Burlington hydro inc.

Appendix L

Fleet Management Plan

Fleet Management Plan

Updated: October 2024

Prepared by: Sinisa Grkovic, Director, Network Operations

Reviewed by: Paul Heeg, VP – Eng & Ops

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1 INTRODUCTION

BHI operates a fleet of vehicles comprised of approximately 25 light-duty vehicles (cars, pick-ups and vans) and 11 heavy-duty trucks (equipped with aerial devices and radial boom derricks). The fleet also includes 9 trailers and 6 other pieces of equipment such as forklifts, back yard machine, generators and air compressor.

The vehicle fleet is strategically distributed in Operations and is utilized on a daily basis to support staff engaged in new construction and the maintenance and repair of the electrical system.

BHI uses its own Fleet Management Plan to evaluate and assist in decisions for capital fleet purchases.

2 PROJECT DESCRIPTION

This plan proposes the replacement of 25 light-duty vehicles and 11 heavy-duty vehicles in accordance with the established replacement criteria for vehicle age and kilometers (kms) as follows for the next 10 years.

It also discusses factors and criteria for trailers and equipment replacement.

3 FLEET EVALUATION MATRIX

BHI operates in many diverse locations across the City of Burlington and it is critical to the provision of economical and reliable electricity that employees are provided with safe and reliable vehicles. A fleet evaluation matrix has been established to assist with decision making for capital purchases. The matrix is used for vehicles only and not trailers or other equipment. The matrix includes six different factors and inputs that establish an overall score to evaluate each component of the fleet for possible inclusion into the capital budget. The inputs considered are age, mileage, type of service, reliability, maintenance and repair costs and condition. These factors and inputs are given scores and are described in some more detail below:

3.1 Age

The evaluation considers age of the vehicle and a point is scored for each year of the vehicle.

3.2 Mileage

The mileage (km) is input each year and a score is based on the mileage of the vehicle.
One point is given for each 16,093 kilometers (10,000 miles) of use.

3.3 Type of Service

Points are given based on the type of service for the vehicle.

1 Point – Light Duty – small vehicles for Engineering or Administrative use, Large Vehicles – on road use only and lightly loaded.

3 Points – Medium Duty – Small Vehicles – trucks used by trades which are commonly loaded; Large Vehicles – mainly on road use with average payload.

5 Points - Heavy Duty - Small & Large Vehicles - Trades use and commonly loaded for road and offroad use.

3.4 Reliability

Points are given based on number of times maintenance is required.

1 Point – Repair once every three months or less

3 Points – Repair two or three times in a three-month period

5 Points – Repair two or more times per month on average

3.5 Maintenance and Repair

Annual maintenance and repair costs are input into the matrix and points are given based on the percentage of accumulated maintenance and repair costs compared to the original purchase price of the vehicle. Points are awarded based on the following criteria:

1 Point - Accumulated cost as compared to original purchase cost - $\leq 20\%$

2 Points - Accumulated cost as compared to original purchase cost - $> 20\%$ & $\leq 47\%$

3 Points - Accumulated cost as compared to original purchase cost - $> 47\%$ & $\leq 74\%$

4 Points - Accumulated cost as compared to original purchase cost - $> 74\%$ & $< 100\%$

5 Points - Accumulated cost as compared to original purchase cost - $\geq 100\%$

3.6 Condition

The overall condition of the vehicle is evaluated and scored with the body condition, rust, interior condition, anticipated repairs, and accident history taken into consideration:

1 Point - Excellent - Truck has no signs of deterioration and is close to like new condition

2 Points - Very Good - Truck is no longer in new condition but is still in very good shape

3 Points - Good - Truck has signs of regular use

4 Points - Fair - Truck is showing signs of early deterioration with advanced signs of rust, & worn interior components.

5 Points - Poor - Truck has signs of rust perforation, seat covers are worn through, and repairs have been postponed due to age and cost benefit.

3.7 Assessment

The inputs into the matrix develop a score for each vehicle. The scores are then reviewed for further analysis before consideration is given during the annual capital budget proposals. Other qualitative and quantitative analysis is included in the decision-making process before a vehicle is included in the capital budget. For instance, vehicle counts may be reduced or increased because of staffing changes, or the particular use of a vehicle is not required anymore.

An independent analysis is completed on the trailers and other equipment that is not included in the matrix on an annual and on an as needed basis. For example, pole trailers are maintained annually but can last more than 15 years prior to replacement. Refurbishments such as axel, bearings or spring replacement or painting may be a viable option.

Matrix Score categories

Score	Status
Under 18	Excellent - Continue to Monitor
18-22	Good - Continue to Monitor
23-27	Qualifies for Replacement - Schedule Detailed Evaluation
over 27	Needs Immediate Consideration - Perform Detailed Evaluation

4 Legislative or Regulatory Requirements

Burlington Hydro complies with requirements stipulated in the following:

- Occupational and Health Safety Regulations
- Canadian Motor Vehicle Safety Standards
- Environmental Protection Act
- Air Pollution Control Regulations

5 Environmental Performance

Burlington Hydro ensures that the operation of its motorized vehicles is in compliance with existing environmental and pollution control standards through its regularly scheduled maintenance activities.

6 Maintenance or Support Arrangements

The BHI fleet of vehicles is primarily maintained by external service garages on an established schedule through the calendar year. Small vehicles are maintained by local garage in Burlington with a pre-established maintenance schedule for oil changes, general inspection and conversion of winter/summer tires. The large vehicles are also subjected to a pre-established maintenance schedule with a local garage that specializes in large fleet trucks.

7 Green Fleet

BHI is committed to a Green Fleet in the appropriate departments. As manufacturers develop Electric Vehicles (EV), improved charging systems, more access to chargers, greater battery range and a more affordable cost, considerations will be made for the use of electric vehicles

as part of BHI's 24/7 operations.

Burlington hydro inc.

Appendix M

Fleet Evaluation Matrix

FLEET EVALUATION MATRIX

Criteria	Points Awarded Based On:				
Age	Years of Service based on In-Service Date (e.g. 1 point per year of service)				
Mileage	# of kilometers (e.g. 1 Point for each 16,093 kilometers or 10,000 miles of use)				
Type of Service	Light Duty		Medium Duty		Heavy Duty
Reliability	Repair once every 3 months or less		Repair two to three times in a three month period		Repair two or more times per month on average
Maintenance and Repair Costs	Accumulated Costs <= 20% of Original Purchase	Accumulated Costs Between 20% and 47% of Original Purchase	Accumulated Costs Between 47% and 74% of Original Purchase	Accumulated Costs Between 74% and 100% of Original Purchase	Accumulated Costs Over 100% of Original Purchase
Condition	Take into Consideration body condition, rust, interior condition, anticipated repairs and accident history				
	Excellent - Truck has no signs of deterioration and is close to "like new" condition	Very Good - Truck is no longer in new condition but is in very good shape	Good - Truck has signs of regular use	Fair - Truck is showing signs of early deterioration with advances signs of rust and worn interior components	Poor - Truck is "beyond economic repair" and repairs have been postponed e.g. has signs of rust perforation, seat covers are worn through

Definitions	
Light Duty	Small Vehicles used by Engineering or Administration Large Vehicles used on road only and lightly loaded
Medium Duty	Trucks used by trades which are commonly loaded Large Vehicles used mainly on the toad with average payload
Heavy Duty	Small and Large Vehicles used by trades and commonly loaded for road and off road use

Burlington hydro inc.

Appendix N

2021 Roof Assessment Report

Garland Canada Inc.

Roof Asset Management Program

R A M P

Burlington Hydro-Roof Report 2021

Prepared For

David Timperio

October 28, 2021

Table of Contents

Client Data

Client: Burlington Hydro

Client Data

Name	Burlington Hydro		
Address 1	1340 Brant St		
City	Burlington	**Province**	Ontario
Postal	L7R 3Z7	**Country**	Canada

Contact Info

Contact Person	David Timperio	**Title**	Manager, Facilities & Security
Mobile Phone:	289-962-5859	**Office Phone:**	905-332-2276
Email:	dtimperio@burlingtonhydro.com		

Facility Summary

Client: Burlington Hydro

Facility: 1340 Brant St

Facility Data

Address 1	1340 Brant St
City	Burlington
Province	Ontario
Postal	L7R 3Z7
Type of Facility	Industrial
Contact Person	David Timperio

Asset Information

Name	Date Installed	Square Footage	Roof Access
1.0	1991	12,500	Internal Roof Hatch
1.1	1991	24,000	Internal Roof Hatch
2.0	Unknown	1,250	Internal Roof Hatch
3.0	Unknown	100	Internal Roof Hatch
4.0	Unknown	6,150	Internal Roof Hatch
4.1	Unknown	1,100	Internal Roof Hatch
4.2	Unknown	5,400	Internal Roof Hatch
5.0	Unknown	2,500	Ladder Needed
6.0	Unknown	750	Ladder Needed
Various Exterior Walls		-	


Burlington Hydro
Legend
Burlington Hydro Inc
4.0
4.1
4.2
5.0
6.0
2.0
1.0
1.1
Google Earth
Image NOAA
50 m
N

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.0

Information

Year Installed	1991	**Square Footage**	12,500
Slope Dimension	Low	**Eave Height**	30ft
Roof Access	Internal Roof Hatch	**System Type**	EPDM: Ballasted

Assembly

Roof #	Layer Type	Description	Attachment	R-Value	Thickness
1	Deck	Metal	Mechanically attached	-	-
1	Insulation	Phenolic	Unknown	29.4	3"
1	Membrane	EPDM	Ballasted	-	-

Details

Perimeter Detail	Raised Metal Edge
Flashing Material	EPDM
Drain System	Internal Roof Drains
Coping Cap	Metal

Notes
Measurements are Estimated

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 1.0

Inspection Information

Inspection Date	09/29/2021	**Core Data**	Yes
Inspection Type	Core Analysis	**Leakage**	Yes
Deck Conditions	Unknown		

Flashing Conditions

Perimeter	Unknown	**Wall**	N/A
Projections	Fair	**Counterflashing**	Fair

Miscellaneous Details

Reglets	N/A	**Debris**	No
Control Expansion Joints	Fair	**Ponding Water**	Minor
Parapet Wall	N/A	**Coping Joints**	Fair

Perimeter

Rating	Failed
Condition	The perimeters are in severely failed conditions throughout.

