 1,380)

3.2 BUILDING FIRE SAFETY

3.2.2 Building Size and Construction Relative to Occupancy

3.2.2.20 – Group A, Division 1, Any Area, Sprinklered.

The building shall be of non-combustible construction. Floor assemblies shall be fire separations with a fire resistance rating not less than 2 hours. The building shall be sprinklered. Mezzanines shall have a fire resistance rating not less than 1 hour. Load-bearing walls, columns, arches etc. should have a fire resistance rating not less than the rating of the floors.

NON COMPLIANT – In regards to sprinkler's coverage. Currently the Bluma Appel Theatre is not provided with sprinklers as well as several (concealed or unfinished) areas in the basement.

The building gross floor area is broken down as follows:
(Areas are approximate)

Basement Level:	2,800 m2
Ground Floor Level:	3,050 m2
Second Floor Level:	1,680 m2
Mezzanine(s):	280 m2
Total GFA:	7,810 m2

3.2.3.1 - Spatial Separation and Exposure Protection:
The area of existing unprotected openings in the exposing building faces is within the maximum allowable percentages based on the existing limiting distances. No specific requirements apply for spatial separation and exposure protection, including construction of cladding material. COMPLIANT

3.2.4.1and 3.2.8.8 - Fire Alarm and Detection System:
Fire alarm and detection system is required as the total combined occupant load is more than 300 and building contains interconnected floor spaces. Fire alarm and detection system is provided. Emergency Lighting is required and provided. Refer to Electrical section(s).

3.2.8.2. (6) – Mezzanines and Openings through Floor Assemblies:
The openings around the main public stairs, between the first and second floor, create an interconnected floor space. This is permitted for a Group A, Div. 1 building as the existing interconnected floor space only consists of first and storey above the first, and the interconnected floor space is sprinklered. COMPLIANT

3.2.9 Standpipe system:
REQUIRE FURTHER REVIEW TO CONFIRM REQUIREMENTS

3.3 SAFETY WITHIN FLOOR AREAS

3.3.1.9 - Width of public corridors:
Minimum width of public corridors shall be 1,100 mm - COMPLIANT

3.3.1.9 (8) – Dead end Corridors:
A dead end corridor is permitted in an Assembly Occupancy where there is a second and separate egress doorway from each room or suite not leading into a dead end corridor.

NON COMPLIANT in regards to the dead-end corridor serving the Jane Mallett dressing rooms in the basement, and the dead-end corridor serving the public washrooms located on the north side of the Jane Mallett theatre. We were not able to determine if the corridor's door in this location (typically locked) is provided with a magnetic lock connected to fire alarm system.

3.3.1.10 – Door Swing:
Doors shall swing in the direction of travel to the exit if the room or suite is intended for an occupant load more than 60. If a pair of doors is installed in a corridor that provides access to exit in both directions, the doors shall swing in opposite directions, with the door on the right end side swinging in the direction of travel to the exit. GENERALLY COMPLIANT

3.3.1.12 – Door and Door Hardware:
In acceptable working condition. GENERALLY COMPLIANT

3.3.1.17 – Guards:
Minimum required height of guards is 1,070mm. COMPLIANT

3.3.1.20 - Service (Janitorial) Rooms:
Require fire separation w/1 hr. fire resistance rating. COMPLIANT

3.3.2 Assembly Occupancy

3.3.2.2 – Fire Separations:
The seating area of a of a Group A, Div. 1 occupancy shall be separated from adjacent occupancies in the floor area by a fire separation having a fire resistance rating not less than 1hr. if the occupant load in the seating area exceeds 200. GENERALLY COMPLIANT

3.3.2.3 – Fixed Seats:
Fixed seats shall be arranged in rows having an unobstructed passage not less than 400mm.
Fixed seats shall be arranged so that there are no more than seven seats between any seat and the nearest aisle, where the seats are served by a single aisle, and there are no more than 20 seats between any seat and the nearest aisle where the seats are served by two aisles. Each row has an unobstructed passage with min. width of 400mm plus 6.1mm for each additional seat above 16 in the row and, the travel distance is not more than 45mt. measured along the path of travel from any seat to an exit or to an egress doorway.

NON COMPLIANT - REQUIRE FURTHER REVIEW in regards to the Bluma Appel theatre seats where the spacing between seats is generally less than 400mm. Require further review to confirm if existing non-conforming condition can be grandfathered.

3.3.2.4 – Aisles:
Minimum width not less than 1,100mm, or 900mm if serving seats on one side only or, 750mm if serving no more than 60 seats plus 25mm for each metre of length of the aisle measured in the directions towards the exit. (There are exceptions, see (11). Dead-end aisles shall be not more than 6mt long (There are exceptions, see (13). Maximum travel distance to any point in an aisle to an exit is 45mt Maximum height of riser is 200mm. Minimum height is 110mm Minimum tread depth is 250mm.

NON COMPLIANT - REQUIRE FURTHER REVIEW in regards to the Jane Mallett Theatre where aisle/step configuration has inconsistent tread modules. Require further review to confirm if existing non-conforming condition can be grandfathered. Balcony of Bluma Appel Theatre is designed as “continental” type of seating. New aisles should be considered for improved circulation however this will reduce total seat count.

3.3.2.8 – Guards:
Minimum height of guard is 760mm. in front of seats, 920mm. at the end of aisles or foot of steps

or, 600mm. along every cross-aisle. Openings in guards not to exceed 300mm.

NON COMPLIANT in regards to the guard's height in the Jane Mallett theatres which is typically 690mm.

3.3.2.12 – Stages:
1hr fire separation required from stage to seating area or, sprinklered deluge system or, fire curtain (semi-rigid if stage proscenium opening is more than 20mt across). Minimum 2 automatic smoke vents above stage with actuation from sprinkler system. Aggregate area of smoke vents not less than 1/8 of stage area. (Only required for the Bluma Appell Theatre). GENERALLY COMPLIANT

3.4 EXITS

3.4.2.1 – Minimum Number of Exits:
Minimum 2 exits required for every floor area. Every exit shall be separated from the remainder of the building by a fire separation having a minimum 45min. fire resistance rating – 2HR in the case of this facility. GENERALLY COMPLIANT

3.4.2.2 – Mezzanine Exiting:
Minimum 2 exits required if area exceed 200 m2 or, occupant load is more than 60 or, travel distance is more than 25mt.

REQUIRE FURTHER REVIEW to confirm if existing ship ladders can be considered acceptable exits and if existing conditions can be grandfathered.

3.4.2.4. and 3.4.2.5 – Travel Distance and Locations of Exits:
45mt. required in a floor area containing an assembly occupancy provided it is sprinklered. GENERALLY COMPLIANT

3.4.3.2 – Exit Width:

Bluma Appel Theatre	Load	Req.d Width*	Provided
2nd Floor – exit from theatre	345	2,105mm	2,742mm (3 doors)**
2nd Floor – exit from floor area	345	2,105mm	3,328mm (1 stair, 1 door)
Ground Floor - Exit from theatre	535	3,264mm	5,484mm (6 doors)
Ground Floor - Exit from building	880	5,368mm	6,398mm (7 doors)

Jane Mallett Theatre	Load	Req.d Width*	Provided
2nd Floor – exit from theatre	224	1,366mm	2,742mm (3 doors)
2nd Floor – exit from floor area	224	1,366mm	1,500mm (1 stair)***
Ground Floor - exit from theatre	276	1,684mm	3,656mm (4 doors)
Ground Floor - exit from building	500	3,050mm	3,656mm (4 doors)

TOTAL CUMULATIVE	Load	Req.d Width*	Provided
2nd floor (both Theatres)	569	3,471mm	4,828mm (2 stairs, 2 doors)
Ground Floor (includes 2nd floor)	1,380	8,418mm	9,140mm (10 doors)

* (calculated as 6.1mm x person)
** (calculated as per 914mm per one single door)
*** (calculated as per 1,500mm per one single stair)

3.4.4 – Fire Separations of exits:

3.4.4.1 – Fire Resistance Rating of Fire Separations:
Every exit shall be separated from the remainder of the building by a fire separation having a fire-resistance rating not less than the one required by subsection 3.2.2 (2 hr. in the case of this facility). GENERALLY COMPLIANT

3.4.4.2 – Exit through Lobbies:
Not more than one exit from a floor area is permitted to lead through a lobby.

REQUIRE ADDITIONAL REVIEW to review exceptions to the above requirement, and to confirm if existing conditions can be considered acceptable and grandfathered.

3.4.5 – Exit Signs (see electrical)

3.4.6 - Types of Exit Facilities

3.4.6.5 – Handrails:
A stairway shall have a handrail on at least one side, and if 1,100mm or more in width shall have handrails on both sides. At least one handrail shall extend horizontally at the required height not less than 300mm at top and bottom risers.

NON COMPLIANT in regards to the majority of handrails (except for handrails installed at the 2 stairs in the main public lobbies). Handrails exceeds the maximum size (diameter of graspable profile) and do not have the required horizontal extension at top/bottom of stair. Require further review to confirm compliance alternatives or to confirm if existing non-compliant condition can be grandfathered.

3.4.6.6 – Guards:
Height of guards shall be not less than 920mm above stairs and 1070mm around landings. COMPLIANT

3.4.6.8 – Treads and Risers:
Shall have a run not less than 225mm and not more than 355mm, shall have a rise not less than 125mm and not more than 200mm. GENERALLY COMPLIANT

3.4.6.13 – Self Closing Devices:
An exit door shall be provided with a self-closing mechanism. GENERALLY COMPLIANT

3.6 SERVICE FACILITIES

3.6.2.1 - Rooms w/fuel-fired appliances:
Require A fire separation with a minimum of 1 hr. fire resistance rating. COMPLIANT

3.7 HEALTH REQUIREMENTS:

This building is required to have at least one barrier-free entrance and barrier-free path of travel for the main ground floor level. Exterior walks will have to be designed as barrier free path of travel if serving the barrier free entrance.

3.7.4 Water Closet Fixture Calculation:

With respect to the proportion between each sex, the code prescribes the load being equally divided between male and female, unless the proportion of each sex expected in the building can be determined with reasonable accuracy.

Fixture calculation is based on OBC Section 3.7.4.3. (1) (Table A) for Assembly Occupancies.

Bluma Appel Theatre:	Total Load	Required	Provided	
Male	440	7	18	
Female	440	13	17	
Total	880	20	35	COMPLIANT

Jane Mallett Theatre:	Total Load	Required	Provided	
Male	250	5	6	
Female	250	9	7	
Total	500	14	13	NON COMPLIANT (*)

TOTAL CUMULATIVE	Total Load	Required	Provided	
Male	690	9	24	
Female	690	16	24	
Total	1,380	27	48	COMPLIANT

(*) COMPLIANT if based on the total cumulative number of washrooms available for public use considering the redundancy in the number of washrooms for the Bluma Appel Theatre.

STRUCTURAL

The majority of the structure appears to be in good condition, owing largely to the fact that reinforced concrete is fairly robust and is able to sustain a significant amount of water exposure. Having said that, a comprehensive review of the underside of every roof is recommended in order to confirm that no lasting structural deterioration has resulted from the ongoing water ingress.

Exterior

The following general conditions were noted around the exterior of the building:

- Structurally insignificant spalling was noted on all wall faces, including clerestory walls and curbs;
- Thermal expansion and shrinkage cracking was noted on all faces of the building, especially on the south-facing wall on the alley at the rear of the building;
- Staining was visible on the walls immediately below the scuppers, indicating that the roof drainage systems are not performing as required, and that the walls are being repeatedly saturated immediately below the scuppers;
- Concrete columns on the north elevation are beginning to deteriorate at grade, likely due to the application of de-icing salts and other chemicals;
- Cladding installed between the building to the east and the SLCA has served to trap water and direct it against the front and sidewalls, resulting in elevated levels of saturation; and
- The previously noted infill between SLCA and the neighbouring building to the east is failing and is no longer secured.

Interior

The following general conditions were noted throughout the interior of the building:

- Several cracks were noted in concrete and concrete block walls, and, where not listed in the "Significant Issues/Deficiencies" section of this report, are deemed to be structurally not significant;
- Floors are in good condition, and are free of structurally significant cracks where visible;
- Walls are in good condition, and are free of structurally significant cracks;
- Roof structures are in varying states of repair, with several areas showing signs of structurally significant deterioration;
- Interstitial spaces and access ramps are generally in good repair; however, many of the access ramps are not provided with adequate factors of safety for regular use;
- Drainage of mechanical units in all areas of the building is not adequately directed to floor drains, resulting in uncontrolled interior moisture sources that are likely contributing to the saturation of floors and wall in limited areas;
- Interior load-bearing concrete block walls are generally in good condition, with signs of vertical expansion cracks at the interface with concrete walls; and
- Ongoing water ingress has compromised many of the interior finishes, and it is possible that the structure behind these finishes has been compromised as a result.

MECHANICAL SYSTEMS

Air Handling Units

ASHRAE HVAC Applications lists Service Life Estimates for internal components of Air Handling Units at 20 years for the majority of components.

Air Handling Unit S1 is approximately 15 years old and appears to be in good condition. The unit appears to be in a good state of repair and is likely to have been well maintained over the course of its service life. As the unit was in operation at the time of inspection, it was not possible to undertake a detailed inspection of the unit's internal components; however, areas served by this unit were supplied with cooled air as expected. With proper maintenance, the internal components of this air handling unit should reach their expected service life. 3-way valve actuators and damper actuators were replaced circa 2015 and are expected to outlast internal components of the unit. Insulation was removed from the chilled water pipe serving the cooling coil of S1, resulting in the formation of significant volume of condensation forming on the pipe and dripping onto other components and the floor. Continued condensation will prematurely age piping and will damage components not designed for wet-service. Exposed piping is leading to equipment damage and energy loss. Therefore, insulation should be replaced promptly for both maintenance and energy consumption cost savings.

The nameplate of air handling unit S2 was not accessible at the time of the site inspection, however, the unit appears to be approximately 30 years old. The condition of the unit was found to be commensurate with its age, but as it is beyond the expected 20 year service life, plans for replacement of aged components should be made. The fan belt on R-2 is currently unguarded,

presenting a significant hazard to occupants in the space. Proper guarding should be added to ensure personnel are not injured.

Air handling unit S3 is approximately 20 years old. At the time of the inspection the unit was in a good state of repair for its age, but as it has reached the expected 20 year service life, plans for replacement of aged components should be made.

Air handling unit S4 is approximately 17 years old. As the unit was in operation, internal components were not inspected at the time of the site visit. The condition of the unit appears to be better than would be expected for its age, but as it is approaching the expected 20 year service life, internal components should be regularly inspected and plans should be made for proactive replacement. The unit's 3-way valve actuators and damper actuators were replaced circa 2015 and are expected to outlast the internal components of the unit. Insulation appears to be in good condition for its age.

Air handling unit S5 is approximately 17 years old. As the unit was in operation, internal components were not inspected. The unit appears to be in a good condition for its age, but as it is approaching the expected 20 year service life, internal components should be regularly inspected and plans should be made for proactive replacement. The unit's 3-way valve actuators and damper actuators were replaced circa 2015 and are expected to outlast the internal components of the unit. Insulation appears to be in good condition for its age. One section of duct insulation on the underside of the supply air duct was loose at the time of inspection and should be rectified to ensure continued efficient operation of the equipment.

Insulation

Insulation was generally found in a good state of repair for its age, with the exceptions noted. ASHRAE HVAC Applications lists the expected service life of insulation at 24 years. Since the majority of the insulation on ductwork and piping is approaching, or has already exceeded the expected service life of the material, planning should be undertaken to ensure that proactive replacement of insulation. All proper precautions should be taken in areas with asbestos as this represents a significant hazard to human health if incorrectly handled or removed.