Field

Rating	Poor
Condition	There are no obvious signs of field deterioration based on the large river rock ballast hiding potential issues. Based on the deteriorated condition of the river rock it could be causing further punctures from foot traffic.

Penetrations

Rating	Fair
Condition	All the cones and pitch pockets needs to be topped up with mastic and coated silver.

Overall	
Rating	Failed
Condition	The roof system is an EPDM (rubber) single ply roof system with large river rock that weighs the system down. The single ply system has shrunk around the perimeters very badly and has open vertical seams and a wide open tear along the east side perimeter flashings. The severe tenting and shrinking of the EPDM membrane will allow major water infiltration along the perimeters, especially along the north and east perimeters. This roof needs to be replaced ASAP as the repairs that are required are not worth the value. Furthermore, the phenolic foam insulation used is corrosive when it gets wet which causes further damage to the metal deck which can double the cost of the roof replacement project.

Photo 1

View of the EPDM ballasted roof system where there are large river rock over a single ply black rubber membrane

Photo 2

Photo 3

View of the core cut taken reveals a metal deck and 3" phenolic foam which corrodes the deck when it becomes wet.

Photo 4

Photo 5

Core cut repaired

Photo 6

Example of multiple openings along the perimeter edge as seen here. These are all leaks sources.

Photo 7

Single Ply Tenting EPDM: Single Ply Tenting occurs at the perimeter of the roof. As the single ply membrane is exposed to UV rays it shrinks. This in turn causes the perimeter to look like a tent and exerts extreme pressure on this 1 millimeter thin membrane. Couple this pressure with the brittleness of this old rubber membrane and multiple tears/punctures develop which in turn cause leaks inside the building and will lead to complete roof failure. The stretching and movement of the membrane in this case has caused the membrane to pull away from the termination bar and cause an opening for water to enter the building envelope.

Photo 8

Further examples of severe tenting along the north side perimeter in conjunction with open vertical seams.

Photo 9

Open vertical seam along the perimeter

Photo 10

The corner is open

Photo 11

Another open seam

Photo 12

Photo 13

Open seam that needs to be repaired

Photo 14

The ballast has broken down which can cause punctures from mere foot traffic

Photo 15

Single Ply Tenting EPDM: Single Ply Tenting occurs at the perimeter of the roof. As the single ply membrane is exposed to UV rays it shrinks. This in turn causes the perimeter to look like a tent and exerts extreme pressure on this 1 millimeter thin membrane. Couple this pressure with the brittleness of this old rubber membrane and multiple tears/punctures develop which in turn cause leaks inside the building and will lead to complete roof failure. The stretching and movement of the membrane in this case has caused the membrane to pull away from the termination bar and cause an opening for water to enter the building envelope.

Photo 16

Photo 17

The old make up air unit is very corroded and likely leaks

Photo 18

This cone should be re-sealed and coated silver

Photo 19

All debris around the drain strainer should be cleaned

Photo 20

The corroded gas lines should be coated

Photo 21

Most of the gas lines should be coated

Photo 22

East side of the perimeter where the trees need to be pruned back and also had a split/ripped open flashings

Photo 23

Flashings are wide open as seen here and the following photo

Photo 24

Severe water damage from the rubber membrane that has badly torn

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.0

Inspection Options

Solution Option:	Inspection	**Action Year:**	2021
Square Footage:	12,500	**Expected Life (Years):**	-
Budget:	$1,990.00		

The Scan is a diagnostic tool and acts very much like an X-ray to determine the condition of the roof and insulation that are not visible to the naked eye. It will detect areas of wet insulation and invisible roof leaks.

Utilizing the most up to date equipment, and performing the scan at the optimal time will ensure the most accurate readings. The use of a thermal scan assists in setting priorities. Funds are spent on correction of wet insulation thereby correcting leaks and minimizing long-term costs.

The following is included as part of the Garland Infra Red Scan Service:

1. A complete scan of the designated roofs with any problem areas marked directly on the roof surface.
2. A scale drawing of the roof with all sections of wet insulation marked to scale.
3. Built up membrane analysis determining the roof felt condition, number of plies of roofing felt, adhesion between plies, pliability of the core(s) taken and adhesion of the gravel on the surface.
4. Analysis of the flashing at all areas including all perimeters and projections. Additionally, all metal counter flashing, expansion/control joints, reglet joints, copings, plumbing vents, pitch pockets, skylights, drains, and air intake and exhaust units. Notation of areas of exposed roofing felt, ridging of the roof membrane, blisters, ponding and other weaknesses.
5. Core cuts determining the type, thickness, R-value and condition of the insulation. Type of deck and air/vapour retarder noted.
6. Thermograms and photos of all problem areas.
7. Recommendations for any required work to bring the roofs up to a watertight condition immediately and recommendations for the future as related to restoration and/or replacement.

Once the scan is completed you will have the scientific information you require to make proper maintenance and capital decisions regarding your roof system. The cost for the Infrared Thermal Scan on all roof sections is $1990 (see attached map)

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.0

Maintenance Options

Solution Option:	Maintenance	**Action Year:**	2021
Square Footage:	12,500	**Expected Life (Years):**	5
Budget:	$7,900.00		

The cost to repair all the misc. items throughout each roof section as identified for each section is $7900 plus HST to complete them all.

Section 1.0
West side 2 open seams
North side 7 seams to re-seal approx
2 tall cones coat silver
Clean 2 drain strainers
Huge hole along east side 1' x 3"

Section 1.1
Repair blister 1' x 1'
Repair bare felts by drain for approx 5 sq ft with Weatherscreen
Top up 6 pitch pans and coat silver
Coping height is 5" and 5" width
Clean 4 drain strainers
2 bare felts total 5 sq ft
Seal cone and curb opening
Seal another Hvac pitch pocket

Section 2.0
Top up cone and coat silver
Clean debris from drain strainer
Reinforce vertical seam with mesh/mastic and coat silver
Re-caulk above metal counter flashing for approx. 30 feet

Section 3.0
Remove moss
Debris from roof
Clean drain strainer

Section 4.0 with hatch
Reinforce 3 vertical seams and coat silver one Hvac unit
Caulk 4 collar opening on second unit
Remove wood
Repair blister on Hvac curb flashing

Section 4.1
18 seams and coat expansion joint silver 12”
Clean drain strainer

Section 4.2
Weatherscreen transition along roof approx 25’
Large blister on south parapet wall approx 4’
Pitch pocket top up x 2 and coat silver

Section 5.0
4 wall blisters
Reinforce seams for curb
Clean moss and strainer

Section 6.0
Clean moss
Bare felts 5 sq. ft.

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.0

Replace Options			
Solution Option:	Replace	**Action Year:**	2021
Square Footage:	12,500	**Expected Life (Years):**	25
Budget Range:	$240,000.00 - $260,000.00		

2-Ply High Strength Modified Bitumen Membrane w/SBS Modified Base Sheet and High Performance SBS Modified Cap Sheet, Installed in Hot Type III Bitumen:

Warranty: Twenty (20) year warranty, No Dollar Limit (NDL), covering both labour and all materials from the deck up.

The modified bitumen roof membrane incorporates the best performance qualities of both the single layer rubber roof system and the multi-layered built-up roof system. The modified bitumen membrane uses intermittent layers of type III asphalt and fiberglass roofing felts along with a super thick and strong SBS rubber modified membrane that contains a high strength knit fiberglass and polyester reinforced scrim within its core to help strengthen the roof membrane against punctures and tearing. The multiple layers are covered by a heavy top pour of type III asphalt and are surfaced with protective roofing gravel to provide additional impact resistance while helping to shield the roof membrane from the harsh aging effects of the UV sunlight. This modified membrane dramatically improves the performance and life expectancy of the roof system, while minimizing roof maintenance costs over its life cycle of 30+ years.

SCOPE OF WORK

Replace Existing Roof Membrane

- Tear off and properly dispose of existing BUR roof membrane and metal counter flashings from the surface of the metal deck and clean deck and deck flutes in preparation for new roof installation.
- Remove any unused roof stacks and roof curbs and patch deck as required in preparation for roof replacement. At areas where rooftop curbing and equipment has been removed, deck in the voids using 10 gauge steel plates for openings 2'x2' or smaller and 22-gauge galvanized corrugated decking to match existing for openings in excess of 2'x2'. All attachments to the metal deck will be done using TEK V self -drilling fasteners.

Metal Deck Preparation

- Inspect the conditions of the metal deck. If the metal deck has any surface corrosion it will be power brushed to remove the rust scale and prepare the surface for a rust inhibitor primer. Apply RUSTGO rust inhibitor primer to the corroded deck area at a rate of ¾ gal / 100 sqft. All metal deck rust coating will be discussed with the owners' representative prior to its application and will be applied at an additional cost as per the tender form upon approval from the owner.

- Areas of the deck where the corrosion has affected the structural strength via perforations will be removed and replaced. Install new 22-gauge galvanized corrugated metal decking to match existing profile. Overlap the new decking minimum 4" onto the existing deck panels. The new decking will be mechanically fastened through the existing decking and into the open web steel joists using TEK V fasteners patterned every deck flute over each joist and the ends of the decking and every second flute over the intermediate joists located through the centre of the new deck panel. Deck replacement completed at an additional cost to the contract if required.
- During deck replacement or equipment removal, the area underneath will be hoarded off and a man posted inside until the deck is in place and secured.