Steam Heat Exchangers

The Steam Heat Exchangers, C-1, C-2, C-3, and C-4 were found to be in a condition that is consistent with their vintage. These units are approximately 11 years old and are listed in ASHRAE HVAC Applications as having a projected service life of 20 years. With continued maintenance as per manufacturer's instructions, the units are expected to reach their service life. Insulation on C-2 exhibits signs of deterioration and is in relatively poor condition. One section of insulation has been partially removed. This will lead to increased heat loss from the system. Proper insulation should be installed and all exposed pipe should be completely insulated for safety and energy conservation reasons.

Domestic Hot Water Tanks

Domestic hot water tanks appear to be approximately 5 years old and are in good condition. With reference to ASHRAE HVAC Applications, these units have an expected service life of 21 years. With proper and ongoing maintenance it is anticipated that these units reach their expected service life.

Chiller

The York chiller is approximately 10 years old and was found to be in a condition that is commensurate with its age. ASHRAE HVAC Applications lists 25 years as the expected service life for centrifugal packaged chillers. With proper and ongoing maintenance according to the manufacturer's specifications, this equipment is expected to reach its projected service life.

Site staff indicated that the cooling tower controls were being maintained in manual mode leading to higher condenser supply water temperatures. Operating outside of design parameters can lead to additional wear on equipment reducing service life. It is recommended that the unit be returned to automatic mode so that it functions according to its controls sequence. If required, an audit on the existing controls sequences and infrastructure should be undertaken to ensure that the building's systems are operating in the most efficient manner possible.

Condenser Water Treatment

The condenser loop water treatment controller is showing a high conductivity alarm (2452 µS). The scale and corrosion inhibitor chemical drum was found to be empty at the time of inspection and it is likely that it has been so for a prolonged period of time. The scale and corrosion inhibitor should be restocked promptly to prevent undue scale build-up and corrosion. Additionally, investigation of cooling tower spray nozzles should be undertaken to determine if cleaning is required to maintain full cooling tower operation. Any scale deposition will decrease the service life of equipment on the condenser water loop as well as having a negative impact on performance.

Cooling Tower

The Marley cooling tower is approximately 6 years old, and according to ASHRAE HVAC Applications, has a projected service life of 22 years. With proper maintenance, the cooling tower is expected to reach its service life.

As aforementioned, on-site staff indicated that the cooling tower is being operated manually through adjustment to the variable speed drive. This can lead to inconsistent condenser water temperatures, which directly impacts chiller operation, energy consumption, and service life. Additionally, the service life of the cooling tower may be negatively impacted.

Furthermore, the condenser water treatment controller indicated that conductivity of the condenser water is at alarm levels. High levels of scale, over time, will reduce the effectiveness of the cooling tower both reducing service life and increasing equipment energy consumption. Cleaning of spray nozzles may be required following the resolution of the high conductivity alarm.

Circulation Pumps

ASHRAE HVAC Applications lists the service life of base mounted pumps at 20 years and pipe-mounted pumps at 10 years. The projected service life of electric motors is at 18 years.

The majority of circulation pump drives that are found in the facility are approximately 10 years old and are in better condition than would be expected for its age. With proper maintenance, pump drives are expected to reach their service life.

Circulation pumps in the building range in age from approximately 10 to 20 years old. P-9 is the only pipe-mounted pump and is approximately 5 years old. With proper maintenance, it is anticipated that each of the pumps will reach their expected service life. Planning should be undertaken for proactive replacement of pumps that are approaching their projected service life.

Exhaust Fans

According to ASHRAE HVAC Applications, the service life of ventilating roof-mounted fans is 20 years.

Exhaust fans were generally inaccessible during the investigation. Where fans were mounted above roof level, nameplate information was illegible due to significant weathering to the nameplate. During the investigation, some exhaust fans were found to be operating. Building staff indicated that there were no current complaints relating to exhaust fan operation. Exhaust fan ages were estimated to be near or beyond their expected service life but appear to have been regularly maintained. Planning for proactive replacement of that should be undertaken to ensure that the exhaust requirements are satisfied as the performance of the units diminish with time.

Fin-tube Radiators

Hot water fin tube radiators are listed in ASHRAE HVAC Applications with a service life of 25 years. The condition of fin tube radiators was generally as would be expected with some isolated units in storage areas in poor condition. Fin tube radiators have generally reached or exceeded their service life; therefore, planning for proactive replacement should be undertaken.

Forced Flow Heaters

Hot water forced flow heaters are listed in ASHRAE HVAC Applications with a service life of 25 years. The forced flow heaters in the building were generally found to be in fair to good condition for their age. The majority of the units, however, has reached or exceeded their service life, so planning for proactive replacement should be undertaken.

Unit Heaters

Hydronic unit heaters located in the loading areas of the facility do not have accessible name plates. These units appear to be approximately 30 years old, and as such, have significantly exceeded their service life. ASHRAE HVAC Applications lists a 20 year service life for hot-water unit heaters and, accordingly, it is recommended that replacement of the units should be considered.

Baseboard Heaters

Baseboard heaters in storage areas of the building appeared to be over 30 years old. Some units were exhibiting signs of wear and tear. The units were in poor to fair condition. ASHRAE HVAC Applications lists a 25 year service life for hot-water radiant heaters. As these units have surpassed their service life, plans should be made to monitor performance and replace units as necessary.

Utility Water Meter

The municipal utility water meter appears to be recently serviced. Insulation on the meter and associated piping appears to be new and in very good condition.

Plumbing Fixtures

While all fixtures observed were in working condition, it was noted that fixtures may be reaching the end of their expected service lives. As fixtures are replaced, consideration should be made to incorporate modern low-flow fixtures. It is recommended that proactive planning for the replacement of plumbing fixtures be undertaken. An investigation into the costs and benefits of reduced flow should be included in the planning to determine the value of replacement prior to fixture failure.

Sanitary Drainage

No obvious signs of damage or degradation were observed. All drains appeared to be in working condition. Drains in the Main Mechanical Room near areas of condensation drips (previously described) were observed to drain unimpededly. P-traps appeared primed and in working condition as no sewer-gas odours were detected. Sanitary vents located on accessed roof levels were unobstructed and showed no signs of damage.

Storm Water Drainage

Storm water drains on accessed roof levels were in good repair. Roof drain covers showed no signs of damage. No water pooling was observed during the site visit. One storm drain cover was modified to accept a cooling tower drain on the western side of the cooling tower, but no impediment to water flow was observed.

Sprinkler System

Sprinkler heads in the lobby areas appeared to be in good condition. No obvious signs of damage or wear were observed. The main sprinkler valves appeared to be in fair condition. Some of the sprinkler system valves were recently replaced. Other main valves appear to be original. At the time of the inspection it was noted that, currently, no sprinkler system is installed in

either the Bluma Appel Theatre or a relatively large area of the Basement. Installation of a functioning sprinkler system in these two areas should be considered to ensure that the entire building has a functioning fire suppression system that is in line with Building Code requirements.

ELECTRICAL SYSTEMS

Main Incoming Service

The incoming service from the utility utilizes a collector-bus arrangement (see PHOTO 1) whereby the incoming conductors are terminated at busswork outside of the main switchgear and is located on the basement level of the building in Room B-006.

The split-service main switchboard is rated (for each side) at 2500amp. 208/120volt, 3phase, 4wire with a 70kAIC buss rating and has an integral utility metering compartment. There are "UNELEC" air circuit breakers (ACB) to service a Refrigeration Compressor (1600A-3P), Distribution Panel #DP.1 (1600A-3P), Distribution Panel #DP.2 (500A-3P), Distribution Panel #DP.3 (600A-3P), and a 600kva booster transformer (2000A-3P) for stage lighting (see PHOTO 2). This installation appears to date from a 1968 installation based on existing archived drawings reviewed as part of this Assessment.

In addition there is another Distribution Panel labelled "Dimmer Room Distribution Panel #4" located in a satellite electrical room B-007 adjacent to main electrical room that appears to be the same vintage as the main distribution but does not appear on the electrical distribution diagram drawing (see PHOTO 3).

The main distribution system equipment has served well beyond its anticipated service life and lead time for some of the replacement could be a minimum of 4-6weeks should there be a failure. Aging components may also compromise the protection characteristics and safety of the distribution equipment and therefore replacement of the entire head-end distribution equipment is recommended, including the 600kva-rated booster transformer. It should be noted that this replacement scope of work is a significant undertaking and would require a building-wide extended power shutdown to disconnect and remove existing equipment and install and connect new equipment. Equipment delivery is anticipated to be 12-16weeks after approval of shop drawings.

In terms of capacity, each 2500amp switchboard buss systems can carry approximately 720kw (or 651kva @ 90% power factor rating per latest billing). Based on a peak load of 316kw (349.2kva) experienced in May 2016, the building does not appear to be suffering from a lack of available load capacity.

It was not possible to examine the condition of the existing wiring extending from the Distribution Panels to the branch distribution systems connections to devices as most of these are installed in conduit except for what seems to be a relatively recent installation of Corflex conductors (see PHOTO 4) which appear to be in very good condition and properly terminated to the main switchboard in a non-ferric plate as required by Code. However, the expected 25-30year lifespan for the other existing conductors has been exceeded and wiring systems should be replaced during any renovation work being undertaken. This is particularly important as the integrity of conductor insulation is of concern for older wiring systems that have experienced high-load use such as theatrical lighting and refrigeration systems.

Branch Power Distribution Systems

The Distribution Panels service branch panelboards located throughout the building along with Motor Control Centres (MCCs) for mechanical equipment and feed lighting and receptacle loads (see PHOTO 5 and PHOTO 6). There are multiple panels on each of the theatre area floor levels. The majority of the panels seem to be in fair condition but new circuit breakers for some of the older panels are becoming difficult to locate and replacement breakers may not be available in the near future. Most of these panels, and particularly their circuit breakers, have exceeded their expected life span and should be replaced.

Branch wiring throughout the building is typically achieved using EMT conduit as a raceway although use of armoured (BX) cable was found in several locations. This is not prohibited in commercial applications but normally only used behind walls or above ceilings where it is concealed and less likely to encounter mechanical damage. In exposed applications wiring inside EMT conduit is the typical method of installation.

It was not possible to examine the condition of the existing wiring or connections to devices. However, the expected 25-30year lifespan for the conductors has been exceeded and wiring systems should be replaced during any renovation work being undertaken. This is particularly important as the integrity of conductor insulation is of concern for older wiring systems that have experienced high-load use such as kitchen equipment loads.

Stage Power Distribution Systems

The theatre stage areas make use of several electrical distribution connection points including panelboards, disconnect switches, patch panels with cords, and extension cords (see PHOTO 7, PHOTO 8, and PHOTO 9) which are typical method of power distribution for theatrical venues. The majority of the panels and distribution equipment seems to be in fair condition but new circuit breakers for some of the older panels are becoming difficult to locate and replacement breakers may not be available in the near future. Most of these panels, and particularly their circuit breakers, have exceeded their expected life span and should be replaced.

Wiring in this area consists of some EMT conduit, armoured (BX) cabling, and a series of other flexible cables and series of extension cords, some of which were found running or sitting on the floor adjacent to doorways where they can create a trip hazard due to the lower level of illumination in these areas.

It was not possible to examine the condition of the existing wiring or connections to devices. However, the expected 25-30year lifespan for some of these conductors has been exceeded and wiring systems should be replaced during any renovation work being undertaken. This is particularly important as the integrity of conductor insulation is of concern for older wiring systems that have experienced high-load use such as theatrical equipment and lighting loads. Of particular concern is the use of extension cords and temporary cabling integrity which can create a shock or fire hazard. The wiring system in the stage areas should be replaced with a system implemented based on the end-users' input and professional requirements while meeting Code and best practices in terms of engineering design and installation.

Interior Lighting

The Lobby areas make use of a combination of recessed downlights and some track-mounted fixtures while the upper atrium area utilizes surface-mounted light cylinders. Service rooms are illumination with traditional fluorescent strip lights or batwing reflector units, and the service corridors are equipped with wrap-around fluorescent fixtures. Fluorescent luminaires have been

upgraded from the original installation to T8 lamp sources.

Generally, the illumination quality is poor and luminaires throughout the building are in poor condition and have exceeded life expectancy (see PHOTO 10, PHOTO 11, PHOTO 12, and PHOTO 13). Many luminaire diffusers and covers are either damaged or removed.

This building has an assembly occupancy and falls under other aspects of the Ontario Building Code (OBC) with mandatory minimum illumination levels for exit corridors, stairwells, service rooms, bathrooms, and food preparation areas which are not met with the existing illumination systems. The following is a summary of typical illumination levels measured during the visit:

(1) Main Electrical Room = 9.5 foot candles (fc) @ floor (30 fc required by OBC)
(2) Basement Mechanical Room = 8.2 fc @ floor (30 fc required by OBC)
(3) Corridors = 6.3 fc @ floor (10 fc required by OBC)
(4) Theatre Stairwell (blue) = 2.5 fc @ tread/landing (10 fc required by OBC)
(5) Kitchen = 8.9 fc @ counter (50 fc required by OBC)

There do not appear to be any existing luminaires of historical importance and if any are identified they can be examined for refurbishment. Otherwise, the systematic replacement of the existing luminaires is recommended using LED lamping technology to achieve a better quality and more efficient lighting installation while providing minimum Code-required illumination levels.

Emergency Lighting System

The building is not equipped with an emergency generator. Emergency lighting is comprised of battery units, remote light heads, and combination exit sign / emergency battery units (see PHOTO 14 and PHOTO 15). Some of the units did not seem operational while others appear to be relatively recent additions or replacements. Locations and spacing for the overall system did not appear to be sufficient to provide the minimum Code required levels of illumination along paths of egress including exits and stairwells. Quantity and locations for exit signage would not meet present-day wayfinding requirements. It was noted that one of the combination exit signs with integrated emergency battery lighting component had the text template upside down although interestingly still legible as an EXIT.

The OBC now requires that exit signage be the green pictogram (running man) style. It is recommended that the emergency lighting system throughout the facility be replaced with a system to meet OBC requirements for exit signage type, illumination levels, and with exit signage quantities and location for proper wayfinding to exits based on a Path of Egress floorplan drawing in conjunction with Building Code requirements.

An option to consider for this facility is the use of inverter systems that provide line-voltage power with battery backup in case of loss of normal power (a UPS). This would allow the use of regular luminaires as emergency lighting rather than replacing the existing battery system for another which requires monthly testing by Code. With inverter systems, there are fewer locations to attend to for testing and they also can be provided with auto-test functions to facilitate the process. New distribution and wiring would need to be added to implement this installation, however, this would be offset to some extent by not needing to run additional AC and DC wiring for new battery units to supplement locations that are insufficiently covered. It may be that some locations maintain battery unit backup for safety or redundancy if desired.

Fire Alarm System

The building is sprinklered and is equipped with an “Edwards” Custom-6500 series fire alarm control panel located in the Basement Level main electrical room (see PHOTO 16 and PHOTO 17). The manufacturer no longer supports this fire alarm panel and new components do not exist. The use of refurbished parts is not allowed. During the visit it was noticed that components for a new fire alarm control panel by “Mircom” FX2000-series system were on site (see PHOTO 18) and we understand that the fire alarm panel replacement was scheduled to be executed. This is an intelligent addressable system and the system what we would have recommended.

There are fire detectors (heat and smoke) located throughout the building on each level of various vintages and, in general, spacing between devices in common areas seemed sufficient for coverage. Existing mounting height of pull stations was acceptable at time of installation but do not comply with the required barrier-free height of 1200mmAFF per current Code. The system utilizes fire alarm bells as the signaling appliances, however, spacing and locations do not seem to be sufficient to achieve the required sound levels in all areas. The building is also equipped with electro-magnetic door locks, elevator recall function, automatic fan shutdown, and stage curtain drop upon signal from fire alarm.

The expected lifespan for a fire alarm system and devices is 10-15years and it appears the majority of the devices and wiring have far exceeded their lifespan. The replacement of the fire alarm system (underway), along with new addressable devices and wiring should be considered in the immediate future to properly protect the building occupants.
A fire alarm verification report dated 05 August 2015 executed by FireTronics Inc; Toronto, ON indicates that the system provides both single-stage and two-stage operation which is unusual and should be clarified when the new system is installed. Furthermore, the report indicates that the system is not fully functional and has deficiencies that are to be corrected.

THEATRE SYSTEMS

Refer to Section “D” for the full description of all theatre systems.

C. System Condition Ratings				
System	Good	Fair	Poor	Unknown
• Site/Landscaping/Parking	X			
• Paved Areas, Exterior Walkways and Steps		X		
• Foundations	X			
• Exterior Concrete Walls		X		
• Façade – Concrete Surfaces		X		
• Façade – Windows and Doors			X	
• Façade – Sealants			X	
• Concrete Roof Structure (where visible)		X		X
• Steel Roof Structure (where visible)		X		X
• Flat Roofing Membranes and Flashing			X	
• Clerestories Metal Roofing			X	
• Clerestory Concrete Walls		X		
• Tower Catwalks (structural)	X			
• Steel Balcony Framing (structural)	X			
• Concrete Floors		X		
• Interior Concrete Walls		X		
• Interior Concrete Block Walls	X			
• Interior Stairs	X			
• Interior Finishes			X	
• Air Handling Units	X			
• Mechanical Insulation		X		
• Steam Heat Exchangers		X		
• Domestic Hot Water Tanks	X			
• Chiller		X		
• Condenser Water Treatment			X	
• Cooling Tower		X		
• Circulation Pumps	X			
• Exhaust Fans				X
• Fin-Tube Radiators			X	
• Forced Flow Heaters		X		
• Unit Heaters		X		
• Baseboard Heaters			X	
• Utility Water Meter	X			
• Plumbing Fixtures		X		
• Sanitary Drainage		X		
• Storm Water Drainage	X			X
• Sprinkler System	X			
• Main Electrical Distribution System		X		
• Electrical Branch Distribution System		X		
• Stage Electrical Distribution System		X		

• Interior Lighting			**X**	
• Emergency Lighting System			**X**	
• Fire Alarm System			**X**	
• Main Electrical Distribution System		**X**		
• Electrical Branch Distribution System		**X**		
• Theatre's General Facilities		**X**		
• Performance Equipment & Machinery			**X**	
• Performance Lighting			**X**	
• Performance Sound, Video & Communication			**X**	

D. SIGNIFICANT ISSUES/DEFICIENCIES

ARCHITECTURAL/STRUCTURAL

A.1 **Repairs to damaged paved surfaces at exterior sidewalks and entrances:** The paving structure around the corner of Front St. and Scott St. shows signs of displacement and damage including joints open to the weather. The slate stone paving at the apron along the façade at Front St. show signs of spalling with numerous open mortar joints. We would recommend carrying out necessary repairs to ensure paving structure does not deteriorate to the point of creating a serious hazard to pedestrians and patrons, and to avoid progressive on-going damage to the slate finish material. ***(50% of existing grouted joints in the slate paving will require repair as well as up to 10% of units will require replacement, concrete sidewalk surfaces will require repair)***

A.2 **Investigate existing storm drainage systems:** The water drainage system appears to be not fully functional. The connection to the existing underground storm system needs to be tested as down pipes have clear signs of obstructions. There are indications that the underground system may also be compromised. A budget should be considered for the establishment of an on-going maintenance programme including the cleaning of roof and area drains. ***(establish cash allowance for additional testing and investigations)***

A.3 **Repairs to waterproofing at foundation walls**: Infiltration of water has not yet created major issues in the basement but it is recommended for the long term upkeep of the building that the entire perimeter length of the foundation walls be examined and repaired where the existing waterproofing has failed. ***(establish cash allowance for repairs to existing waterproofing)***

A.4 **Replace existing flat roofing system:** The existing flat roof system is at the end of its useful life. There are many active leaks noted throughout the building which are contributing to the damage observed in other building systems and components such as the concrete deck and wall substrates, finishes, etc. A full, complete replacement including replacement of roof drains, access hatches, flashing and sealants is required as a priority item. We would recommend that the new roof be a fully adhered single-ply membrane roof, white in colour and capable of performing for an extended service life with minimal maintenance.

Specifically, a fully adhered 60 mil PVC membrane type of roofing. There are a number of advantages to this type of roof including; Cool Roof compliance for energy conservation as well as LEEDS certification, the membrane being recyclable at the end of its service life, the roof is easily maintainable, the roof is lightweight decreasing dead load, the roof is constructed by hot air welding the seams and flashing and is not reliant on adhesive that can deteriorate, the roof is subject to manufacturers extended warranty and is capable of performing for an extended period of time, and the roof is constructed without the use of hot asphalt and the associated problems with odor infiltrating the building and environs during construction.

To protect the new roof from the deleterious effects of the residual coal tar pitch, the residual coal tar pitch should be encapsulated with a new peel and stick vapour barrier membrane adhered to the primed roof deck and residual coal tar pitch. The vapour barrier membrane should extend up the inside face of walls and curbs to a height below the height of the roof field membrane termination.

Positive drainage should be created by the installation of sloped poly-isocyanurate insulation installed over a base of flat 1.5" poly-isocyanurate insulation. The insulation should be adhered together and to the new vapour barrier membrane with polyurethane adhesive.

The slope of the insulation should be 2 percent or ¼"/foot. The 2 percent slope is important to create positive drainage to the few roof drains, prevent the accumulation of moss in shaded areas, minimize roof maintenance, and facilitate a long term extended service life of the new roof.

Although the 2 percent slope is achievable on the highest roof area and the upper, open expanses of roof, it will not be possible on all the roof areas including; the roof of the western clerestory, the adjacent lower mechanical roof, and the small roofs with the smoke hatches on the upper elevation. The same is true for the smoke hatch roofs. The slope of the roof is limited by the smoke hatches and will be minimal.

Although it is preferable to replace the roof drains with new, this may not be possible for every drain due to limited access; such as the small roof drains on each smoke hatch roof. In this case the existing drains should be cleaned of coal tar pitch and the posts and clamping ring be replaced with new.

The new roof slope design should include full diamond crickets between the drains, back slope from walls and saddles at curbs. The slope of these should be ½"/ft. It should also include for 4' tapered insulation sumps at the drains.

There is an environmental restriction in the construction of the new vapour barrier over the concrete roof deck and residual coal tar pitch worth noting. The primer used to coat the substrates must be water based and has the minimum application temperature of 7C. This precludes winter or early spring construction. There is also the requirement that manufactured walkways be included for all traffic areas as the roof membrane is slippery when wet. Mechanical roof areas should be completely covered with the walkway material to prevent damage. ***(100% of roofing, flashing, counter flashing, area drains, etc. require replacement)***

A.5 **Replace existing metal roofing system at clerestory:** The existing sloping metal roof system at the two clerestories is at the end of its useful life. There are active leaks noted at the top and bottom of the roofs which are contributing to the damage observed in the wall substrates and finishes. There is also the concern that the existing metal deck and supporting structure may be rusting as a result of the leaks. A full, complete replacement of the roofing including the replacement of the metal paneling around the curbs flashing and sealants is required as a priority item. We would recommend that the new roof be a "batten" type of metal roofing similar in kind to the existing, with the addition of a fully-adhered ice and water shield over the entire extent of the roof area. ***(100% of metal roofing, flashing, counter flashing, etc. require replacement)***

A.6 **Replace windows and exterior doors**: The original windows and doors appear to be in fair to poor condition. The obvious problems are the failing of the insulated glass units which we estimate are at the end of their useful life, the condensation of water over the frames indicating poor thermal performance, the deterioration and wear of all doors, door frames and thresholds at street level due to use and environmental conditions, the deterioration and wear of all sill flashing and sealant resulting in open joints between frames and wall substrates. We recommend replacing frames and glass with new to

match existing in kind (profile and colour) but with much improved thermal performance and characteristics. Also recommended is the replacement of all metal spandrel panels and sealants including the aluminium caps at the top of the wall parapets and curbs. ***(100% of windows and doors, including metal spandrel panels, flashing and sealants will require replacement.)***

A.7 **Replace sealants and flashing:** Sealant at all exterior joints between frames and concrete surfaces is typically old, dry and deteriorated, as well as cap flashing at the top of the wall's parapets and window sills which is found loose and missing in the worst cases, resulting in open joints exposed to weather. A complete replacement of all sealants and flashing is recommended – as a priority work - to avoid continuous and prolonged damage to wall substrates. ***(100% of the joints require re-seal, 20% of walls require cleaning from environmental conditions)***

A.8 **Urgent repairs to interior ceilings, wall and floor finishes as damaged by water infiltration or moisture:** Repairs to interior finishes are necessary where damage from water infiltration has occurred. ***(establish cash allowance for repairs to existing interior finishes)***

A.9 **Work to address existing deficiencies as related to Building Code.** Sprinklers coverage should be extended to include existing un-sprinklered areas in the basement level and the Bluma Appel Theatre. Existing dead-end conditions should be rectified and eliminated. Guards at the Jane Mallett theatre should be replaced with new as the height of the existing is lower than the minimum required by Code. NOTE: additional review by Fire Protection & Building Code Engineers is required to evaluate and confirm compliance alternatives. ***(Refer to Mechanical M10 for additional information and cost, establish a cash allowance for the remainder of this work)***

A.10 **Complete replacement of exterior surfaces at sidewalks and entrances:** Notwithstanding the recommended urgent repairs (see item A1) we anticipate that the slate stone paving at the apron along the façade at Front St. will require a complete replacement within the next 5 to 10 years. This is due to the continuous wear of pedestrian traffic, exposure to de-icing salts and the nature of the softer slate material ***(100% of existing paving will require replacement)***

A.11 **Complete replacement of exterior metal siding and louvres:** It is anticipated that the metal siding and mechanical louvres will require a complete replacement within the next 5 to 10 years. This is due to the proximity to grade of the siding material and indirect exposure to de-icing salts and the age/conditions of the existing metal louvres ***(100% of existing metal siding and louvres will require replacement)***

A.12 **Complete replacement of exterior soffits:** It is anticipated that the metal and stucco soffit material will require a complete replacement within the next 5 to 10 years. This is due to the observed existing conditions and age of the material ***(100% of existing metal and stucco soffit material will require replacement)***

A.13 **Replacement of interior finishes as related to public spaces:** It is anticipated that interior finishes related to public spaces such as vestibules, lobbies, washrooms, theatres, interior public circulation, etc. will require a full replacement within a five years' time. ***(100% of existing finishes in public spaces will require replacement)***

A.14 **Replacement of seats for both theatres:** Given the observed condition is expected that

existing seating (for both theatres) will require a full replacement within a ten years' time ***(100% of existing seating in both theatres will require replacement)***

A.15 **Replacement of interior finishes as related to non-public spaces:** It is anticipated that interior finishes as related to non-public spaces such as offices, staff rooms, staff washrooms, dressing rooms, rehearsal rooms, light/sound control rooms, usher's change rooms, wardrobe/laundry, interior non-public circulation, etc. will require a full replacement within a five years' time. ***(100% of existing finishes in non-public spaces will require replacement)***

A.16 **Replacement of interior finishes as related to "back-of-house" spaces:** It is anticipated that interior finishes as related to "back-of-house" spaces such as mechanical-electrical rooms, storage and janitorial rooms, shop, etc. will require a full replacement within a five years' time. ***(100% of existing finishes in "back-of-house" spaces will require replacement)***

A.17 **Interior Doors and Door Hardware:** For budgeting purposes and given the existing observed conditions we would anticipate that doors and, particularly door hardware, will require substantial refurbishment and/or replacement within one to ten years' time. ***(establish a cash allowance for this work)***

A.18 **Millwork and Built-In Cabinetry:** For budgeting purposes and given the existing observed conditions we would recommend including the cost for the complete replacement of millwork and built-in cabinetry within one to ten years' time. ***(establish a cash allowance for this work)***

STRUCTURAL

S.1 **Water ingress at north mechanical room, accessed through men's room**. This mechanical space houses the signage lighting that faces Front Street. A roof leak has been ongoing for some time, and rust staining is visible on the underside of the roof, walls, and floor. Spalling of the concrete is likely to have resulted in delamination between the concrete and reinforcing steel. Hammer-sounding and concrete repairs are recommended for all areas in this space affected by the water leakage. Water has also been infiltrating the wall elevations facing the corner of Front and Scott Streets.

S.2 **Water ingress around windows and clerestory in 2nd floor lobbies:** Staff report that the walls are painted on a regular basis in an effort to maintain finishes below these windows. Given the significant water ingress at these openings, evidenced further by the staining on the lower sections of walls around the light wells, it is possible that delamination between the concrete and reinforcing has occurred. Hammer-sounding and concrete repairs are recommended for all areas in this space affected by the water leakage. In addition, a roof access door was found to be in poor condition as the sealants around this penetration have failed. Replacement of finishes will be required, and damage to the surrounding primary structure should be reviewed at the same time.

S.3 **Condensation dripping from mechanical units and connections is pooling in mechanical rooms:** Condensate lines and drains should be provided from all mechanical equipment and piping, and maintained in good working order. Once the water accumulation in these areas has been addressed it is recommended that hammer-sounding and concrete repair be completed in all areas where delamination has occurred. Ensure the

underside of the interior floor spaces are also reviewed for possible deterioration.

S.4 **Corridor at east exit stair showing signs of water ingress.** Stepped roof geometry in this exit stair has resulted in multiple locations for roof failure. Staining was noted on the walls and it is likely that the roof structure has sustained damage due to saturation. Hammer-sounding and concrete repairs are recommended for all areas in this space affected by the water leakage.

S.5 **Water ingress through clerestory wall cross from stage manager's room (production rooms above VIP lounge)**: Water ingress through the wall was noted at this transition from one roof level to the next. It is assumed that termination of the flashing is no longer adequately sealed to the face of the wall, and that the water has penetrated through the wall assembly. It is possible that the underlying structure has been compromised. Once the finishes are removed, it is recommended that hammer-sounding and concrete repairs are completed should the underlying structure be affected by the water ingress.

S.6 **Roof of the storage room adjacent to the sound control and projection rooms has been leaking:** A roof leak has been ongoing for some time, and rust staining is visible on the underside of the roof, walls, and floor. Spalling of the concrete is likely to have resulted in delamination between the concrete and reinforcing steel. Hammer-sounding and concrete repairs are recommended for all areas in this space affected by the water leakage. Vertical cracks were noted in the walls, again likely to have resulted from ongoing water ingress and exposure.

S.7 **Unstable wood plank ramps installed in backstage areas behind light slots and associated service areas:** Access between service areas is provided using unsecured wood ramps. In many areas these ramps appear to be narrow, unstable, and not provided with adequate guards. The use of these ramps is not recommended, and a permanent solution should be designed and installed.

S.8 **Several hundred weights are stored on the 3rd level catwalk of the stage tower:** Concentrated load in excess of 10 000 # results from the storage of these weights, and it is not clear that the catwalks are designed for loads this high. It is recommended that the weights are distributed more evenly around the catwalks or that a more detailed analysis of the catwalk is completed to confirm the capacity of the structure to support these loads.

S.9 **Significant water staining on west stage wall in Bluma:** Water staining was noted on the wall immediately to the west of the main Bluma stage, and it was reported that this area of the building is subject to significant leakage. A review of the roof immediately above found that the roof drain is not operating properly and that approximately 4" of standing water was on this roof. Replacement or repair of finishes will be required, and damage to the surrounding primary structure should be reviewed at the same time.