Field of Roof (2-Ply Mod-Bit Membrane – Type III Hot Asphalt)

- Install 1-ply of Kraft paper vapour barrier adhered at the overlap seams, allowing excess vapour barrier at perimeters to envelope the layers of insulation.
- Install 2.5" of ISO insulation, hot mopped in a full layer of hot bitumen and set into place on top of the vapour barrier.
- Install 1/2" high density, asphalt coated, fibre insulation board over the insulation, staging the joints over the ISO insulation
- Install new drain inserts with u-flow compression gasket, laying the drain pain into a bed of elastomeric rubberized mastic.
- Install new one-piece spun aluminum tall cones and new one piece spun aluminum stack flashings, laying the drain pain into a bed of elastomeric rubberized mastic.
- Prime all drain and stack cone flashing flanges with asphalt primer.
- Install pre-manufactured tapered polyisocyanurate drain sumps (8'x8') around the perimeter of all internal drains, creating a sumped area that will enhance positive roof drainage.
- Install 1-plys SBS Modified Base Sheet using Type III asphalt at a rate of 25 lbs / 100 sqft.
- Install 1-ply of high strength SBS modified bitumen membrane using Type III asphalt at a rate of 30 lbs / 100 sqft.
- Flood coat with Type III asphalt at a minimum rate of 60 lbs / 100 sqft and embed 3/8" pea gravel at a rate of 500 lbs / 100 sqft.to create a durable UV reflective surface.
- Double pour the flood coat in each of the corners, a minimum of 10-feet in each direction, to provided added protection against the harmful effects of wind erosion.

NOTE: Installing a 2-ply Mod-Bit roof membrane will offer multiple layers of protection against a water penetration with the added protection of the top Mod-Bit cap-sheet which offers very good durability against UV aging, thermal shock with a cold weather flexibility surpassing the ASTM 6163 test standards @ -30oC.

Perimeter Flashings / Stack Flashings / Curbs Flashings / Drain Flashings

- Install a 3" fiber cant at all vertical transitions of the roof, and at the base of all vent curbs and HVAC curbs as per the manufacturers supplied details.
- Install 1-ply of SBS mod-bit base flashing using Type III asphalt at a rate of 25 lbs / 100 sqft.
- Install 1-ply of high strength SBS mod-bit cap flashing with mineral surfacing using Type III asphalt at a rate of 25 lbs / 100 sqft.
- Install termination bars along the top edges of all wall flashings and caulk the terminating seam with polyurethane sealant to prevent the flashings from slipping over time.
- Reinforce all flashing lap seams with a 3 course installation of elastomeric GarlaFlex mastic and reinforce with fiberglass mesh, to create a superior flashing assembly.
- Install new 26-gauge, series 8000 metal counter flashing around all roof penetrations.
- Install new 26-gauge, series 8000 metal copings around the entire roof perimeter.

Optional: Upgraded Top Pour- Substitute the Type III Asphalt for Cold Applied, Heavy Bodied, Rubberized, UV Rated adhesive. Increase warranty by 5 YR. Estimated increase $17,000-$20,000

Note: The top pour is the first layer of defense to protect the membrane. Rubberized adhesive will out perform standard asphalt.

Optional: Upgrade the Cap Sheet to Kevlar Reinforced, -40 Low Temperature flex rating. Increase warranty by 5 YR. Estimated increase $20,000-$24,500

Note: The Kevlar reinforced membrane has a tensile/tear strength of 1000lb/ft. Tensile/Tear strength is considered the most important factor to protect against roof splits. This membrane has additional rubber modifiers which increase the low temperature flexibility to -40.

Optional: Upgrade the pea gravel to White Calcite Gravel. Estimated increase $16,000 + HST

Note: The White Calcite gravel will provide an SRI (Solar Reflectance Index) of 78.

Additional Notes:

- Disconnect / reconnect all AC and HVAC units to allow for installation new conduit cones.
- Lift all HVAC units and exhaust fans off their curbs to allow for installation of new curb flashings.
- Paint the gas lines with RUSTGO yellow paint, and install new pre-manufactured gas line support blocks containing an encapsulated foam base pad.
- Paint all heat stacks and vents with GarlaBrite aluminized reflective paint.
- All work will follow the OIRCA good roofing practices and the areas will be left clear of all debris and equipment at the completion of the project.

NOTE: Superior flashings are the key to long roof life, as this is where the majority of the thermal stress is absorbed by the roof, and is the location where 75% of all roof leaks originate from.

Warranty: Twenty (20) year warranty, No Dollar Limit (NDL), covering both labour and all materials from the deck up.

Advantages:

- Multiple layers of construction provide multiple layers of waterproofing protection.
- Longer warranty and life expectancy as compared to any single ply or 4-ply built-up roof system.
- High tensile and tear strengths which help the roof system resist splitting and tearing from the severe freeze-thaw conditions of South Western Ontario.
- Thicker Mod-Bit Cap sheet provides added protection against roof foot traffic and surface erosion from wind scour erosion.
- The Mod-Bit Cap sheet has better low temperature flexibility than a standard 4-ply built-up roof membrane, which helps the mod-bit roof membrane to withstand traffic, and impact below the freezing point (surpassing the ASTM testing standards at -34oC)
- The SBS rubber modifiers used in the Mod-Bit cap sheet have very good slow aging characteristics, providing an extended roof membrane life.
- Modified bitumen roof membranes are very applicator friendly since the membranes are factory manufactured with far more quality control and have been engineering to overcome certain application deficiencies.
- The high-strength mod-bit membrane system will provide the building owner with the least amount of post installation problems and the lowest overall maintenance costs and life cycle costs over the life span of the roof system.
- The new roof system includes no-charge, periodic inspections by a Garland Factory Trained Representative for the duration of the roof warranty.

Please note that the above costs are budget estimates only and that the final firm price will be determined via a competitive bid process from the roofing contractors in accordance to the scope of work to be outlined in the project specifications and will include onsite inspections completed by Garland Canada (the manufacturer) during the installation process for your new roof.

Replace Options			
Solution Option:	Replace	**Action Year:**	2021
Square Footage:	12,500	**Expected Life (Years):**	30
Budget Range:	$285,000.00 - $299,000.00		

2-Ply High Strength Modified Bitumen Membrane w/SBS Modified Base Sheet and High Performance SBS Modified Cap Sheet, Installed with Low VOC Cold Applied Adhesive:

Warranty: **Twenty (25) year warranty**, No Dollar Limit (NDL), covering both labour and all materials from the deck up.

The modified bitumen roof membrane incorporates the best performance qualities of both the single layer rubber roof system and the multi-layered built-up roof system. The modified bitumen membrane uses intermittent layers of cold applied rubberized adhesive along with a super thick and strong SBS rubber modified membrane that contains a high strength knit fiberglass and polyester reinforced scrim within its core to help strengthen the roof membrane against punctures and tearing. The multiple layers are covered by a heavy top pour of cold applied, high fibered, UV Resistant rubberized adhesive and are surfaced with protective roofing gravel to provide additional impact resistance while helping to shield the roof membrane from the harsh aging effects of the UV sunlight. This modified membrane dramatically improves the performance and life expectancy of the roof system, while minimizing roof maintenance costs over its life cycle of 30+ years.

SCOPE OF WORK

Replace Existing Roof Membrane

- Tear off and properly dispose of existing BUR roof membrane and metal counter flashings from the surface of the metal deck and clean deck and deck flutes in preparation for new roof installation.
- Remove any unused roof stacks and roof curbs and patch deck as required in preparation for roof replacement. At areas where rooftop curbing and equipment has been removed, deck in the voids using 10 gauge steel plates for openings 2'x2' or smaller and 22-gauge galvanized corrugated decking to match existing for openings in excess of 2'x2'. All attachments to the metal deck will be done using TEK V self -drilling fasteners.

Metal Deck Preparation

- Inspect the conditions of the metal deck. If the metal deck has any surface corrosion it will be power brushed to remove the rust scale and prepare the surface for a rust inhibitor primer. Apply RUSTGO rust inhibitor primer to the corroded deck area at a rate of ¾ gal / 100 sqft. All metal deck rust coating will be discussed with the owners' representative prior to its application and will be applied at an additional cost as per the tender form upon approval from the owner.
- Areas of the deck where the corrosion has affected the structural strength via perforations will be removed and replaced. Install new 22-gauge galvanized corrugated metal decking to match existing profile. Overlap the new decking minimum 4" onto the existing deck panels. The new decking will be mechanically fastened through the existing decking and into the open web steel joists using TEK V fasteners patterned every deck flute over each joist and the ends of the decking and every second flute over the intermediate joists located through the centre of the new deck panel. Deck replacement completed at an additional cost to the contract if required.
- During deck replacement or equipment removal, the area underneath will be hoarded off and a man posted inside until the deck is in place and secured.

Field of Roof (2-Ply Mod-Bit Membrane – Installed with Cold Applied Adhesive)

- Install 1-ply of Kraft paper vapour barrier adhered at the overlap seams, allowing excess vapour barrier at perimeters to envelope the layers of insulation.
- Install 2.5" of ISO insulation set into place on top of the vapour barrier.
- Install 1/2" high density, asphalt coated, fibre insulation board over the insulation, staging the joints over the ISO insulation
- Install new drain inserts with u-flow compression gasket, laying the drain pain into a bed of elastomeric rubberized mastic.
- Install new one-piece spun aluminum tall cones and new one piece spun aluminum stack flashings, laying the drain pain into a bed of elastomeric rubberized mastic.
- Prime all drain and stack cone flashing flanges with asphalt primer.
- Install pre-manufactured tapered polyisocyanurate drain sumps (8'x8') around the perimeter of all internal drains, creating a sumped area that will enhance positive roof drainage.
- Install 1-plys SBS Modified Base Sheet using cold applied adhesive at a rate of 2.5 gal / 100 sqft.
- Install 1-ply of high strength SBS modified bitumen membrane using cold applied adhesive at a rate of 2.5 gal / 100 sqft.
- Flood coat with rubberized, high fibered UV rated adhesive at a minimum rate of 6 gal / 100 sqft and embed 3/8" pea gravel at a rate of 500 lbs / 100 sqft.to create a durable UV reflective surface.
- Double pour the flood coat in each of the corners, a minimum of 10-feet in each direction, to provided added protection against the harmful effects of wind erosion.