S.10 **Step cracking in concrete block masonry in electrical room (G2) across from the Green Room:** The step cracking follows the mortar joints, indicating it is likely caused by a relatively low level of stress, and is not likely related to building movement. However, it is recommended that this crack be cut out and repaired.

S.11 **Significant water ingress into house manager's office:** Water ingress into the house manager's office and surrounding administrative spaces is of an extremely worrying level. Water was noted standing in light fixtures, presenting a fire hazard. Water found to be

dripping from ceiling finishes and electrical and mechanical access panels. Note that at the time of the review it had not rained in more than one week. The amount of water found in this area of the building, coupled with the very high amount of staining on the walls, leads to the conclusion that some level of structural deterioration is inevitable. It was not possible at the time of the review to determine the extent of the damage. Following a roof replacement, remove all finishes in this area and examine the underlying structure. Hammer-sounding and concrete repairs are recommended for all areas in this space affected by the water leakage.

S.12 **Significant water ingress into front house administrative offices:** Water ingress into the front house and surrounding administrative spaces is of an extremely worrying level. Hoses were found draining into buckets lined with plastic bags. It was not possible at the time of the review to determine the extent of the damage that has likely resulted from this degree of water ingress. Following a roof replacement, remove all finishes in this area and examine the underlying structure. Hammer-sounding and concrete repairs are recommended for all areas in this space affected by the water leakage.

S.13 **Spalling of concrete walls on all exterior elevations:** The majority of the exterior concrete is in good condition. During the review it was noted that localized spalling has occurred, and in some locations limited lengths of reinforcing steel are exposed. Remove all loose concrete in spalled areas, and prepare the subsurface for the application of the appropriate cementitious repair mortars. Additional cutting of patch areas may be required to limit feather-edging of repairs. It is estimated that approximately 50-75 spall locations of one square foot each will require repair.

S.14 **Cracking of concrete walls on all exterior elevations:** The majority of the exterior concrete is in good condition. During the review it was noted that localized cracking has occurred. Cracks more than 3mm (⅛") should be routed and sealed with an appropriate exterior sealant. It is estimated that approximately 1500-2000 linear feet of cracking will require repair. The sealant will likely need reinstating every 5-10 years.

S.15 **Infill construction between the SLCA and the neighbouring building to the east has failed:** A combination of wood framing and steel cladding has been installed at the north and south elevations between the SLCA and the neighbouring building to the east. This has been directing water against the SLCA, and the framing itself is no longer sound. It currently presents a risk to the safety of passersby as it does not appear to be properly anchored. Remove the existing construction and provide a new infill solution that is properly anchored to the building and allows for controlled drainage of these spaces.

MECHANICAL

M.0 **Presence of Asbestos:** Warning signs identified that Asbestos is present in the Main Mechanical Room. Proper precautions and preparation must be made prior to undertaking any work in areas where asbestos is present or suspected.

M.1 **Replacement of missing mechanical insulation on the Chilled Water Piping for AHU S1:** Insulation removed from chilled water piping supplying the cooling coil in air handling unit S1 is causing significant condensation to form on the exposed piping. Condensation is then dripping onto equipment and the floor below. Equipment exposed to dripping condensation will quickly deteriorate. This insulation, and any exposed insulation

damaged by condensation, should be replaced promptly. Equipment components damaged by exposure to dripping condensation should be replaced.

M.2 **Installation of guarding on belt R-2:** Guarding for the belt of R-2 should be installed.

M.3 **Insulation of Mechanical Ductwork:** Insulation on the supply air duct leaving air handling unit S5 should be repaired.

M.4 **Proactive Replacement of Air Handling Units:** Air handling units S2, S3, S4, and S5 are near or have reached their expected service life. Planning should be done for proactive maintenance and replacement of aged equipment to ensure uninterrupted equipment operation.

M.5 **Replacement of Hydronic (steam) Insulation:** Insulation on steam heat exchanger C-2 should be repaired and replaced where required. Exposed piping is a potential safety risk and leads to ongoing energy loss increasing the energy cost burden of the facility.

M.6 **Cleaning of the Condenser Water Treatment:** Condenser water chemical treatment is showing a high conductivity alarm. The cause of the alarm should be investigated and remedied promptly to ensure that equipment service life is not impacted. The cooling tower spray nozzles should be investigated to verify that no scale deposits have formed. Any scaling of spray nozzles will significantly impact the performance of the cooling tower.

M.7 **Deferred Maintenance of the Cooling Tower:** Maintenance issues leading to manual mode operation of the cooling tower should be promptly resolved to ensure that no undue wear is imposed on cooling equipment.

M.8 **Proactive Replacement of Mechanical Equipment:** Much of the equipment in the facility is in good or fair condition for its age, however, the majority of the major air-side HVAC equipment is at or approaching its service life. Planning should be undertaken for proactive maintenance and replacement to ensure no interruptions of service are caused by equipment failure.

M.9 **Replacement of guarding on Air Compressor:** Guarding on the air compressor has been removed and is sitting next to the unit. This guarding should be re-installed to prevent possible injuries.

M.10 **Installation of a sprinkler based fire suppression system:** A sprinkler system should be installed in the Bluma Appel Theatre as well as in the unfinished areas of the basement.

M.11 **Replacement of Baseboard Heaters & Fin Tube Radiators:** A small number of baseboard heaters & fin tube radiators within the building were found to be relatively poor condition. It is recommended that these units are replaced to ensure that comfort conditions are maintained in the building.

M.12 **Replacement of Unit Heaters:** Unit heaters located in the loading area of the building have significantly surpassed their recommended service life and should be replaced.

ELECTRICAL

E.1 **Main Incoming Distribution Equipment Replacement:** Main head-end distribution

equipment has reached well beyond anticipated lifespan and needs to be replaced with current equipment for reliability and safe operation.

E.2 **Branch Power Distribution Systems Replacement:** Branch distribution equipment and wiring has reached well beyond anticipated lifespan and needs to be replaced with current equipment and new wiring for reliability and safe operation.

E.3 **Theatre Stage Branch Wiring and Distribution System Upgrade:** Stage area electrical distribution system requires replacement to address the various patchwork of electrical cables, extension cords, and patch panels that have been added to over the life of the theatre, which

E.4a **Interior Lighting Replacement and Upgrades (to meet Code):** Existing lighting does not provide illumination levels along paths of egress, stairwells, bathrooms, and food preparation areas that meet Code-required levels. Lighting should be replaced to achieve minimum illumination requirements while updating luminaire types for maximum energy savings and longevity. While this addresses the immediate needs to meet Code, a long-term overall replacement plan needs to be implemented for the remainder of the building and theatre areas luminaires.

E.4b **Interior Lighting Replacement and Upgrades:** Quality of existing lighting and level of illuminations throughout remainder of building is poor and should be replaced under an organized program with an effort to utilize LED lamp sources wherever practicable.

E.5a **Emergency Lighting Replacement and Upgrades (to meet Code):** The existing emergency lighting system installation does not provide adequate coverage or levels of illumination along some required paths of egress and needs to be supplemented and/or replaced to achieve required levels in the short term to address Code requirements.

E.5b **Emergency Lighting Replacement and Upgrades:** The existing emergency lighting system installation including exit signs that are no longer Code-compliant and some battery units and remote heads that have exceeded their lifespan and should be replaced under an organized program with an effort to utilize LED lamp sources.

E.6 **Fire Alarm System Replacement and Upgrades:** The existing fire alarm system has active deficiencies that should be addressed with the replacement of the fire alarm control panel that appears to be underway. Along with replacement of the fire alarm control panel, replacement of the entire fire alarm system including devices and wiring is recommended, with the implementation of active graphic fire alarm remote annunciators to facilitate identifying areas in TROUBLE or ALARM mode for first responders or for troubleshooting. Devices should all be addressable type compatible with the new "Mircom" system being installed.

THEATER SYSTEMS

BLUMA APPEL THEATRE

General Facility Notes

BA.1 **Stage:**

- The floor finish is Polyboard by Renew Resources. At some point, the floor was painted black, which can no longer be removed. The floor surface has been installed for approximately 15 years and is due for replacement. We suggest replacing it in kind, but avoid painting it in the future. The new Polyboard formulation is a darker black than

previous versions.

- There are a number of mechanical ducts around the stage that are no longer connected, and become obstructions to use in the space. We suggest all unused ducts be removed or repaired.
- Holes have been drilled in the stage walls, including the proscenium wall, which creates fire penetrations in fire walls. Holes should be filled or retrofitted with ULC approved passes integrating a fire rating and designed for portable cable.
- The plywood decks at the front of the stage at audience level are extremely worn and should be replaced.
- Following replacement, we anticipate a lifespan of 15 to 20 years.

BA.2 **Support Areas:**

- The washing machine in the props area is beyond its useful life and should be replaced with a dedicated water line.
- The dryer in the costume maintenance area vents into the room. This is a fire hazard and should be addressed immediately.
- The wardrobe maintenance room has no control for heating and cooling.
- Lighting in the dressing room corridor, wardrobe, and dressing rooms is poor. Because of poor ventilation, the makeup lighting in the dressing rooms makes it excessively hot. Consider replacing with an LED with 2800k color temperature and high (>90) CRI.
- There is no ventilation area for costumes and props in the building. Spraying props and shoes with aerosols is typical.
- There is a substantial amount of old props, scenery, wardrobe, and other equipment scattered throughout the building. A worthwhile effort would be to establish what is needed, and consider purging the remaining items to make room.

BA.3 **Costs:**

- We would anticipate a budget cost of $100,000 for the above work activities which should be carried out as a priority item.

Performance Equipment Machinery

BA.4 **Manual Rigging:**

- The bulk of the rigging was replaced 7 to 8 years ago. However, the system pipes and arbors are original from Hall Stage.
- While linesets are spaced on 6" centers, the arbor wall is short and angled at the upstage end, and spaced on 4-3/4" centers.
- All linesets are muled via a large muling block in the grid, which creates a substantial amount of friction on the linesets.
- All linesets are single purchase except for the 7 most downstage, which are double-purchase.
- While the linesets are operable, TCC recommends a thorough maintenance or replacement of the arbors and diverter blocks to reduce the friction in the system. Based on the age of the system, these components are near or at the end of their useful life, although we could not find that they present a safety hazard.
- New arbors and diverter blocks would have an anticipated lifespan of approximately 30 to 40 years once replaced, as budgeted below.

- The cables, loft blocks, ropes, and other portions of the rigging system likely require an upgrade in 15 to 20 years, as budgeted below.

BA.5 **Fire Curtain:**

- The fire curtain is an encapsulated asbestos steel framed curtain. The curtain is approximately 80' wide and weight approximately 8 tons.
- If it isn't already, the curtain should be on an annual maintenance inspection to ensure the encapsulation is sound.
- The curtain currently hoists up only, and has no manual operation to deploy. Based on the staff, they believe the current was last run a year ago. The fire curtain mechanism should be adjusted to allow for normal non-emergency operation, and easy storing following a deployment. Most standards suggest that fire curtains be tested at least once a month.
- Once replace, the fire curtain mechanism likely has a lifespan of 20 to 30 years.

BA.6 **Forestage Hoists:**

- There are a few drum hoists for the center speaker cluster and forestage that do not appear safe, and are well beyond their useful life. These hoists should be replaced.
- Once replaced, these hosts likely have a lifespan of approximately 20 years.

BA.7 **Gridiron / Catwalks / Loading Gallery:**

- The gridiron is documented to support 125k/sm. The access is good, and works well for the users.
- The loading gallery has no guarding at the offstage side. However, a fall arrest system is in place for loaders.
- The loading gallery requires a trolley beam and chain hoists, or similar overhaul means for overhauling of linesets during load-in and load-out. Generally, two are required for typical load-ins.
- The forestage grid area is not accessible without fall arrest. We suggest integrating proper access and railings to allow rigging in this zone.

BA.8 **Stage Draperies:**

- The cyclorama is torn and well beyond its useful life. This drapery should be replaced.
- The remainders of the drapes were not inspected during our visit. The owner should confirm that the drapes still conform to flame-proofing requirements. We suggest any stage drapes over 15 years old be considered for replacement.
- Once replaced, new drapes will likely have a lifespan of approximately 15 years.

BA.9 **Orchestra Pit Lift:**

- The orchestra pit lift was damaged beyond repair during testing a few years ago, and is now locked and welded into place at its lowest position. As a result, any large equipment needing to move to the basement is moved via a scenery lift that does not appear to hold any sort of rating or decent capacity.
- The orchestra pit lift mechanism should be replaced and the lift made operable to adjust the stage elevation, as well to move large equipment to storage in the basement.

- The stage lift should be decommissioned as a material lift device, and used only for production needs within the lift's capacities
- Once replaced, the orchestra pit lift likely has a lifespan of approximately 20 years before major renovation.

BA.10 **Cost of Work:**

- TCC anticipates the cost of the Performance Rigging and Machinery Scope to be approximately $920,000 in the 1 to 5 year term.

- Additional performance rigging maintenance will likely require a major repair in 15 to 20 years, at a cost of approximately $300k in today's dollars.

PERFORMANCE LIGHTING

BA.1 **Dimmers and Controls:**

- The dimmer racks and controls are a mix of Electro-Controls dimmers for performance circuits, and a Strand SLD rack that was retrofitted to address architectural fixtures. While the Electro-Controls dimmers were workhorses in their time, they are well beyond their useful life. Replacement parts are no longer available, and must be custom manufactured by third parties. The Strand dimmers are not of the same quality, and support from the manufacturer is difficult, with maintenance of their equipment of this age being relatively high. All dimmers should be replaced with dimmers of the same manufacturer and control system before they fail during a performance situation.
- There is little installed DMX or lighting net control wiring installed. This will need to be installed as part of the dimmer replacement.
- The lighting control consoles are current and appear in good condition.
- The architectural lighting control is modest for the facility's use. To ensure proper integration, replacement should be included as part of the dimming and controls replacement.
- Once replaced, the majority of this equipment has a typical lifespan of approximately 20 to25 years.
- The console, while included above, is a computer device that has a 10 to15 year lifespan.

BA.12 **Performance Lighting Fixtures and Accessories:**

- Lighting is a mixture of very old "Berkeys" and newer ETC Source 4 fixtures. While the ETC fixtures are in decent shape, the older fixtures are well beyond their useful life and extremely inefficient. In addition, the moving lighting fixtures have been used heavily and are getting to be beyond their useful life. An allowance for additional lighting fixtures, focusing on additional front lights, and LED fixtures for cyc and wash lights should be considered.
- New control and power extension cables should be provided for new fixtures.
- New LED lighting fixtures are anticipated to have a lifespan of 10 to 15 years, depending on use and care.

BA.13 **Lighting Positions:**

- Lighting positions are minimal for front side angles but modest. There are a number of locations that the architectural ceiling impedes the shots from the catwalks. If a renovation occurs within the ceiling of the audience chamber, lighting positions and angles should be studied, and additional positions integrated.

BA.14 **Cost of Work:**

- TCC anticipates the cost of the Performance Lighting Scope to be approximately $750,000. For items requiring immediate replacement in the 1 to 5 year timeframe.
- The console replacement, which is likely required 10 to 15 years after purchase, should be planned at approximately $20,000 in today's dollars.
- The lighting fixture replacement costs, which are likely required in 10 to 15 years depending on use, should be planned at approximately $475,000 in today's dollars.