NOTE: Installing a 2-ply Mod-Bit roof membrane will offer multiple layers of protection against a water penetration with the added protection of the top Mod-Bit cap-sheet which offers very good durability against UV aging, thermal shock with a cold weather flexibility surpassing the ASTM 6163 test standards @ -30oC.

Perimeter Flashings / Stack Flashings / Curbs Flashings / Drain Flashings

- Install a 3" fiber cant at all vertical transitions of the roof, and at the base of all vent curbs and HVAC curbs as per the manufacturers supplied details.
- Install 1-ply of SBS mod-bit base flashing using cold applied adhesive.
- Install 1-ply of high strength SBS mod-bit cap flashing with mineral surfacing using cold applied adhesive.
- Install termination bars along the top edges of all wall flashings and caulk the terminating seam with polyurethane sealant to prevent the flashings from slipping over time.
- Reinforce all flashing lap seams with a 3 course installation of elastomeric GarlaFlex mastic and reinforce with fiberglass mesh, to create a superior flashing assembly.
- Install new 26-gauge, series 8000 metal counter flashing around all roof penetrations.
- Install new 26-gauge, series 8000 metal copings around the entire roof perimeter.

Top Pour- Cold Applied, Heavy Bodied, Rubberized, UV Rated adhesive.

Note: The top pour is the first layer of defense to protect the membrane. Rubberized adhesive will out perform standard asphalt.

Optional: Upgrade the Cap Sheet to Kevlar Reinforced, -40 Low Temperature flex rating. Increase warranty by 5 YR. Estimated increase $20,000-$24,500

Note: The Kevlar reinforced membrane has a tensile/tear strength of 1000lb/ft. Tensile/Tear strength is considered the most important factor to protect against roof splits. This membrane has additional rubber modifiers which increase the low temperature flexibility to -40.

Optional: Upgrade the pea gravel to White Calcite Gravel. Estimated increase $16,000 + HST

Note: The White Calcite gravel will provide an SRI (Solar Reflectance Index) of 78.

Additional Notes:

- Disconnect / reconnect all AC and HVAC units to allow for installation new conduit cones.
- Lift all HVAC units and exhaust fans off their curbs to allow for installation of new curb flashings.

- Paint the gas lines with RUSTGO yellow paint, and install new pre-manufactured gas line support blocks containing an encapsulated foam base pad.
- Paint all heat stacks and vents with GarlaBrite aluminized reflective paint.
- All work will follow the OIRCA good roofing practices and the areas will be left clear of all debris and equipment at the completion of the project.

NOTE: Superior flashings are the key to long roof life, as this is where the majority of the thermal stress is absorbed by the roof, and is the location where 75% of all roof leaks originate from.

Warranty: Twenty (25) year warranty, No Dollar Limit (NDL), covering both labour and all materials from the deck up.

Advantages:

- Multiple layers of construction provide multiple layers of waterproofing protection.
- Longer warranty and life expectancy as compared to any single ply or 4-ply built-up roof system.
- High tensile and tear strengths which help the roof system resist splitting and tearing from the severe freeze-thaw conditions of South Western Ontario.
- Thicker Mod-Bit Cap sheet provides added protection against roof foot traffic and surface erosion from wind scour erosion.
- The Mod-Bit Cap sheet has better low temperature flexibility than a standard 4-ply built-up roof membrane, which helps the mod-bit roof membrane to withstand traffic, and impact below the freezing point (surpassing the ASTM testing standards at -34oC)
- The SBS rubber modifiers used in the Mod-Bit cap sheet have very good slow aging characteristics, providing an extended roof membrane life.
- Modified bitumen roof membranes are very applicator friendly since the membranes are factory manufactured with far more quality control and have been engineering to overcome certain application deficiencies.
- The high-strength mod-bit membrane system will provide the building owner with the least amount of post installation problems and the lowest overall maintenance costs and life cycle costs over the life span of the roof system.
- The new roof system includes no-charge, periodic inspections by a Garland Factory Trained Representative for the duration of the roof warranty.

Please note that the above costs are budget estimates only and that the final firm price will be determined via a competitive bid process from the roofing contractors in accordance to the scope of work to be outlined in the project specifications and will include onsite inspections completed by Garland Canada (the manufacturer) during the installation process for your new roof.

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.0

Repair Options			
Solution Option:	Repair	**Action Year:**	2021
Square Footage:	12,500	**Expected Life (Years):**	-
Budget:	-		

Section 1.0

West side 2 open seams
North side 7 seams to re-seal approx.
2 tall cones coat silver
Clean 2 drain strainers
Huge hole along east side 1’ x 3”
Severe tenting all three sides
Trim trees back

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.1

Information

Year Installed	1991	**Square Footage**	24,000
Slope Dimension	Low	**Eave Height**	30ft
Roof Access	Internal Roof Hatch	**System Type**	Built Up Roof (BUR)

Assembly

Roof #	Layer Type	Description	Attachment	R-Value	Thickness
1	Deck	Metal	Mechanically attached	-	-
1	Vapor Retarder	Kraft paper	Spot Mopped	-	-
1	Insulation	Fiberglass	Hot asphalt	5.85	1.5"
1	Membrane	BUR	Hot asphalt	-	-

Details

Perimeter Detail	Raised Metal Edge
Flashing Material	Modified Membrane
Drain System	Internal Roof Drains
Coping Cap	Metal

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 1.1

Inspection Information

Inspection Date	09/29/2021	**Core Data**	Yes
Inspection Type	Core Analysis	**Leakage**	No
Deck Conditions	Unknown		

Flashing Conditions

Perimeter	Fair	**Wall**	N/A
Projections	Poor	**Counterflashing**	Fair

Miscellaneous Details

Reglets	N/A	**Debris**	No
Control Expansion Joints	Fair	**Ponding Water**	Moderate
Parapet Wall	N/A	**Coping Joints**	Fair

Perimeter

Rating	Fair
Condition	

Field

Rating	Poor
Condition	

Penetrations

Rating	Poor
Condition	

Drainage	
Rating	2
Condition	

Overall	
Rating	Poor
Condition	The roof is an asphalt 4 ply roof system with hot asphalt and pea gravel. The top flood coat of asphalt has dried out and has started to dry out in a variety of areas. The insulation is fiberglass which dates the roof back to the early 90s which makes the roof approximately 30 years, well past its typical service life. There is one area towards the east side that requires an additional drain and there are a few field issues such as bare felts and blisters that need to be repaired.

Photo 1

View of the asphalt built up roof system which is in much better condition than the rubber single ply roof system

Photo 2

Photo 3

Core cut reveals 1.5" fiberglass and kraft paper vapour barrier

Photo 4

Core cut repaired with rubberized mastic

Photo 5

Pitch Pocket Deterioration: Metal protrusions that penetrate the roof system to allow conduits to run from the rooftop into the building. Movement from the protrusion can break the waterproofing compound, creating cracks. Over time, the release of solvents from the compound can cause the material to shrink, leaving gaps along the edges of the pan and around structural support. Water can enter through a defective pitch pan and find its way into the interior of the building. Moisture can also penetrate into the roof system leading to premature failure.

Photo 6

Area that requires a drain

Photo 7

The flashings are in fair condition where spot checked

Photo 8

View of the expansion joint that has full metal

Photo 9

Photo 10

Bare Felts: Weathering causes the roofs surfacing materials to oxidize and wear away after a period of time. Loss of protection from the surfacing material results in accelerated deterioration of the primary waterpoofer asphalt, along with the systems reinforcement plies which provide the strength for the system. The exposed reinforcement will begin to absorb and wick moisture into the built up layers of the roof system. This condition leads to accelerated damage via blisters and interlayer delamination.

Photo 11

Photo 12

View of the corroded exhaust

Photo 13

Photo 14

Bare Felts: Weathering causes the roofs surfacing materials to oxidize and wear away after a period of time. Loss of protection from the surfacing material results in accelerated deterioration of the primary waterpoofer asphalt, along with the systems reinforcement plies which provide the strength for the system. The exposed reinforcement will begin to absorb and wick moisture into the built up layers of the roof system. This condition leads to accelerated damage via blisters and interlayer delamination.

Photo 15

Blisters: Soft spongy pockets or swellings in the roofing material. They occur between layers of felt or between the roof membrane and substrate. Air or moisture vapor entrapped within a blister expands as the roof and outside air temperatures rise. This results in sufficient pressure to push the roofing felts upwards and apart. Blisters may be ruptured by roof traffic, expanding frozen water, or hail (especially during colder weather). Some blisters may become so large as to affect drainage, which may then cause ponding water. Laps could also be pulled apart, resulting in leakage. A ruptured blister will immediately allow water to penetrate and damage the roof system.

Photo 16

The trees should be pruned back

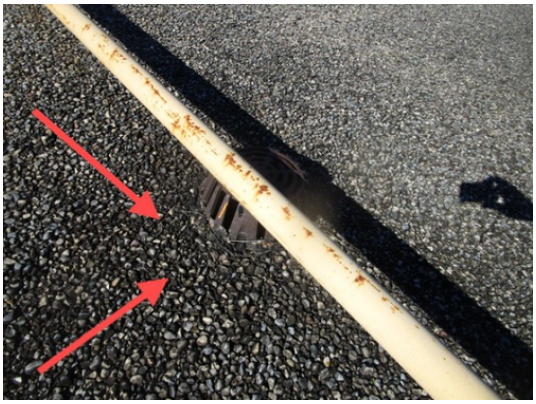


Photo 17

Blueberries: These are the result of dried out surface asphalt. They appear on the roof as small blue or black balls or berries. When the top pour of asphalt erodes to this stage, the roof system has lost at least 40% of its waterproofing ability.

Photo 18

There is minor ponding water that requires an extra drain

Photo 19

Photo 20

Pitch Pocket Deterioration: Metal protrusions that penetrate the roof system to allow conduits to run from the rooftop into the building. Movement from the protrusion can break the waterproofing compound, creating cracks. Over time, the release of solvents from the compound can cause the material to shrink, leaving gaps along the edges of the pan and around structural support. Water can enter through a defective pitch pan and find its way into the interior of the building. Moisture can also penetrate into the roof system leading to premature failure.

Photo 21

Photo 22

Blueberries: These are the result of dried out surface asphalt. They appear on the roof as small blue or black balls or berries. When the top pour of asphalt erodes to this stage, the roof system has lost at least 40% of its waterproofing ability.

Photo 23

Close view of the blueberries

Photo 24

The top flood coat has dried out and eroded

Photo 25

The cone should be re-sealed and coated silver

Photo 26

Corroded gas lines need to be coated

Photo 27

The flashings have a water line stain that confirms an additional drain is required on the east side of the roof

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 1.1

Repair Options

Solution Option:	Repair	**Action Year:**	2021
Square Footage:	24,000	**Expected Life (Years):**	-
Budget:	-		

Repair blister 1’ x 1’
Repair bare felts by drain for approx. 5 sq. ft. with Weatherscreen
Top up 6 pitch pans and coat silver
Clean 4 drain strainers
2 bare felts total 5 sq. ft.
Seal cone and curb opening
Seal another Hvac pitch pocket

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 2.0

Information

Year Installed	Unknown	**Square Footage**	1,250
Slope Dimension	Low	**Eave Height**	20ft
Roof Access	Internal Roof Hatch	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 2.0

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Visual Inspection	**Leakage**	No
Deck Conditions	Unknown		

Flashing Conditions

Perimeter	Fair	**Wall**	Poor
Projections	-	**Counterflashing**	-

Miscellaneous Details

Reglets	Poor	**Debris**	Yes
Control Expansion Joints	N/A	**Ponding Water**	Minor
Parapet Wall	N/A	**Coping Joints**	Fair

Perimeter

Rating	Fair
Condition	

Field

Rating	Fair
Condition	

Penetrations

Rating	Fair
Condition	

Drainage	
Rating	Fair
Condition	

Overall	
Rating	Fair
Condition	The built up roof with pea gravel is in fair condition and needs a few minor items to rectify potential leak sources. The wall requires attention as there are cracks in the precast and dried out caulking between the slabs.

Photo 1

View of the small roof section

Photo 2

View of elevated platform completed with a mineral modified membrane

Photo 3

The vertical seam has opened up and needs to be repaired

Photo 4

The tree should be pruned back.

Photo 5

Photo 6

The drain strainer should be cleaned

Photo 7

South side of the roof section

Photo 8

The precast wall has a few cracks

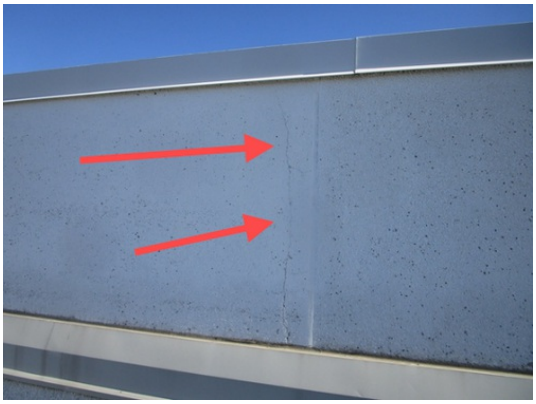


Photo 9

Cracks along the precast wall

Photo 10

The precast seams need to be re-caulked with a new backer rod installed

Photo 11

The cone should be re-sealed and coated silver

Photo 12

The caulking above the metal counter flashings should be re-caulked as it has dried out

Photo 13

View of open seam along the platform

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 2.0

Maintenance Options

Solution Option:	Maintenance	**Action Year:**	2021
Square Footage:	1,250	**Expected Life (Years):**	-
Budget:	-		

Top up cone and coat silver
Clean debris from drain strainer
Reinforce vertical seam with mesh/mastic and coat silver
Re-caulk above metal counter flashing for approx. 30 feet

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 3.0

Information

Year Installed	Unknown	**Square Footage**	100
Slope Dimension	Low	**Eave Height**	20ft
Roof Access	Internal Roof Hatch	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 3.0

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Visual Inspection	**Leakage**	No

Flashing Conditions

Perimeter	Fair	**Wall**	Good
Projections	-	**Counterflashing**	-

Miscellaneous Details

Reglets	-	**Debris**	Yes
Control Expansion Joints	-	**Ponding Water**	Moderate
Parapet Wall	-	**Coping Joints**	-

Overall

Rating	Fair
Condition	The small roof holds water and requires the trees to be pruned back. All the moss growth and debris in the scupper should be cleaned out to allow for better drainage.

Photo 1

Vegetation Growth: Vegetation often occurs when dirt and debris collect on roof systems. Over time this creates a perfect medium for plant and weed growth. When seeds take hold the roots will often penetrate through the membrane causing immediate leaks and damage internally.

Photo 2

Close up view of the moss growth

Photo 3

The scupper needs to be cleaned out as it is very small in size

Photo 4

Membrane flashings are in fair condition

Photo 5

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 3.0

Maintenance Options

Solution Option:	Maintenance	**Action Year:**	2021
Square Footage:	100	**Expected Life (Years):**	-
Budget:	-		

Remove moss and debris from roof
Clean drain strainer

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 4.0

Information

Year Installed	Unknown	**Square Footage**	6,150
Slope Dimension	Low	**Eave Height**	30ft
Roof Access	Internal Roof Hatch	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 4.0

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Core Analysis	**Leakage**	Yes

Flashing Conditions

Perimeter	Good	**Wall**	-
Projections	Poor	**Counterflashing**	Fair

Miscellaneous Details

Reglets	-	**Debris**	Yes
Control Expansion Joints	-	**Ponding Water**	Minor
Parapet Wall	-	**Coping Joints**	-

Overall

Rating	Invalid Lookup Rating ()
Condition	The roof system located on the north side of the building appears to be in good condition except for a few areas that require maintenance. It was surprising that the core cut revealed damp fiberboard which confirms there is a breach in the system. The roof should be scanned to confirm the extent of the potential wet insulation. There are a number of maintenance items required around the HVAC units from the seams to the cones that need to be reinforced.

Photo 1

View of the roof between the HVAC units

Photo 2

The field of the roof is performing well.

Photo 3

The core cut reveals polyisocyanurate and fiberboard insulation.

Photo 4

The fiberboard was damp as seen in the photo

Photo 5

The core cut was repaired with rubberized mastic and fiberglass mesh

Photo 6

Loose wood debris with nails should be removed from the roof

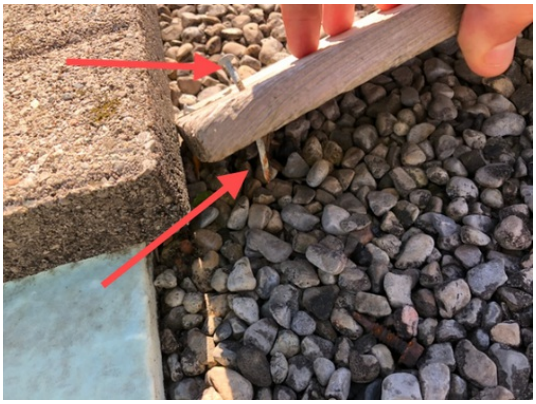


Photo 7

Closer view of nail

Photo 8

Open seams along the flashings need to be repaired, including the cone where the wires run.

Photo 9

Debris should be removed from the drain strainer

Photo 10

Pitch Pocket Deterioration: Metal protrusions that penetrate the roof system to allow conduits to run from the rooftop into the building. Movement from the protrusion can break the waterproofing compound, creating cracks. Over time, the release of solvents from the compound can cause the material to shrink, leaving gaps along the edges of the pan and around structural support. Water can enter through a defective pitch pan and find its way into the interior of the building. Moisture can also penetrate into the roof system leading to premature failure.

Photo 11

Blisters: Soft spongy pockets or swellings in the roofing material. They occur between layers of felt or between the roof membrane and substrate. Air or moisture vapor entrapped within a blister expands as the roof and outside air temperatures rise. This results in sufficient pressure to push the roofing felts upwards and apart. Blisters may be ruptured by roof traffic, expanding frozen water, or hail (especially during colder weather). Some blisters may become so large as to affect drainage, which may then cause ponding water. Laps could also be pulled apart, resulting in leakage. A ruptured blister will immediately allow water to penetrate and damage the roof system.

Photo 12

Bare Felts: Weathering causes the roofs surfacing materials to oxidize and wear away after a period of time. Loss of protection from the surfacing material results in accelerated deterioration of the primary waterpoofer asphalt, along with the systems reinforcement plies which provide the strength for the system. The exposed reinforcement will begin to absorb and wick moisture into the built up layers of the roof system. This condition leads to accelerated damage via blisters and interlayer delamination.

Photo 13

The field of the roof appears to be in good condition

Photo 14

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 4.0

Maintenance Options

Solution Option:	Maintenance	**Action Year:**	2021
Square Footage:	6,150	**Expected Life (Years):**	-
Budget:	-		

Reinforce 3 vertical seams and coat silver one Hvac unit
Caulk 4 collar opening on second unit
Remove wood
Repair blister on Hvac curb flashing

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 4.1

Information

Year Installed	Unknown	**Square Footage**	1,100
Slope Dimension	Low	**Eave Height**	30ft
Roof Access	Internal Roof Hatch	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 4.1

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Visual Inspection	**Leakage**	No

Flashing Conditions

Perimeter	Fair	**Wall**	-
Projections	-	**Counterflashing**	-

Miscellaneous Details

Reglets	-	**Debris**	No
Control Expansion Joints	Poor	**Ponding Water**	-
Parapet Wall	-	**Coping Joints**	-

Overall

Rating	Invalid Lookup Rating ()
Condition	The small roof section requires some minor maintenance along the mineral surface expansion joint. The field of the roof appears to be in fair condition.

Photo 1

View of very small roof section

Photo 2

The area divider requires some repairs

Photo 3

Mineral loss along the expansion joint.