PERFORMANCE SOUND, VIDEO, AND COMMUNICATIONS

BA.16 **Wiring Infrastructure:**

- The wiring infrastructure is a mixture of original and cobbled together wires. Most termination points have been pulled apart and trouble-shot over the years. There are a few newer patch points via snakes around the stage. The users complained of substantial noise in older installed lines. All audio wiring should be removed and replaced.
- The bulk of the audio infrastructure is pulled up to the control booth, which is no longer the location where audio is run. If moving towards a digital console, the facility could lower the wiring costs by installing network wiring to critical zones and remoting digital snakes. This will also alleviate noise within the system.
- Once replaced, the infrastructure will have a lifespan of 20 to 25 years if properly maintained.

BA.17 **Reinforcement System:**

- The main PA is a Meyer UPA-1A converted to a 1C in 2005. The bulk of the rest of the system is off-brand speakers of modest quality. Based on current programs, the venue should consider installing a compact line array in a left/right configuration, such as Meyer Mina, with Meyer UPA or similar fills and effect speakers.
- The current console is a Yamaha PM5D. The console works well, but requires maintenance. When replaced, consider replacing with a quality digital console such as a DigiCo SD5 or similar.
- Once replaced, the main PA should have a lifespan of 10 to 15 years if properly maintained.
- Once replaced, the console should have a lifespan of 10 to 15 years if properly maintained.

BA.18 **Program Audio / Intercom:**

- Program audio to technical and lobby spaces routes through old wiring and equipment. The signal has a substantial amount of buzz and hiss.

- Routing signal to the lobby requires a substantial amount of patching.
- Paging to backstage from the stage manager's position work intermittently.
- The intercom is wired for 2-channels, and has an occasional buzz. It is currently a mixture of older style Clear Com and Production Intercom (no longer available). The facility also has 6 wireless intercom headsets.
- Based on the current age and conditions, the relay / paging system and intercom systems should be replaced.
- Once replaced, this equipment should have a lifespan of 15 to 20 years.

BA.19 **Video Monitoring and Routing:**

- A camera was recently installed to route video to the lobby. This appears to be in adequate condition.
- The facility owns one projector that is not often used. Based on user interviews, video equipment is not a high priority to own, and so no additional equipment is recommended.

BA.20 **Electrical Power**

- While it wasn't reviewed during our visit, isolated ground / isolated power should be provided for all audio-visual equipment. This typically requires an isolation transformer and dedicated panel for audio-visual equipment.

BA.21 **Cost of Work:**

- TCC anticipates the cost of the Performance Sound and Video Scope, minus electrical, to be approximately $1,100,000 within the 1 to 5 year timeframe.
- The owner should anticipate a substantial replacement in the 10 to 15 year timeframe following initial replacement of speakers and console at approximately $500,000 in today's dollars.
- The owner should anticipate a full replacement of other equipment at 20 years following initial replacement.

JANE MALLETT THEATRE

General Facility Notes

JM.1 **Stage**

- The stage floor is not sprung and is finished hardwood. We heard no complaints or concerns about the stage.

JM.2 **Support Areas:**

- The washing machine in the props area is beyond its useful life and should be replaced with a dedicated water line. The control booth appears to be used as an office and sleeping quarters.
- The control booth is not heated. Heating and cooling should be included in this room.

JM.3 **Cost of Work:**

- The cost of work for the above mentioned items is estimated at $25,000

Performance Rigging And Machinery

JM.4 **Hoisted Rigging:**

- The stage has a number of motorized linesets upstage. The users knew of no issues. The system should be inspected and maintained as part of any room renovation.
- The anticipated lifespan of this equipment is approximately 10 years beyond today's date.

JM.5 **Stage Draperies:**

- The stage draperies appeared in adequate condition for the room's use.

JM.6 **Cost of Work:**

- TCC anticipates the cost of the Performance Rigging Scope to be approximately $20,000 Cdn.
- The owner should anticipate a full replacement of motorized rigging in 10 years, at an approximate cost of $150,000 in today's dollars.
    - The owner should anticipate a full replacement of draperies in 10 years, at an approximate cost of $75,000 in today's dollars.

Performance Lighting

JM.7 **Dimmers and Controls:**

- The dimmer racks and controls are Electro-Controls dimmers for performance circuits similar to the Bluma Appel. While the Electro-Controls dimmers were workhorses in their time, they are well beyond their useful life. Replacement parts are no longer available, and must be custom manufactured by third parties. All dimmers should be replaced with dimmers of the same manufacturer and control system before they fail during a performance situation. We suggest dimming replacement occur in both theatres about the same time.
- There is little installed DMX or lighting net control wiring installed. This will need to be installed as part of the dimmer replacement.
- The lighting control consoles are current and appear in good condition.
- The architectural lighting control is modest for the facility's use. To ensure proper integration, replacement should be included as part of the dimming and controls replacement.
- Replacement requirements are similar to those described in the Bluma Appel

JM.8 **Performance Lighting Fixtures:**

- Most lighting in this space is the unused fixtures from the Bluma Appel, and thus beyond its useful life. An allowance for additional lighting fixtures should be considered, including LED pars and LED cyc lights.
- Replacement requirements are similar to those described in the Bluma Appel

JM.9 **Lighting Positions:**

- The grid over the stage impedes lighting angles. If a renovation occurs within the ceiling of the audience chamber, lighting positions and angles should be studied, and additional positions integrated.

JM.10 **Cost of Work:**

- TCC anticipates the cost of the Performance Lighting Scope to be approximately $900,000 Cdn. In 1 to 5 years.
- Following replacement, the owner should anticipate a substantial replacement of fixtures and other electronics in 15 years at a cost of $500,000.

Performance Sound, Video, And Communication

JM.15 **Wiring Infrastructure:**

- The wiring infrastructure is old, and much of it is unusable. Installed stage monitor amps cannot be used because the wiring has failed. All audio wiring should be replaced.
- Once replaced, the infrastructure will have a lifespan of 20 to 25 years if properly maintained.

JM.16 **Reinforcement System:**

- The main PA L Acoustics, and in decent condition. This equipment can likely last a number of years with some maintenance.
- The current console is a Yamaha LS9. The console works well, but will likely be obsolete within 4 to 5 years. When replacing, consider replacing with a similar (but smaller) console to the Bluma Appel

JM.17 **Program Audio / Intercom:**

- There is no program audio in the room.
- The intercom is primarily unusable. Cables have been chained together from the rack across the room to make it work. The intercom system and infrastructure should be replaced.
- Once replaced, this equipment should have a lifespan of 15 to 20 years.

JM.18 **Projection:**

- The current projector is usable but lacks adequate light output based on the program requirements. Consider replacing with a new and brighter projector.
- Projectors have a typical lifespan of 5 to 10 years if properly maintained.

JM.19 **Electrical Power:**

- While it wasn't reviewed during our visit, isolated ground / isolated power should be provided for all audio-visual equipment. This typically requires an isolation transformer and dedicated panel for audio-visual equipment.

JM.20 **Cost of Work:**

- TCC anticipates the cost of the Performance Sound and Video Scope, minus electrical,

to be approximately $475,000 in the 1 to 5 year period.

- Following replacement, the projection equipment will likely require replacement in 5 to10 years at a cost of $75,000 in today's dollars.
- The owner should anticipate a substantial replacement in the 10 to 15 year timeframe following initial replacement of speakers and console at approximately $300,000 in today's dollars.
- The owner should anticipate a full replacement of other equipment at 20 years following initial replacement.

E. ORDER OF MAGNITUDE COST ESTIMATE									
Immediate Repairs									
Cat.	#	Item Description	Exp. Life	Age	RUL	Qty.	Unit	Unit $	Total
Arch	A.1	Repair damaged paved surfaces at exterior sidewalks and entrances	10	10	N/A	Lot	-	-	$10,000
Arch	A.2	Storm Drainage Investigations	N/A	N/A	0	Lot	-	-	$15,000
Arch	A.3	Repairs to waterproofing at foundation walls	30	N/A	0	Lot	-	-	$25,000
Arch	A.4	Replacement of flat roofing	20	Min. 20	0	Lot	-	-	$1,100,000
Arch	A.5	Replacement of metal roofing at clerestories	30	Min. 30	0	Lot	-	-	$125,000
Arch	A.6	Replacement of windows and exterior doors	30	Min. 30	0	Lot	-	-	$400,000
Arch	A.7	Replacement of sealants and flashing	30	Min. 30	0	Lot	-	-	$60,000
Arch	A.8	Repair of interior finishes damaged by water infiltration or worn by heavy use	30	N/A	0	Lot	-	-	$25,000
Arch	A.9	Work to address existing O.B.C. deficiencies and to carry out additional review	30	N/A	0	Lot	-	-	$65,000
Struct	S.1	Repair of concrete roof deck in north mech. room	30	N/A	0	Lot	-	-	$10,000
Struct	S.2	Investigation of concrete conditions around light wells	N/A	N/A	0	Lot	-	(str'l cost only)	$15,000
Struct	S.3	Repair of concrete below leaking mech. equipment	30	N/A	0	Lot	-	-	$15,000
Struct	S.6	Repair of concrete roof deck in storage room adjacent to sound control and projection rooms	30	N/A	0	Lot	-	-	$10,000
Struct	S.7	Remove and replace unstable	N/A	N/A	0	Lot	-	-	$5,000

		wood planking							
Struct	S.8	Weights on 3rd level catwalk of theatre tower to be redistributed	N/A	N/A	0	Lot	-	No cost (own forces)	No cost
Struct	S.9	Water ingress west end of Bluma	30	N/A	0	Lot	-	(str'l cost only)	$15,000
Struct	S.11	Water ingress into house manager's office	30	N/A	0	Lot	-	(str'l cost only)	$25,000
Struct	S.12	Water ingress into front house administrative offices	30	N/A	0	Lot	-	(str'l cost only)	$20,000
Struct	S.15	Infill construction between SLCA and east neighboring property	30	Min. 30	0	Lot	-	-	$20,000
Mech	M.1	Insulation	30	30	0	Lot	-	-	$7,500
Mech	M.2	Fan R-2 Guarding	30	30	0	Lot	-	-	$2,000
Mech	M.9	Install Air Compressor Guarding	30	30	0	Lot	-	-	$500
Mech	M.6	Condenser Water Chemical Treatment	30	20	0	Lot	-	-	$2,000
Mech	M.7	Cooling Tower Maintenance	30	20	0	Lot	-	-	$2,000
Mech	M.10	Sprinkler Installation	30	30	0	Lot	-	-	$160,000
Elec	M.3	Theatre Stage Distribution	25	Min 45	0	Lot	-	-	$30,000
Elec	E.4a	Interior Lighting at Paths of Egress, Stairwells, Service Rooms, Kitchen to meet Code	15	Varies / Min 30	0	Lot	-	-	$50,000
Elec	E.5a	Emergency Lighting at Paths of Egress, Stairwells, Service Rooms, to meet Code	15	Varies / Min 30	0	Lot	Each	$5,500	$25,000
BlumaA	BA.3	General Facility	30	Varies	0	Lot	-	-	$100,000
JaneM	JM.3	General Facility	30	Varies	0	Lot	-	-	$25,000

Capital Reserve Expenditures									
Cat.	**#**	**Item Description**	**Exp. Life**	**Age**	**RUL**	**Qty.**	**Unit**	**Unit $**	**Total**
Arch	A.10	Complete replacement of exterior surfaces at sidewalks and entrances	20	10	5 to 10	500	Sq.Ft.	$15	$25,000
Arch	A.11	Complete replacement of exterior metal siding and louvres	30	Min. 30	5 to 10	1,200	Sq.Ft.	$25	$30,000
Arch	A.12	Complete replacement of exterior soffits	30	Min. 30	5 to 10	800	Sq.Ft.	$25	$20,000
Arch	A.13	Replacement of interior finishes as related to public spaces	10 to 15	15 to 30	0	30,000	Sq.Ft.	$75	$2,250,000
Arch	A.14	Replacement of theatre's seating	20	15 to 30	5 to 10	1,375	Each	$400	$550,000
Arch	A.15	Replacement of interior finishes as related to non-public spaces	10 to 15	Over 20	0	17,500	Sq.Ft.	$50	$875,000
Arch	A.16	Replacement of interior finishes as related to "back of house" spaces	10 to 15	Over 20	0	15,000	Sq.Ft.	$25	$375,000
Arch	A.17	Replacement/refurbishment of doors and door hardware	30	Over 30	5 to 10	Lot	-	-	$300,000
Arch	A.18	Replacement of cabinetry and built-in millwork	30	Over 30	5 to 10	Lot	-	-	$250,000
Struct	S.10	Step cracking in concrete block in electrical room G2	N/A	N/A	N/A	Lot	-	-	$3,000
Struct	S.13	Spalling of concrete on exterior	N/A	N/A	N/A	80	Sq.Ft.	$150	$12,000
Struct	S.14	Cracking of concrete on exterior	N/A	N/A	N/A	2,000	Ln.Ft.	$6	$12,000
Mech	M.4	Air Handling Units	20	15-20+	5	5	Each	$250K	$1,250,000
Mech	M.8	Pumps	20	Varies	5 to 10	10	Each	Varies	$200,000
Mech	M.8	Terminal Heating Units	20-25	Varies	5	Lot	Each	Varies	$300,000
Mech	M.8	Plumbing Fixtures	20	10-20	5 to 10	Varies	Each	Varies	$75,000
Elec	E.1	Main Incoming	25	Min 45	0	Lot	-	-	$300,000

Capital Reserve Expenditures									
Cat.	**#**	**Item Description**	**Exp. Life**	**Age**	**RUL**	**Qty.**	**Unit**	**Unit $**	**Total**
		Service Equipment Replacement							
Elec	E.2	Branch Distribution Equipment and Wiring Replacement (does not include devices or branch wiring to devices)	25	Min 45	0	Lot	-	-	$315,000
Elec	E.4b	Interior Lighting Replacement	15	Varies / Min 30	0	Lot	-	-	$450,000
Elec	E.5b	Emergency Lighting System Replacement	15	Varies / Min 30	0	Lot	-	-	$200,000
Elec	E.6	Fire Alarm System Replacement (less fire alarm control panel)	15	Min 25	0	Lot	-	-	$375,000
BlumaA	BA.10	Performance Equipment & Machinery	15 to 20	Varies	1 to 5	Lot	-	-	$920,000
BlumaA	BA.14	Performance Lighting	10 to 15	Varies	1 to 5	Lot	-	-	$750,000
BlumaA	BA.21	Performance Sound, Video & Communication	10 to 15	Varies	1 to 5	Lot	-	-	$1,100,000
BlumaA	BA.10	Performance Equipment & Machinery	15 to 20	Varies	15 to 20	Lot	-	-	$300,000
BlumaA	BA.14	Performance Lighting	10 to 15	Varies	15 to 20	Lot	-	-	$495,000
BlumaA	BA.21	Performance Sound, Video & Communication	10 to 15	Varies	15 to 20	Lot	-	-	$500,000
JaneM	JM.6	Performance Equipment & Machinery	15 to 20	Varies	1 to 5	Lot	-	-	$20,000
JaneM	JM.6	Performance Equipment & Machinery	10 to 15	Varies	10 to 15	Lot	-	-	$225,000
JaneM	JM.10	Performance Lighting	10 to 15	Varies	1 to 15	Lot	-	-	$1,400,000
JaneM	JM.20	Performance Sound, Video & Communication	10 to 15	Varies	1 to 15	Lot	-	-	$850,000

G. ADDITIONAL INVESTIGATIONS AND FOLLOW-UPS

- Accurate as-built drawings should be prepared of the existing building including architectural, mechanical and electrical.
- Establish an ongoing programme of building maintenance and repairs.

H. EVALUATION CRITERIA & LIMITATIONS

Evaluation Criteria

The key evaluation criterion was to provide the City with a comprehensive overview of the current status, the identification of the scope of work required to bring the building up to current standards (including a summary of the existing conditions) and to identify elements that require replacement or immediate repair.