Photo 4

View of expansion joint located towards the south that requires maintenance

Photo 5

The field looks to be in good condition

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 4.1

Repair Options			
Solution Option:	Repair	**Action Year:**	2021
Square Footage:	1,100	**Expected Life (Years):**	-
Budget:	-		

18 seams (12") to be reinforced with rubberized mastic and coat expansion joint silver
Clean drain strainer

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 4.2

Information

Year Installed	Unknown	**Square Footage**	5,400
Slope Dimension	Low	**Eave Height**	30ft
Roof Access	Internal Roof Hatch	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 4.2

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Visual Inspection	**Leakage**	No

Flashing Conditions

Perimeter	Fair	**Wall**	-
Projections	Fair	**Counterflashing**	Fair

Miscellaneous Details

Reglets	-	**Debris**	No
Control Expansion Joints	-	**Ponding Water**	Minor
Parapet Wall	-	**Coping Joints**	-

Overall

Rating	Invalid Lookup Rating ()
Condition	The roof towards the south side of the building is showing signs of deterioration throughout the field. There are a number of ridges and bare felts that indicates the roof has started to age and requires immediate maintenance to reduce leaks. There is one blister along the south flashings that needs to be repaired.

Photo 1

View of the field of the roof which is in fair condition

Photo 2

Ridges: These show up on the surface of built up roofs as linear buckling felt lines protruding upward through the surface layers of asphalt and aggregate. Ridges are formed by either thermal changes expanding and contracting the roofing felts or by gaps in the underlying insulation that allow vapor to migrate upwards through the roof system. Over a period of time ridges will grow and erode until they are stripped of their protective asphalt. These exposed ridges, through repeated weather cycling, will eventually crack and split to allow water into the roof system.

Photo 3

View of the south side perimeter looking down to roof section 5.0

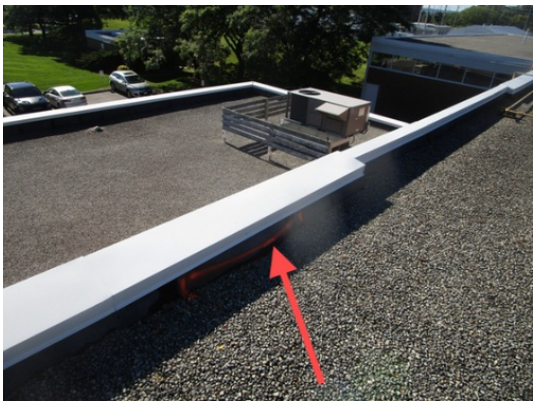


Photo 4

Blisters: Soft spongy pockets or swellings in the roofing material. They occur between layers of felt or between the roof membrane and substrate. Air or moisture vapor entrapped within a blister expands as the roof and outside air temperatures rise. This results in sufficient pressure to push the roofing felts upwards and apart. Blisters may be ruptured by roof traffic, expanding frozen water, or hail (especially during colder weather). Some blisters may become so large as to affect drainage, which may then cause ponding water. Laps could also be pulled apart, resulting in leakage. A ruptured blister will immediately allow water to penetrate and damage the roof system.

Photo 5

Ridges: These show up on the surface of built up roofs as linear buckling felt lines protruding upward through the surface layers of asphalt and aggregate. Ridges are formed by either thermal changes expanding and contracting the roofing felts or by gaps in the underlying insulation that allow vapor to migrate upwards through the roof system. Over a period of time ridges will grow and erode until they are stripped of their protective asphalt. These exposed ridges, through repeated weather cycling, will eventually crack and split to allow water into the roof system.

Photo 6

Bare Felts: Weathering causes the roofs surfacing materials to oxidize and wear away after a period of time. Loss of protection from the surfacing material results in accelerated deterioration of the primary waterpoofer asphalt, along with the systems reinforcement plies which provide the strength for the system. The exposed reinforcement will begin to absorb and wick moisture into the built up layers of the roof system. This condition leads to accelerated damage via blisters and interlayer delamination.

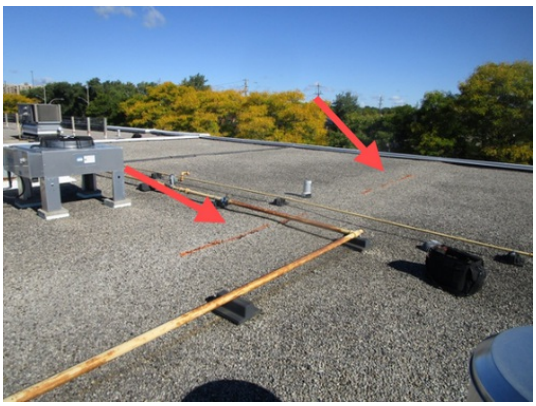


Photo 7

Ridges: These show up on the surface of built up roofs as linear buckling felt lines protruding upward through the surface layers of asphalt and aggregate. Ridges are formed by either thermal changes expanding and contracting the roofing felts or by gaps in the underlying insulation that allow vapor to migrate upwards through the roof system. Over a period of time ridges will grow and erode until they are stripped of their protective asphalt. These exposed ridges, through repeated weather cycling, will eventually crack and split to allow water into the roof system.

Photo 8

Cone should be sealed and coated silver

Photo 9

Open seams need to be repaired with rubberized mastic and mesh.

Photo 10

Mineral loss along the expansion joint that requires repairs

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 4.2

Maintenance Options

Solution Option:	Maintenance	**Action Year:**	2021
Square Footage:	5,400	**Expected Life (Years):**	-
Budget:	-		

Weatherscreen transition along roof approx 25’
Large blister on south parapet wall approx 4’
Pitch pocket top up x 2 and coat silver

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 5.0

Information

Year Installed	Unknown	**Square Footage**	2,500
Slope Dimension	Low	**Eave Height**	20ft
Roof Access	Ladder Needed	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 5.0

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Visual Inspection	**Leakage**	No

Flashing Conditions

Perimeter	Failed	**Wall**	Good
Projections	-	**Counterflashing**	Poor

Miscellaneous Details

Reglets	Poor	**Debris**	Yes
Control Expansion Joints	-	**Ponding Water**	Minor
Parapet Wall	Fair	**Coping Joints**	-

Perimeter

Rating	Poor
Condition	A number of areas where water is in getting in the flashings that needs to be repaired.

Overall

Rating	Invalid Lookup Rating ()
Condition	The roof system in the field is in good condition, however, the flashings have numerous issues where there is water in the flashings that needs to be repaired, especially along the east side wing.

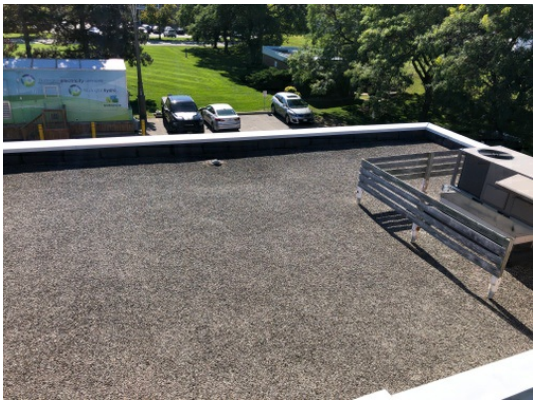


Photo 1

View of lower office roof

Photo 2

The field is in good condition

Photo 3

Photo 4

Debris should be removed from the drain strainer

Photo 5

Photo 6

View of the east side of the roof

Photo 7

Caulking has dried out along the top of the metal counter flashings

Photo 8

Blisters: Soft spongy pockets or swellings in the roofing material. They occur between layers of felt or between the roof membrane and substrate. Air or moisture vapor entrapped within a blister expands as the roof and outside air temperatures rise. This results in sufficient pressure to push the roofing felts upwards and apart. Blisters may be ruptured by roof traffic, expanding frozen water, or hail (especially during colder weather). Some blisters may become so large as to affect drainage, which may then cause ponding water. Laps could also be pulled apart, resulting in leakage. A ruptured blister will immediately allow water to penetrate and damage the roof system.

Photo 9

Blisters: Soft spongy pockets or swellings in the roofing material. They occur between layers of felt or between the roof membrane and substrate. Air or moisture vapor entrapped within a blister expands as the roof and outside air temperatures rise. This results in sufficient pressure to push the roofing felts upwards and apart. Blisters may be ruptured by roof traffic, expanding frozen water, or hail (especially during colder weather). Some blisters may become so large as to affect drainage, which may then cause ponding water. Laps could also be pulled apart, resulting in leakage. A ruptured blister will immediately allow water to penetrate and damage the roof system.

Photo 10

The flashings may have water in the system

Photo 11

A number of blisters and potential water in the flashings that need to be repaired

Photo 12

Photo 13

View of the blisters in the flashings

Photo 14

Photo 15

Photo 16

The wall looks to be in good condition

Photo 17

The field is in good condition

Photo 18

Photo 19

The walls appears to be in fair condition and will need the expansion joint to be repaired in the near future.

Photo 20

View of the lower office

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 5.0

Restore Options

Solution Option:	Restore	**Action Year:**	2021
Square Footage:	2,500	**Expected Life (Years):**	-
Budget:	-		

4 wall blisters to be repaired
Reinforce 4 corner seams for one curb
Clean moss and strainer

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 6.0

Information

Year Installed	Unknown	**Square Footage**	750
Slope Dimension	Low	**Eave Height**	20ft
Roof Access	Ladder Needed	**System Type**	Built Up Roof (BUR)

Notes

Measurements are estimated.

Inspection Report

Client: Burlington Hydro

Facility: 1340 Brant St

Report Date: 09/29/2021

Roof Section: 6.0

Inspection Information

Inspection Date	09/29/2021	**Core Data**	No
Inspection Type	Visual Inspection	**Leakage**	No

Flashing Conditions

Perimeter	Fair	**Wall**	-
Projections	-	**Counterflashing**	-

Miscellaneous Details

Reglets	-	**Debris**	Yes
Control Expansion Joints	-	**Ponding Water**	Minor
Parapet Wall	-	**Coping Joints**	-

Overall

Rating	Invalid Lookup Rating ()
Condition	The three roof sections appear to be performing well. The trees should be pruned back and all debris removed from the drain strainers and scuppers.

Photo 1

View of the three small roof sections. The trees should be pruned back and any debris should be removed from the various roof sections. All debris should be removed from the scuppers and drain strainer.

Photo 2

Photo 3

Solution Options

Client: Burlington Hydro

Facility: 1340 Brant St

Roof Section: 6.0

Maintenance Options			
Solution Option:	Maintenance	**Action Year:**	2021
Square Footage:	750	**Expected Life (Years):**	-
Budget:	-		

Section 6.0
Clean moss
Bare felts 5 sq. ft.

Construction Details

Client: Burlington Hydro

Facility: 1340 Brant St

Wall: Various Exterior Walls

Information			
Year Installed	-	Square Footage	-

Photo Report

Client: Burlington Hydro
Facility: 1340 Brant St
Wall: Various Exterior Walls

Report Date: 09/29/2021
Title: Fall Roof Inspection

The exterior bricks walls in a number of areas are in a failed condition and needs attention. Furthermore, the precast walls around the warehouse requires the seams to be re-caulked and new backer rod installed.

Photo 1

Red bricks appear to be in fair condition

Photo 2

Cracks above roof section 2.0 needs to be repaired.

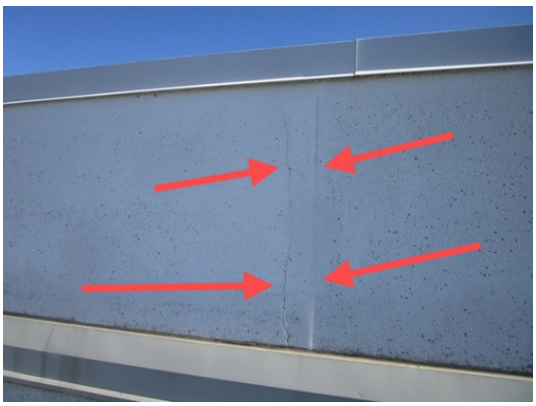


Photo 3

Cracks and dried caulking between the panels over section 2.0 should be repaired.

Photo 4

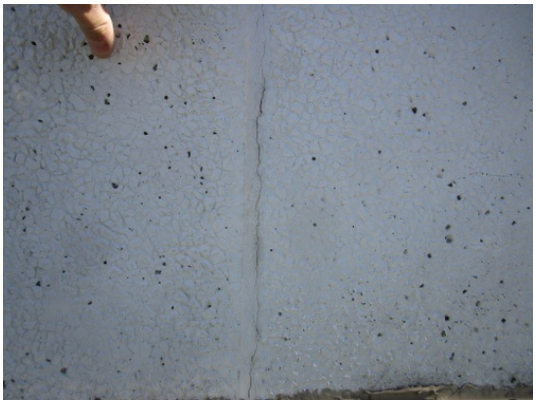


Photo 5

Failed caulking along the wall between 2.0 and 4.2

Photo 6

Open caulking seams between the precast around section 1.0

Photo 7

The old dried out caulking should be removed and new caulking installed with a backer rod.

Photo 8

Dried and failed seam caulking between the precast panels

Photo 9

The caulking should be replaced between the precast panels

Photo 10

Failed bricks need to be repaired below roof section 1.1

Photo 11

Photo 12

Closer view of the failed bricks

Photo 13

The office walls appear to be in good condition however, it is noted that some of the panels above the windows may have asbestos depending on the age of the building.

Photo 14

Seams between the panels are still in fair condition

Photo 15

Photo 16

The face of the brick is coming apart and should be replaced

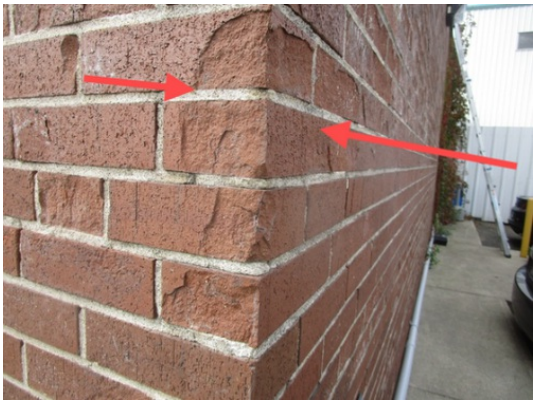


Photo 17

View of damaged bricks that should be replaced

Yearly Budget Summary

Client: Burlington Hydro

Facility *	Asset Type	Asset *	Recommendation	Cost	Expected Life
Year: 2021					
1340 Brant St	Roof Section	1.0	Inspection	$1,990.00	N/A
1340 Brant St	Roof Section	1.0	Replace	$250,000.00	25 Year(s)
1340 Brant St	Roof Section	1.0	Maintenance	$7,900.00	5 Year(s)
1340 Brant St	Roof Section	1.1	Repair	N/A	N/A
Total for 2021:				**$259,890.00**	

****Note:** This report may contain numbers which have been derived as an average from a budget range. Please refer to solution reports to see the full budget range and details.

Burlington hydro inc.

Appendix O

2021 Building Condition Assessment Report

1340 Brant Street

Building Condition Assessment

Project Location:
1340 Brant Street, Burlington, ON

Prepared for:
Burlington Hydro
1340 Brant Street, Burlington, ON

Prepared by:
MTE Consultants Inc.
1016 Sutton Drive, Unit A
Burlington, ON L7L 6B8

July 26, 2021

MTE File No.: 10152-500

Engineers, Scientists, Surveyors.

Contents

Figures

Tables

1.0 Introduction

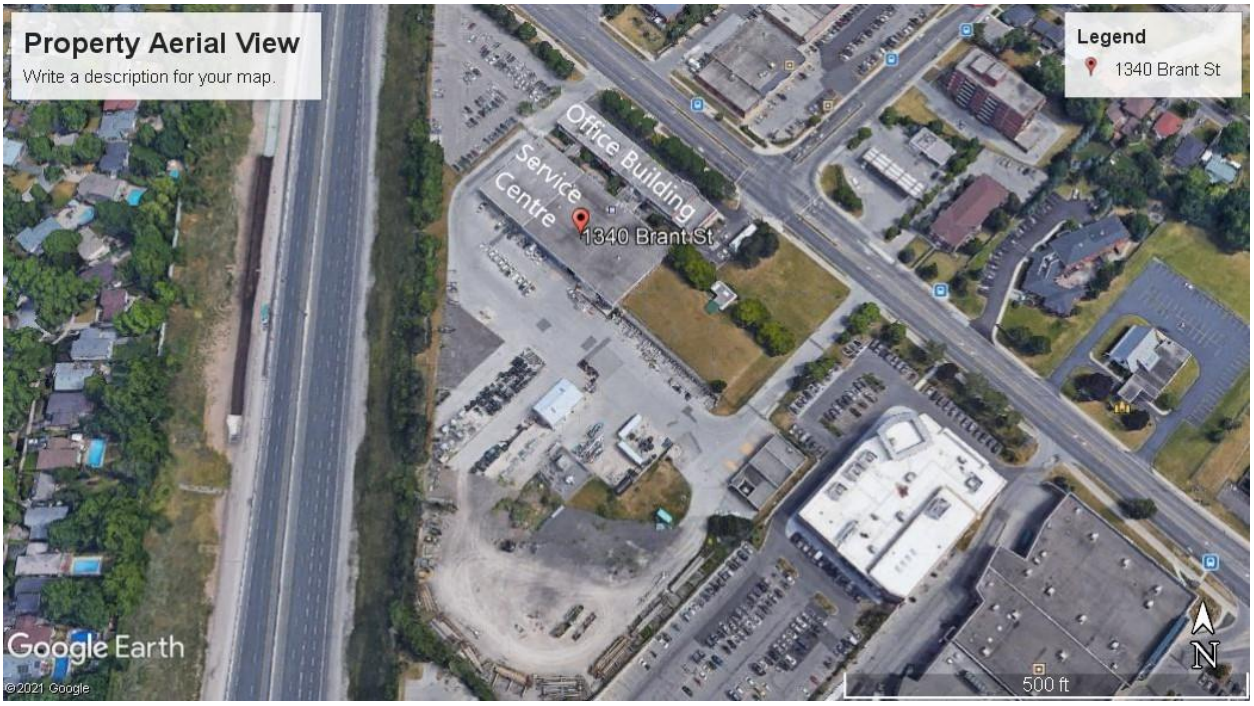
1.1 Objective and Authorization

MTE Consultants Inc. (MTE) was retained by Mr. David Timperio on behalf of Burlington Hydro to carry out a building condition assessment on the property located at 1340 Brant Street in Burlington, Ontario.

1.2 Physical Description

The property at 1340 Brant Street consists of a 2-storey office building with a basement and a 1-storey service centre building. The original office building and service centre were constructed in 1961 and a major renovation, including additions to both buildings, was completed in 1991. The two building are connected by two links (corridors) forming a courtyard in the middle. There are parking lots located north and south of the office building and there is a secured rear yard and parking area located west of the service centre. The site is approximately 14 acres.

Figure 1.0 - Property Aerial View



1.3 General Description

The office building superstructure consists of roof metal deck supported by steel beams, columns and concrete block masonry walls. The office building lateral resisting elements are concrete block walls. The service centre superstructure consists of roof metal deck supported by open web steel joists, beams and columns. The service centre lateral resisting elements are moment frames. Both buildings' substructure is generally composed of concrete slab-on-grade with cast-in-place concrete piers and foundation walls. The concrete piers and foundation walls are supported by concrete spread and strip footings.

The exterior walls are a combination of brick cladding, metal siding, precast and exposed aggregate panels. The buildings have various flat roofs with areas of built-up roofing, modified bitumen membrane and ballasted EPDM systems. The windows consist of prefinished aluminum windows with single pane or insulated glazing units. The exterior doors are aluminum-framed glazed doors and the service doors and overhead doors are steel.