Limitations

This report is intended as an indication of the visible or reported physical condition of the building components and is limited in scope to only those building components that are specifically referenced in this study. The material in this report reflects the consultant's best judgment in light of the information available at the time of preparation.

The assessment is based on a visual review of the site, building structure, building envelope, plumbing, mechanical systems, electrical systems, fire-life safety systems, interior finishes and theaters' performance rigging, lighting, sound & communication.

Concealed areas were visually reviewed where access was provided or made readily visible. No physical or invasive testing was conducted.

Expected future performance and the scope/timing of repairs and replacements are based on +VG best assessment based on visual appearance, and our team's experience with similar building component performance.

Further, responsibility for detection or advice about pollutants, contaminants or hazardous materials is not part of the scope for this report. Mention of pollutants, contaminants or hazardous materials in our report (if any) is to imply further testing by certified specialists is required. +VG suggests no expertise or responsibility for commentary about pollutants, contaminants or hazardous materials mentioned in our report.

Expected service life of equipment is based on averages of building system useful life published by the Building Owners and Managers Association International.

This report has been prepared for the exclusive use of the City of Toronto. +VG nor its employees or sub-consultants assume any responsibility for interpretation of the reports or extrapolations made from the reported contents.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The Consulting Team accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Please note the following:

- No destructive testing was performed.
- No legal survey, soil tests, detailed structural engineering investigation or quantity survey compilations have been made.
- No attempt has been made to investigate the capability of the systems to handle actual heating and cooling loads.
- No testing of life safety systems including fire alarms was undertaken.

- No quantitative measurements were taken of temperature, humidity, noise levels, and air pollutants.
- No attempt was made to start equipment that was not operating at the time of inspection.
- As noted in the preceding sections additional inspections, surveys and reviews are recommended. Pricing for the work may be affected as a result.

Considerations on Costing

It was outside the scope of this report to engage a professional quantity surveyor to conduct detailed cost estimates. The estimates that are provided in the tables are cost data provided by the team of architects and engineers, and based on experience with similar projects; represent the consultant's opinion of probable costs, present 2016 Canadian dollars, of current market conditions.

Cost estimates or allocations contained in this report are budget cost only. Actual costs may vary depending on the time of tendering, the actual detailed scope of work and market conditions. Whereas any cost estimates done by the Consultant or his sub-consultants are based on incomplete or preliminary information and on factors over which the Consultant or his sub-consultants has no control, the Consultant or his sub-consultants do not guarantee the accuracy of these cost.

Unless otherwise noted, costing information does not include for abatement cost, design and construction contingencies, applicable taxes, etc. Cost estimates include for contractor's overhead/profit and professional fees. Costs assume the work in each discipline is generally completed in one phase. +VG cannot warrant that the actual cost will not vary from the estimates and allowances provided in this report.

Variations in interest and inflation rates, market forces, and the limited assessment as related to the nature of this report prevent precise cost estimates. It is the responsibility of the City of Toronto to perform sufficiently detailed investigations at the time of the proposed work to establish construction cost ranges more precisely.

H. FINANCIAL PROJECTIONS

Item	Immediate Repairs	Capital Reserve Expenditures										Totals (1 to 10)	Years 11 to 15	Years 16 to 20	Reference to Parts "D" & "E"
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10				
Additional Testing & Surveys	$35,000														
Site, Landscaping and Civil															
Paving, Walkways,	$10,000						$5,000	$5,000	$5,000	$5,000	$5,000	$25,000			A1, A10
Drainage and Waterproofing	$40,000														A2, A3
Structure and Building Envelope															
Exterior Walls (crack repair, sealants, flashing, etc.)	$195,000					$27,000						$27,000			A6, S1, S2, S3, S6, S7, S8, S9, S11, S12, S15
Roofing (flat membranes and sloping metal roofing)	$1,225,000														A4, A5
Exterior Doors/Windows, including metal spandrel panels above windows)	$400,000														A6
Replacement of Soffits, Siding & Louvres							$10,000	$10,000	$10,000	$10,000	$10,000	$50,000			A11, A12
Interiors															
Urgent Repairs	$25,000														A8
O.B.C. Deficiencies	$65,000														A9
Public Spaces		$450,000	$450,000	$450,000	$450,000	$450,000						$2,250,000			A13
Theatre Seating						$350,000					$200,000	$550,000			A14
Non-Public Spaces		$175,000	$175,000	$175,000	$175,000	$175,000						$875,000			A15
"Back-of-House" Spaces		$75,000	$75,000	$75,000	$75,000	$75,000						$375,000			A16
Doors and Door Hardware		$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$300,000			A17
Cabinetry, Built-In Millwork		$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$250,000			A18
Mechanical															
Replacement of Air Handling Units		$500,000	$500,000	$250,000								$1,250,000			M4
Installation of Fan R-2 Guarding	$2,000														M2
Mechanical Insulation for Mechanical Ductwork, Steam Heat Exchanger & Chilled Water Piping	$6,000														M3

Insulation on Steam Heat Exchanger Piping	$1,500														M5
Steam Heat Exchangers										$50,000		$50,000			M8
Re-Install Air Compressor guarding	$500											$500			M9
Domestic Hot Water Tanks														$63,000	M8
Chiller													$220,000		M8
Condenser Water Treatment	$2,000														M6
Cooling Tower	$2,000												$87,000		M7
Circulation Pumps									$20,000	$50,000	$50,000	$120,000	$80,000		M8
Exhaust Fans			$3,000		$3,000		$3,000					$9,000	$6,000	$6,000	M8
Fin-Tube Radiators	$2,500														M11
Forced Flow Heaters				$1,000	$1,000							$2,000			M12
Unit Heaters	$3,000														M12
Baseboard Heaters	$1,000					$1,000						$1,000			M11
Utility Water Meter														$1,000	M8
Plumbing Fixtures		$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$75,000			M8
Sanitary Drainage														$4,000	M8
Storm Water Drainage														$8,000	M8
Installation of Sprinkler System	$160,000													$200,000	M10
Electrical															
Head-End Electrical Distribution System Replacement				$300,000								$300,000			E1
Electrical Branch Wiring and Device Replacement				$115,000	$100,000	$100,000						$315,000			E2
Theatre and Stage Distribution Replacement	$30,000														E3
Interior Lighting Replacement	$50,000		$150,000	$150,000	$150,000							$450,000			E4a, E4b
Emergency Lighting System Replacement	$25,000		$200,000									$200,000			E5a, E5b
Fire Alarm Device and Wiring Replacement		$375,000										$375,000			E6
Theatre Systems (Bluma Appel)															
General Facility	$100,000														BA3
Performance Equipment & Machinery		$184,000	$184,000	$184,000	$184,000	$184,000						$920,000		$300,000	BA10
Performance Lighting		$150,000	$150,000	$150,000	$150,000	$150,000						$750,000		$495,000	BA14
Performance Sound, Video & Communication		$220,000	$220,000	$220,000	$220,000	$220,000						$1,100,000	$500,000		BA21

Theatre Systems (Jane Mallett)															
General Facility	$25,000														JM3
Performance Equipment & Machinery												$245,000			JM6
Performance Lighting		$180,000	$180,000	$180,000	$180,000	$180,000						$900,000	$500,000		JM10
Performance Sound, Video & Communication		$95,000	$95,000	$95,000	$95,000	$95,000	$15,000	$15,000	$15,000	$15,000	$15,000	$550,000	$300,000		JM20
Other															
Access and Equipment Premium (scaffold, lifts, etc.)	$300,000														
Construction Cost - Sub Total	$2,705,500.00	$2,466,500.00	$2,444,500.00	$2,407,500.00	$1,845,500.00	$2,069,500.00	$95,500.00	$92,500.00	$112,500.00	$192,500.00	$342,500.00	$12,314,500.00	$1,693,000.00	$1,077,000.00	
Contractor's O/H & Profit, Fees, etc. @ (25%) of Construction Cost	$676,375.00	$616,625.00	$611,125.00	$601,875.00	$461,375.00	$517,375.00	$23,875.00	$23,125.00	$28,125.00	$48,125.00	$85,625.00	$3,078,625.00	$423,250.00	$269,250.00	
Sub Total	$3,381,875.00	$3,083,125.00	$3,055,625.00	$3,009,375.00	$2,306,875.00	$2,586,875.00	$119,375.00	$115,625.00	$140,625.00	$240,625.00	$428,125.00	$15,393,125.00	$2,116,250.00	$1,346,250.00	
Inflation 3% per year		$92,493.75	$183,337.50	$270,843.75	$276,825.00	$388,031.25	$21,487.50	$24,281.25	$33,750.00	$64,968.75	$128,437.50	$4,617,937.50	$952,312.50	$807,750.00	
Totals	**$3,381,875.00**	**$3,175,618.75**	**$3,238,962.50**	**$3,280,218.75**	**$2,583,700.00**	**$2,974,906.25**	**$140,862.50**	**$139,906.25**	**$174,375.00**	**$305,593.75**	**$556,562.50**	**$20,011,062.50**	**$3,068,562.50**	**$2,154,000.00**	

APENDIX 1: PHOTOGRAPHIC DOCUMENTATION

1. ARCHITECTURAL

.1 Exterior

Main Public Entrance at Front Street

Deteriorated sill flashing and bottom of wall

Stage rear service entrance

Deterioration of slate paving, and metal surfaces of siding, sill and windows

Sag and cracking of exterior paved surfaces at Scott and Front Street

Ramp down to receiving dock

Roof water run-off and damage at east entrance on Front Street

Old sealants and flashing no longer weathertight

Spalling of concrete surfaces at window sills

Newer storefront glazing along Front Street

Dry sealant at joint between concrete shear wall and parapet

Dry sealant between window frame and concrete wall

.2 Roof & Clerestory

Moss and organic growth over flat roof surfaces

Deteriorated sealant and flashing at clerestory's curb

Water ponding over high roof area

Failure "Fogging" at clerestory insulated glass unit

Spalling of concrete surfaces at curbs abutting concrete walls

Spalling of concrete surfaces at clerestory walls

Debris accumulated over roofing membranes

Ribbed metal roofing at clerestory

Old and deteriorated sealant/flashing at clerestory

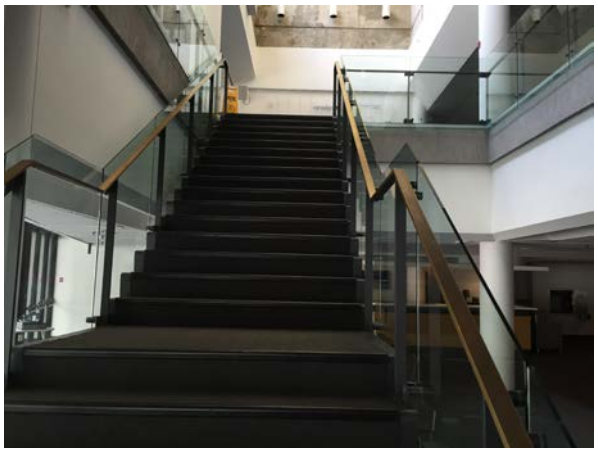
Failure of insulated glass unit at clerestory windows

Extreme tenting of roofing membrane and vegetation growth

Old and deteriorated mechanical louvre

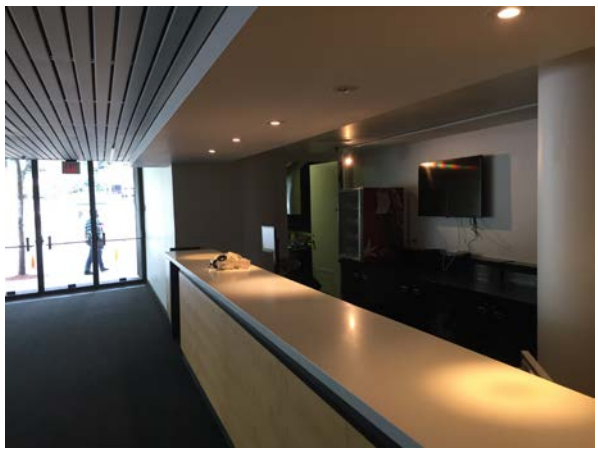
.3 Ground Floor

Old door hardware

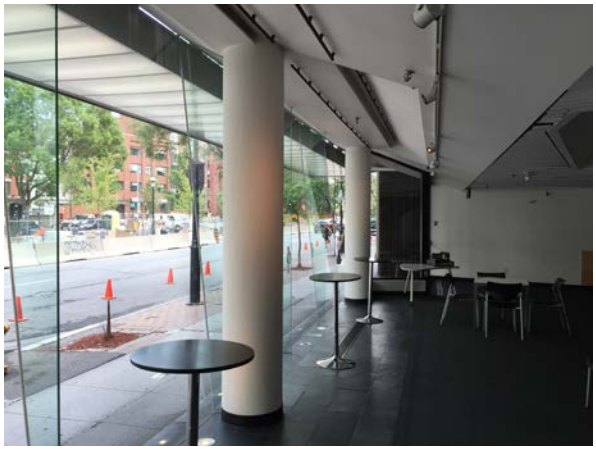


Main stair in public lobby

Water damage at drywall ceiling



Cabinetry and built-in millwork in public lobby



Storefront glazing along Front Street

Worn and stained carpet flooring in admin offices

Water stains at interior concrete surface due to moisture condensation

Damage from salts at bottom sill of window

Water damage at drywall ceiling

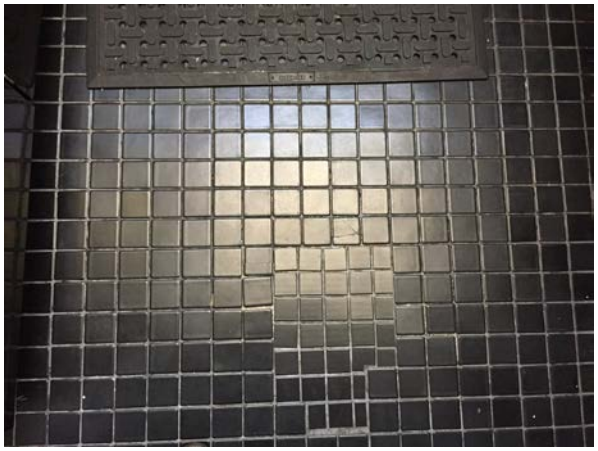
Damage from salts at bottom sill of window an deteriorated flooring

Damage drywall finish at corner

Handrail does not extend over the top landing

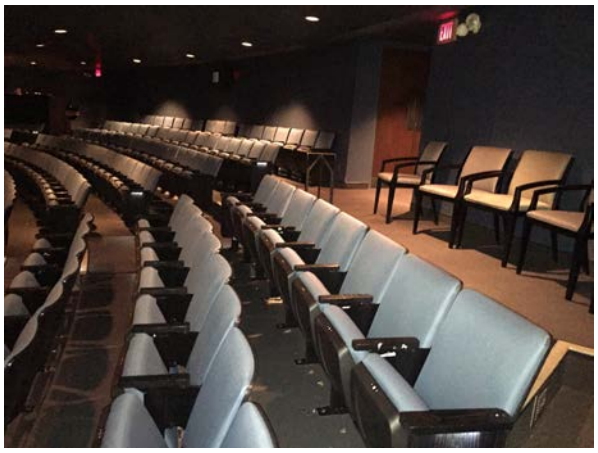
More damage at bottom sills of doors and windows

.4 Second Floor and Theatres

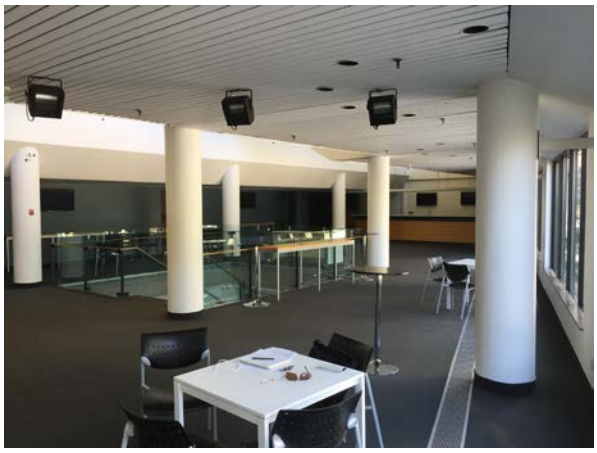


Signs of previous repair at ceramic tile flooring

Damage at drywall surface from water infiltrations



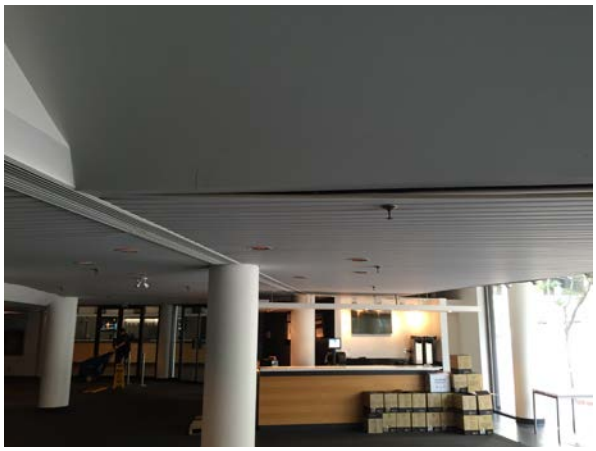
The older seating at the Bluma Appel theatre



The upper second floor public lobby

Substantial water infiltration and damage to substrates

Water damage observed over interior concrete wall surfaces



Detached metal ceiling

Worn and stained carpet flooring

More drywall damage due to water infiltration

Box seating at the Bluma Appel theatre

Guard at Jane Mallett theatre

Old and deteriorate fixtures in public washrooms

Seating in the Jane Mallett theatre

Older countertop and fixtures in public washrooms

Jane Mallett theatre

.5 Basement

Typical staff office/room

Deteriorated door at dressing room

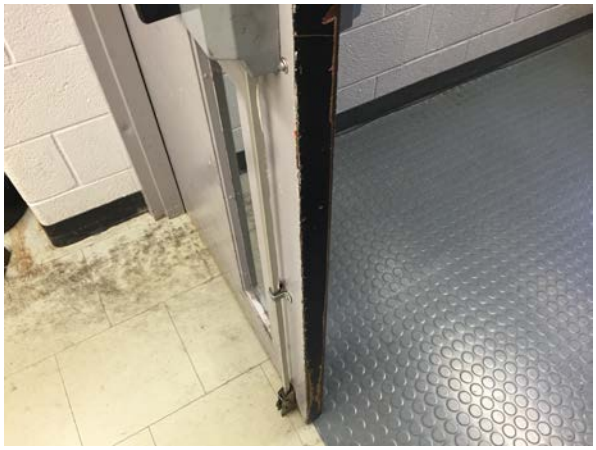
Typical interior at dressing room

Old and deteriorated equipment

Old and deteriorated wall-mounted acoustical material

Back of house staff washroom

Staff kitchenette

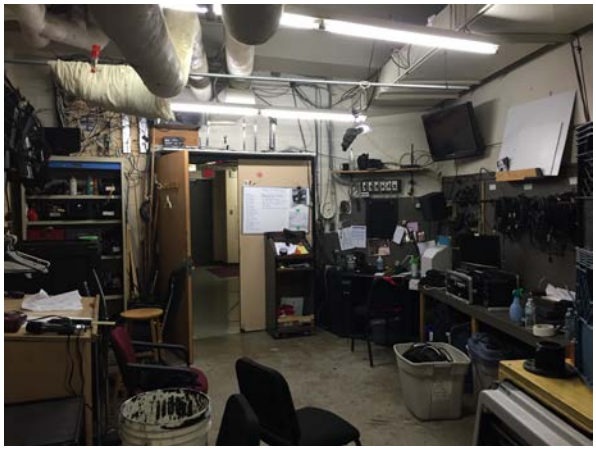


Worn flooring and door

Rehearsal room

Fire door propped open with weight and deteriorated flooring

Fire door propped open with weight



Clutter in work areas

Older washroom fixtures in dressing room

2. STRUCTURAL:

S.1: Water ingress at north mechanical room, accessed through men's room.

S.2: Water ingress around windows and lightwells in lobby (209 and 221).

S.3: Condensation dripping from mechanical units and connections is pooling in mechanical rooms.

S.4: Corridor at east exit stair showing signs of water ingress (219).

S.5: Water ingress through clerestory wall cross from stage manager's room (production rooms above VIP lounge).

S.6: Roof of the storage room adjacent to the sound control and projection rooms has been leaking.

S.7: Unstable wood plank ramps installed in backstage areas behind light slot 203, 204 and associated service areas.

S.8: Several hundred weights are stored on the 3rd level catwalk of the stage tower.

S.9: Significant water staining on west stage wall in Bluma.

S.10: Step cracking in concrete block masonry in electrical room (G2) across from the Green Room.

S.11: Significant water ingress into house manager's office.

S.12: Significant water ingress into front house administrative offices.

S.13: Spalling of concrete walls on all exterior elevations.

S.14: Cracking of concrete walls on all exterior elevations.

S.15: Infill construction between the SLCA and the neighbouring building to the east has failed.

3. MECHANICAL:

Damaged insulation on AHU S5.

New motorized damper actuator connected to the building automation system with a decomissioned pneumatic actuator in the foreground.

AHU S4 chilled water piping with missing insulation and visible condensation.

Pump P-5 and drive in main mechanical room.

Air compressor with belt guard removed.

Poor insulation on piping associated with steam heat exchangers C-1 and C-2.

Condenser water chemical treatment control panel showing High Conductivity Alarm.

Chilled water piping with insulation removed and visible condensation on pipe.

Chilled water return pumps and piping with missing and damaged insulation with visible condensation.

Domestic hot water steam heat exchangers C-3 and C-4.

Air Handling Unit S2.

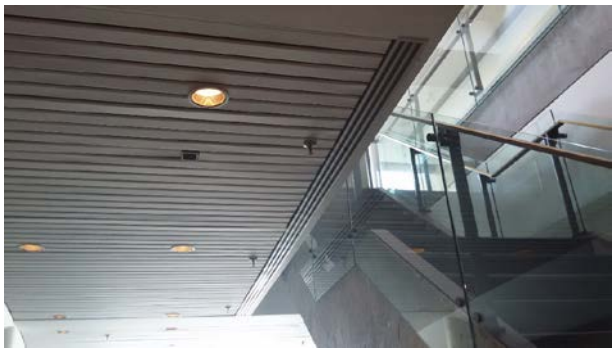
Unguarded fan belt on fan R-2.

Lobby supply air unit S3.

Loading area hydronic unit heater.

Storage room hydronic radiator in poor condition.

Perimeter fin tube radiator grille in good condition.



Sprinkler system and linear diffusers in lobby area.

Roof drain and cover in good condition (lower right) with an exhaust fan cap in the background.

Sprinkler system valves. Valve in centre of image is in good condition. Valve in left of image is in fair condition.

Mechanical Room indirect funnel floor drain.

4. ELECTRICAL:

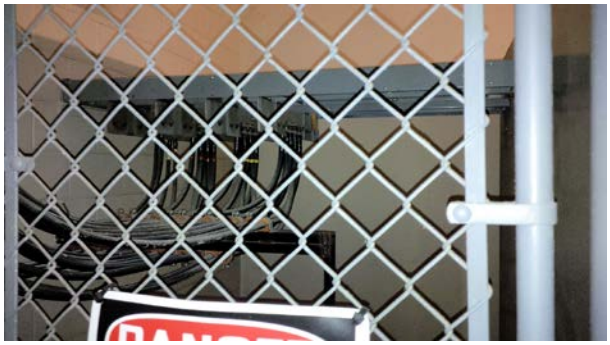


Photo 1: Toronto hydro incoming collector bus configuration

Photo 2: 2500amp;208/120v,3p,4w main switchboard

Photo 3: Distribution panel dp.4 (theatre dimming systems)

Photo 4: Branch "corflex" feeder conductors

Photo 5: Motor Control Centre (MCC)

Photo 6: Typical branch distribution panels

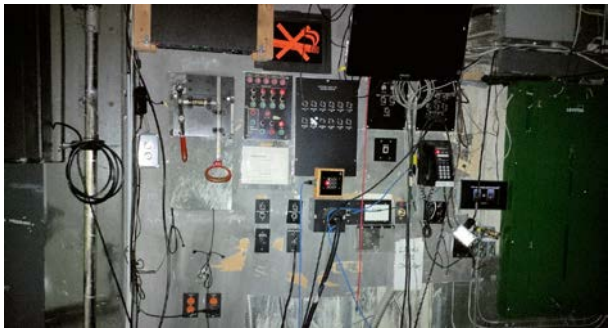


Photo 7: Theatre stage distribution equipment

Photo 8: Theatre stage dimming panel and distribution panel

Photo 9: Theatre stage distribution equipment

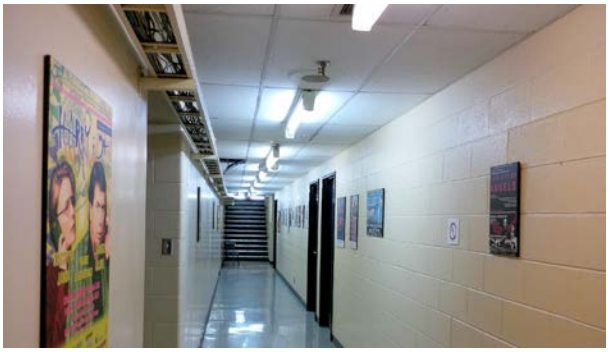


Photo 10: Typical service corridor wrap-around luminaires

Photo 11: Theatre stairwell incandescent luminaires

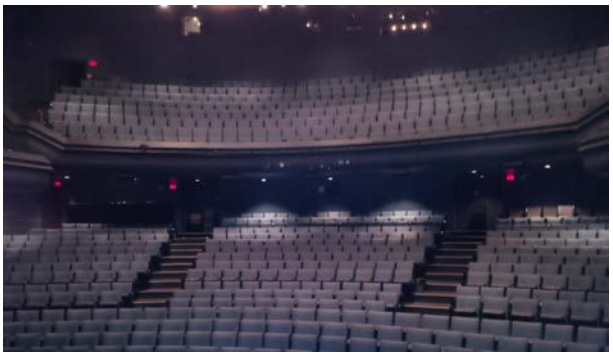


Photo 12: Theatre luminaires

Photo 13: Typical lobby luminaires

Photo 14: Typical emergency battery lighting unit

Photo 15: Typical combination exit sign (upside down text)

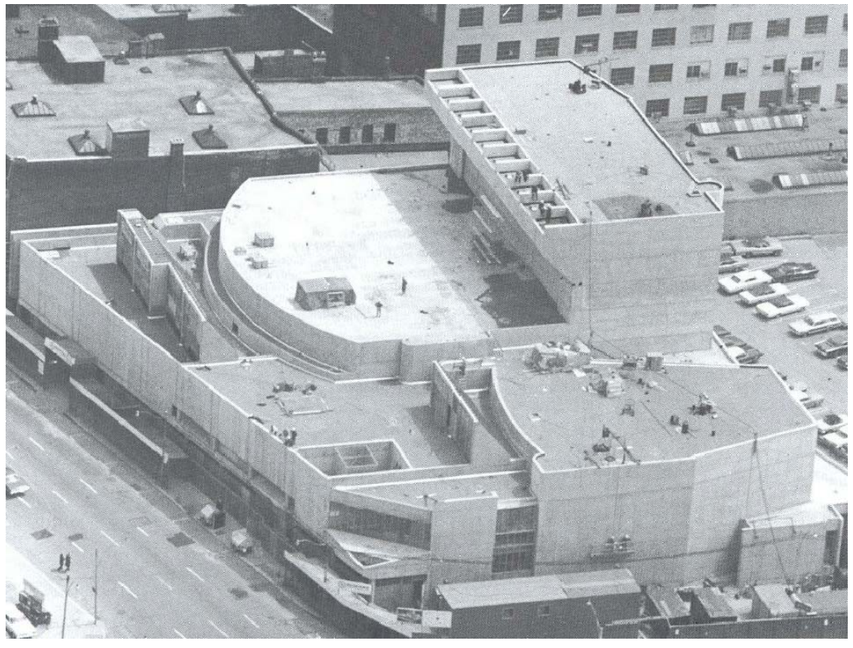
Photo 16: Existing Fire Alarm Control Panel (FACP)

Photo 17: Existing “Edwards” custom 6500 FACP faceplate

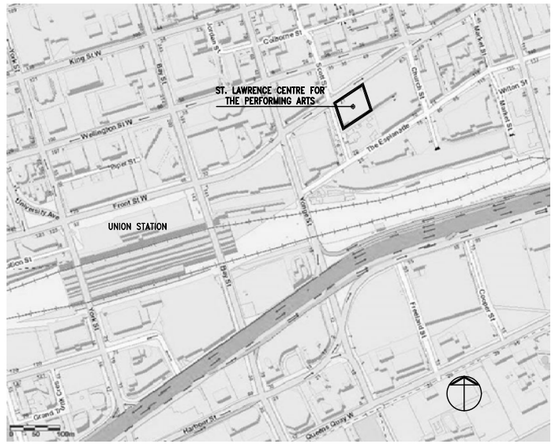
Photo 18: New “Mircom” fx2000 fire alarm control panel

ST. LAWRENCE CENTRE

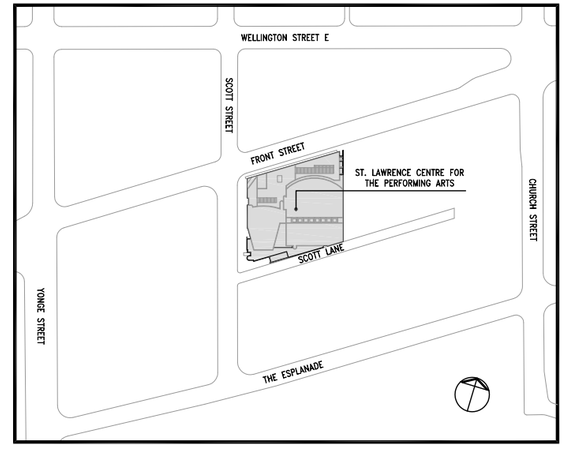
FOR THE PERFORMING ARTS



ARCHIVAL PHOTOGRAPH, ST. LAWRENCE CENTRE:
SHOWING PRINCIPAL (NORTH) FACADE ON
FRONT ST. EAST (CITY OF TORONTO ARCHIVES)

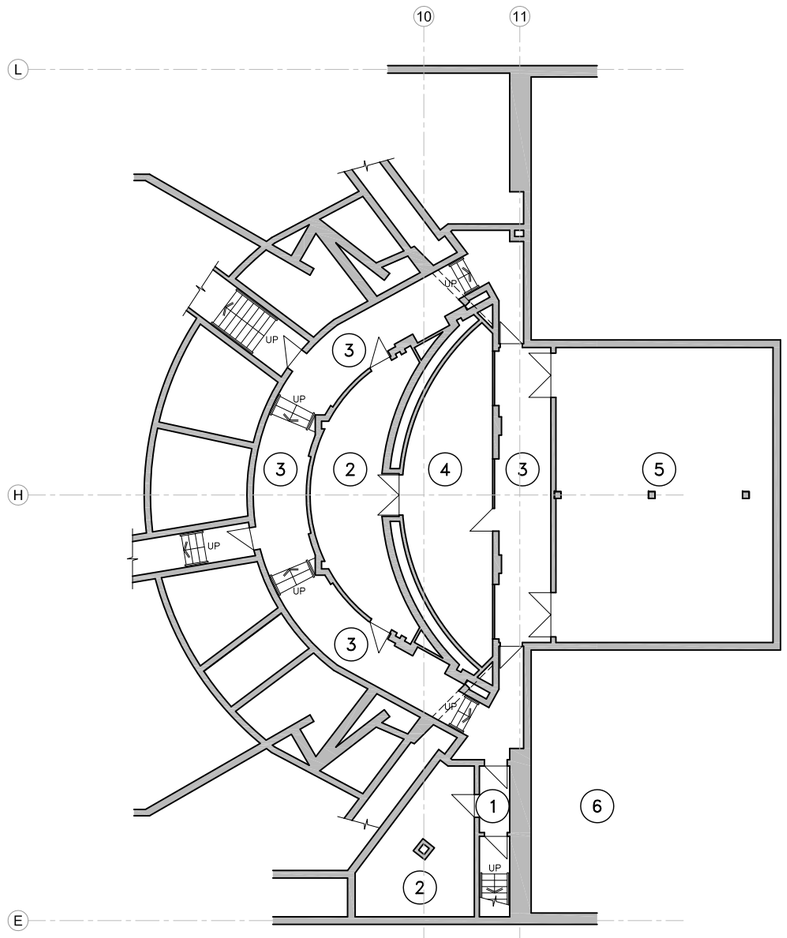


LOCATION PLAN



KEY PLAN

PHOTOGRAPH: HERITAGE PRESERVATION SERVICES, 2012



0 5 10 20 50'

EXIST. ORCHESTRA PIT

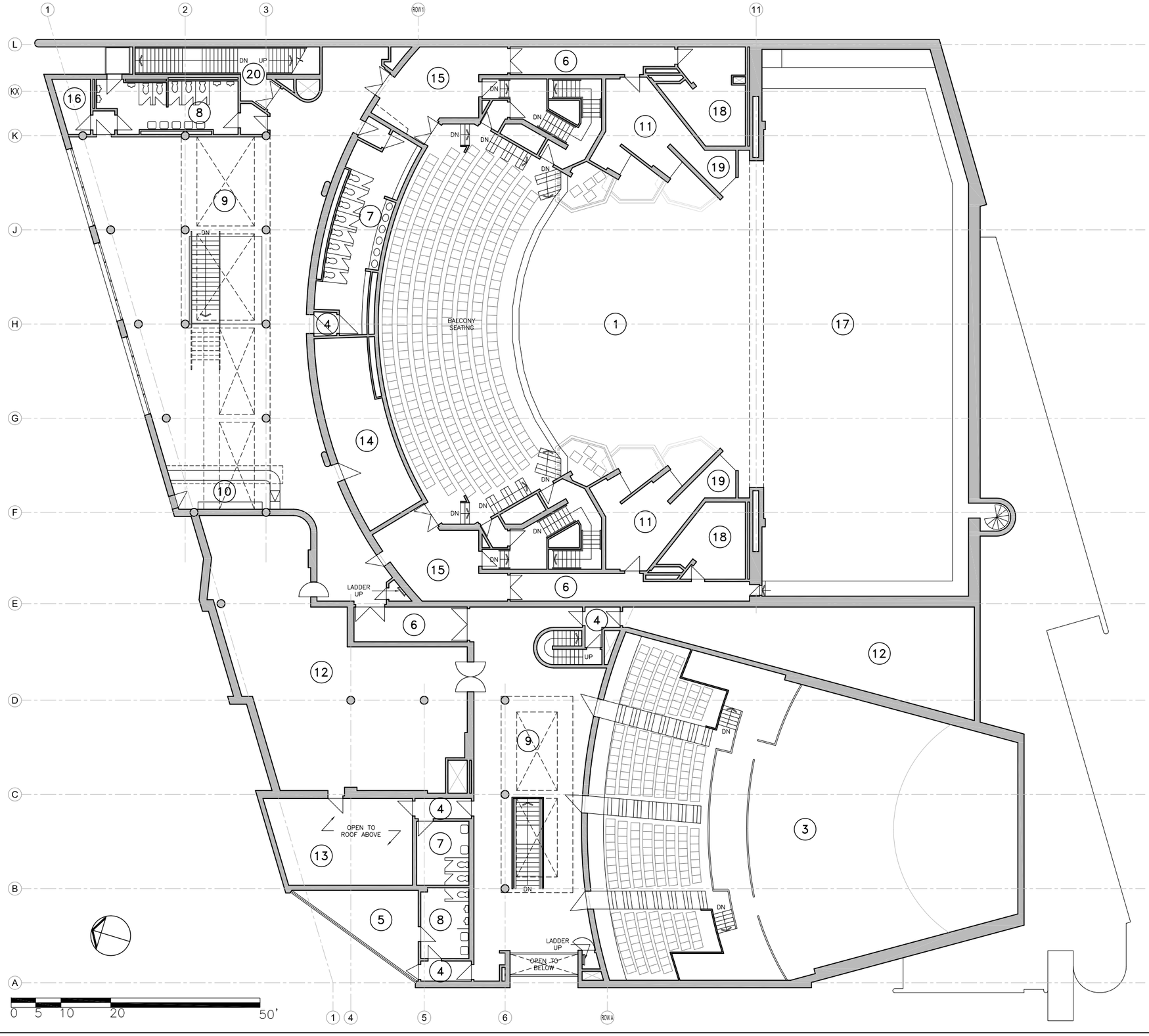
1. VESTIBULE
2. STORAGE
3. CORRIDOR
4. ORCHESTRA PIT (HYDRAULICS)
5. TRAP ROOM
6. LOWER BASEMENT/PIT AREA

EXIST. BASEMENT LEVEL

1. BLUMA APPEL THEATRE
2. W.R.
3. JANE MALLETT THEATRE
4. VESTIBULE
5. STORAGE
6. CORRIDOR
7. WOMEN'S W.R.
8. MEN'S W.R.
9. STAGE
10. MECHANICAL RM
11. ELECTRICAL RM
12. OFFICE
13. DRESSING RM
14. WARDROBE/LAUNDRY RM
15. REHEARSAL RM
16. GREEN RM
17. WAITING RM
18. KITCHEN
19. VOMITORY
20. RECEIVING DOCK
21. WORKSHOP
22. SERVER RM
23. VAULT RM
24. EAST EXIT STAIRWELL

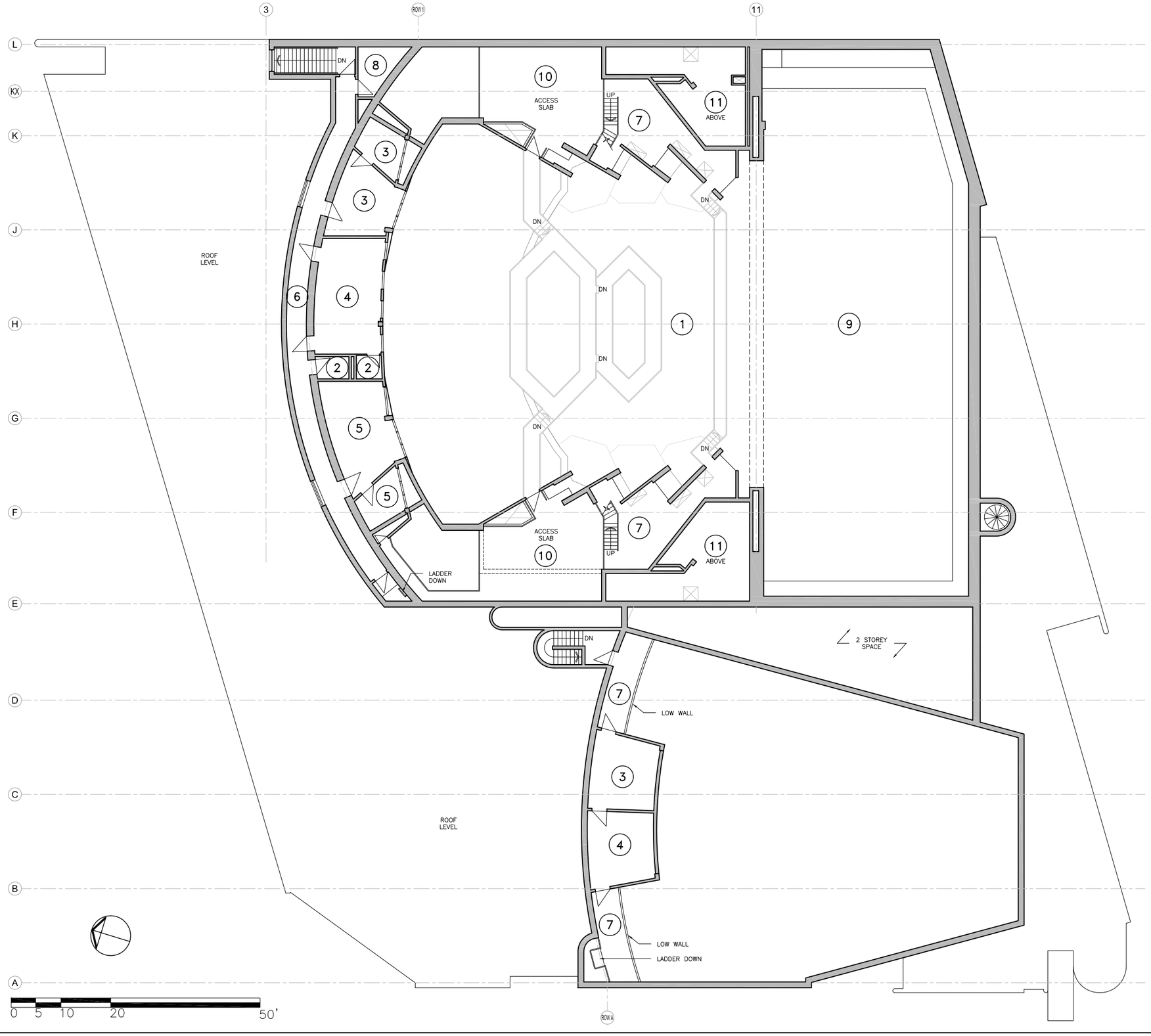
EXIST. GROUND FLOOR/ ORCHESTRA LEVEL

1. BLUMA APPEL THEATRE
2. W.R.
3. JANE MALLETT THEATRE
4. VESTIBULE
5. STORAGE
6. CORRIDOR
7. WOMEN'S W.R.
8. MEN'S W.R.
9. LOBBY
10. BAR
11. LIGHT SLOT
12. OFFICE
13. FOYER
14. BOX OFFICE
15. PRINT ROOM
16. LIFT
17. COAT ROOM
18. STAFF ROOM
19. THEATRE BOX SEATING
20. JANITOR'S CLOSET
21. STAGE TOWER
22. EAST EXIT STAIRWELL



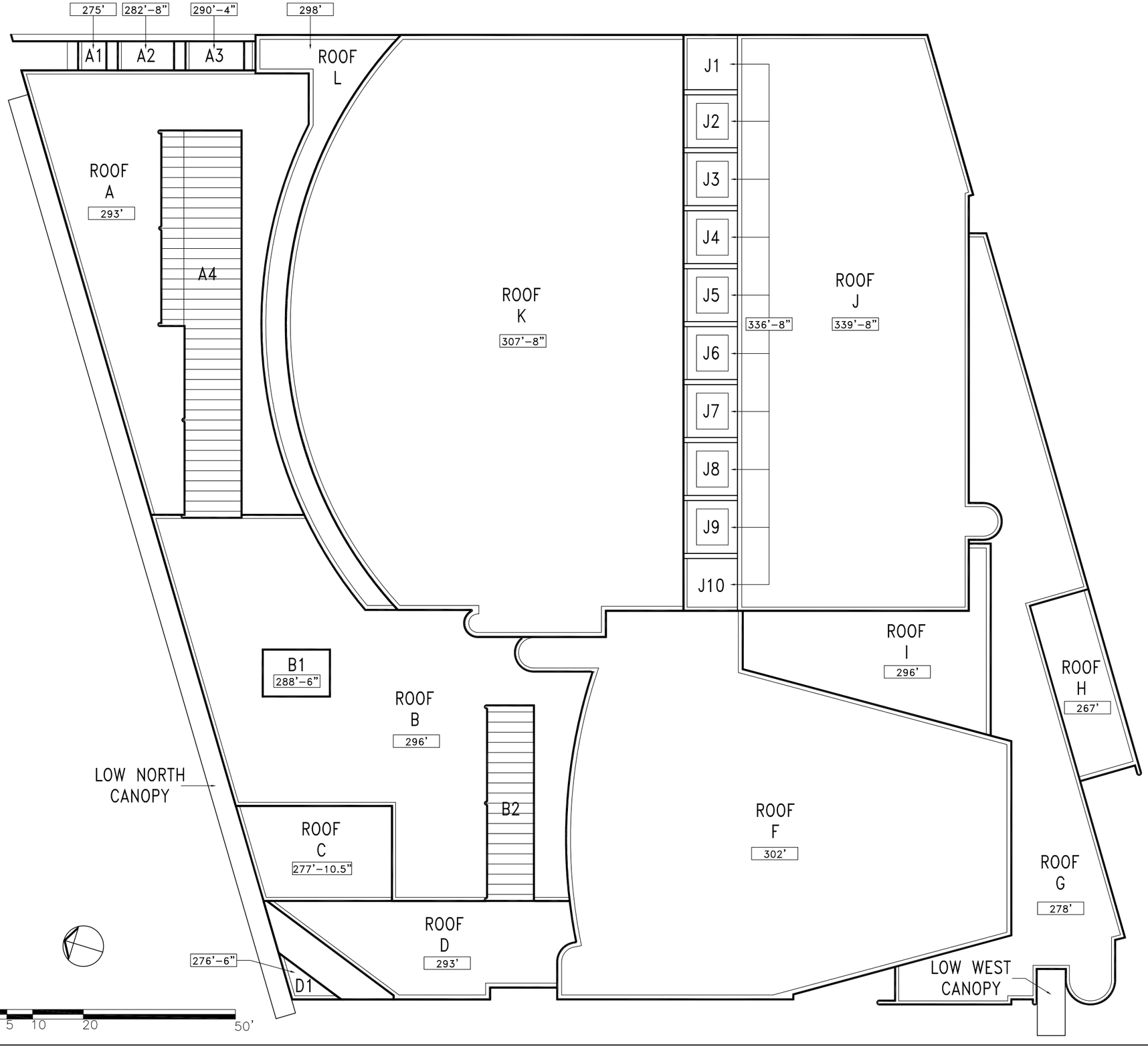
EXIST. BALCONY LEVEL/ UPPER LOBBY

1. BLUMA APPEL THEATRE
2. W.R.
3. JANE MALLETT THEATRE
4. VESTIBULE
5. STORAGE
6. CORRIDOR
7. WOMEN'S W.R.
8. MEN'S W.R.
9. LOBBY
10. BAR
11. LIGHT SLOT
12. MECHANICAL RM
13. COOLING TOWER
14. V.I.P. LOUNGE
15. TRANSFER ENTRY
16. JANITOR'S CLOSET
17. STAGE TOWER
18. USHER'S CHANGEROOM
19. LIGHT SERVICE ROOM
20. EAST EXIT STAIRWELL



EXIST. LIGHT/ SOUND RM LEVEL

1. BLUMA APPEL THEATRE
2. W.R.
3. SOUND RM
4. PROJECTION RM
5. LIGHT RM
6. CORRIDOR
7. LIGHT SLOT
8. STORAGE
9. STAGE TOWER
10. TECHNICAL AREA
11. WINCH ROOM



EXIST. ROOF PLAN