The office building is equipped with one accessible lift that provides access to all floors. Heating and cooling for the office building is supplied by a HVAC system consisting of roof top units, air handling units, heating/cooling coils, electric baseboard heaters and exhaust fans.

The service centre building is equipped with electric and gas hanging radiant heaters. The office area is serviced by electric baseboard heaters and one air conditioner unit.

The buildings are serviced by a switchgear unit rated for 347/600V service at 1200A.

There are asphalt driving aisles, grade level asphalt and gravel parking lots throughout the site. There are accessible parking stalls near the building front (south) entrance and in the north parking lot.

For the purpose of this report, the front office building elevation is considered to face east.

1.4 General Conditions

The original building is about 60 years old, and underwent a major renovation in 1991. The building additions and connection links were constructed in 1991.

Code Compliance:

The existing railing configuration at the office building interior stairs does not comply with Ontario Building Code. Replacement is not required immediately, but it will be required when the staircases are renovated.

Deferred Maintenance:

Some deferred maintenance is evident, resulting in the need for the following repairs in the near term:

- The office building roof screen is damaged and requires replacement.
- The roof over the service centre addition requires immediate repairs. The flat roof assemblies will reach the end of their service life and will require replacement within the term of this report.
- The building sealants are generally cracked and started to split. We recommend sealant replacement.
- The building clad is deteriorated at some locations; the steel lintels are corroded. They require repairs and/or replacement.
- The windows and exterior doors will reach the end of their service life. They require repairs and/or replacement.
- Some of the mechanical will require repairs and/or replacement as needed.
- The emergency generator is original. It requires replacement.
- The site pavements are deteriorated and require repair and/or replacement.
- [redacted]

No part of this report should be read in isolation. It is intended to be read only in its entirety including the scope of work and limitations.

1.5 Methodology

1.5.1 Scope of Work

The scope of the work is to report our observations and estimate present capital costs for components/ systems where remedial work or replacement due to condition or code requirements is recommended. A review of the following systems was carried out:

1) Building structure;
2) Roofing;
3) Building envelope;
4) Mechanical systems
5) Building electrical systems;
6) Site pavements and hardscaping;
7) Landscaping features; and,
8) Accessibility.

1.5.2 Exclusions

We were not retained to complete destructive testing to check concealed conditions or structure as part of our review.

Code and Life safety and Interior finishes were not part of our scope of review.

We did undertake a comprehensive review of the buildings for conformance to Accessibility for Ontarians with Disabilities Act (AODA) and Ontario Building Code (OBC).

1.5.3 Information Provided

The following documents were made available for review:

- Burlington Hydro Inc., Facility Condition Assessment Report by V2PM issued on May 16, 2007.

2.0 Capital Funding Analysis

2.1 Limitations and Basis of Costs

It is to be noted that the costs are an opinion based on the information available at the time of the assessment and assumptions by selected consultants with expertise in the different disciplines impacted by this study. While we provided remedial work costs, these may not have addressed the required upgrades fully. If the information and/or assumptions are not applicable or changes, there will be an impact on the overall work costs.

For the purpose of this assignment a $2,500 threshold amount was considered. Any recommended repairs below this amount were considered to be routine maintenance costs. Costs related to assessments and/ or inspections were also not included.

Recommended repair components have been prioritized as immediate, short term (1-4 years) and long term (5-10 years). Immediate repair components could affect life safety or if unattended would result in significant deterioration, greater repair costs and/or failure. The short term components are required but could be deferred over the short term. The long term components are not considered urgent.

2.2 Analysis

Table 1: Capital Expenditures

Item	Description	Immediate (2021)	2-4 Years	5-10 Years
STRUCTURE				
3.1.3	Retrofit Interior Stairs Metal Guardrails		$15,000.00	
3.1.3	Replace Roof Wood Screen with New Vinyl Screen		$12,000.00	
CLADDING				
3.2.1	Repair Service Centre Addition EPDM Membrane (Year 2021)	$20,000.00		
3.2.1	Inspect and Scan Roofs	$4,000.00		
3.2.1	Replace Service Centre Addition EPDM Membrane and Links Roof (Year 2022)		$500,000.00	
3.2.1	Replace Service Centre BUR Roof (Year 2024)		$900,000.00	
3.2.1	Replace Office Building Roofs (Year 2026)			$600,000.00
3.2.1	Install New Roof Guardrail (Year 2021)	$2,500.00		
3.2.3	Replace Building Sealants		$10,000.00	
3.2.4	Repair Masonry (Year 2021/2022)		$17,000.00	
3.2.5	Paint Office Building Metal Cladding		$20,000.00	
3.2.5	Paint Metal Cladding		$15,000.00	
3.2.7	Repair and Recoat Exposed Aggregate Panels		$37,500.00	
3.2.8	Replace Corroded Channels and 50% of the Window IGUs		$5,000.00	$125,000.00
3.2.9	Replace Stockroom Exit Door and Repair Doors Hardware		$10,000.00	

Item	Description	Immediate (2021)	2-4 Years	5-10 Years
MECHANICAL AND ELECTRICAL				
3.3.1	Replace Three RTUs and Air Conditioner Unit		$100,000.00	
3.3.2	Replace One Hot Water Heater		$7,500.00	
3.3.3	Replace Drainage Piping		$5,000.00	$5,000.00
3.4.3	Replace Generator and Tank (2021)	$100,000.00		
SITE				
3.5.1	Repair Asphalt Pavement	$10,000.00		
3.5.1	Replace 50% of Asphalt Pavement		$500,000.00	$500,000.00
3.5.2	Repair Concrete Pavements			$10,000.00
3.5.3	Repair Gravel Pavements		$5,000.00	$5,000.00
3.5.4	Repair Concrete Pavers		$5,000.00	
3.5.5	Repair and Maintain Soft Landscaping		$7,500.00	$7,500.00
[redacted]				
3.6.1	[redacted]		$50,000.00	
ACCESSIBILITY				
3.7.1	Improve Site Signage and Parking		$10,000.00	
3.7.3	Improve Office Building Interior Spaces		$150,000.00	
3.7.4	Modernize and Upgrade Lift		$75,000.00	

Figure 2.0 - Expenditures by Component

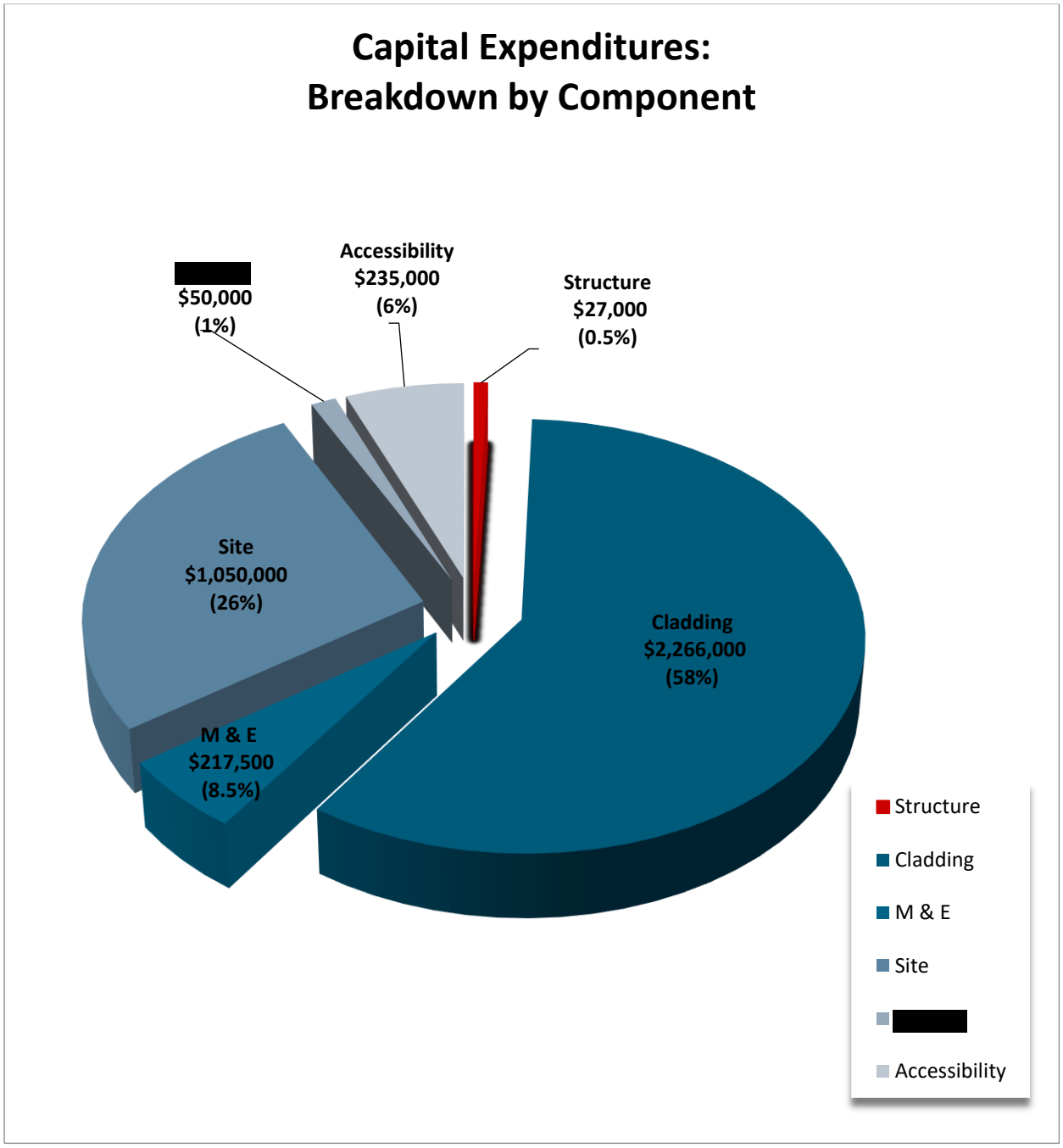
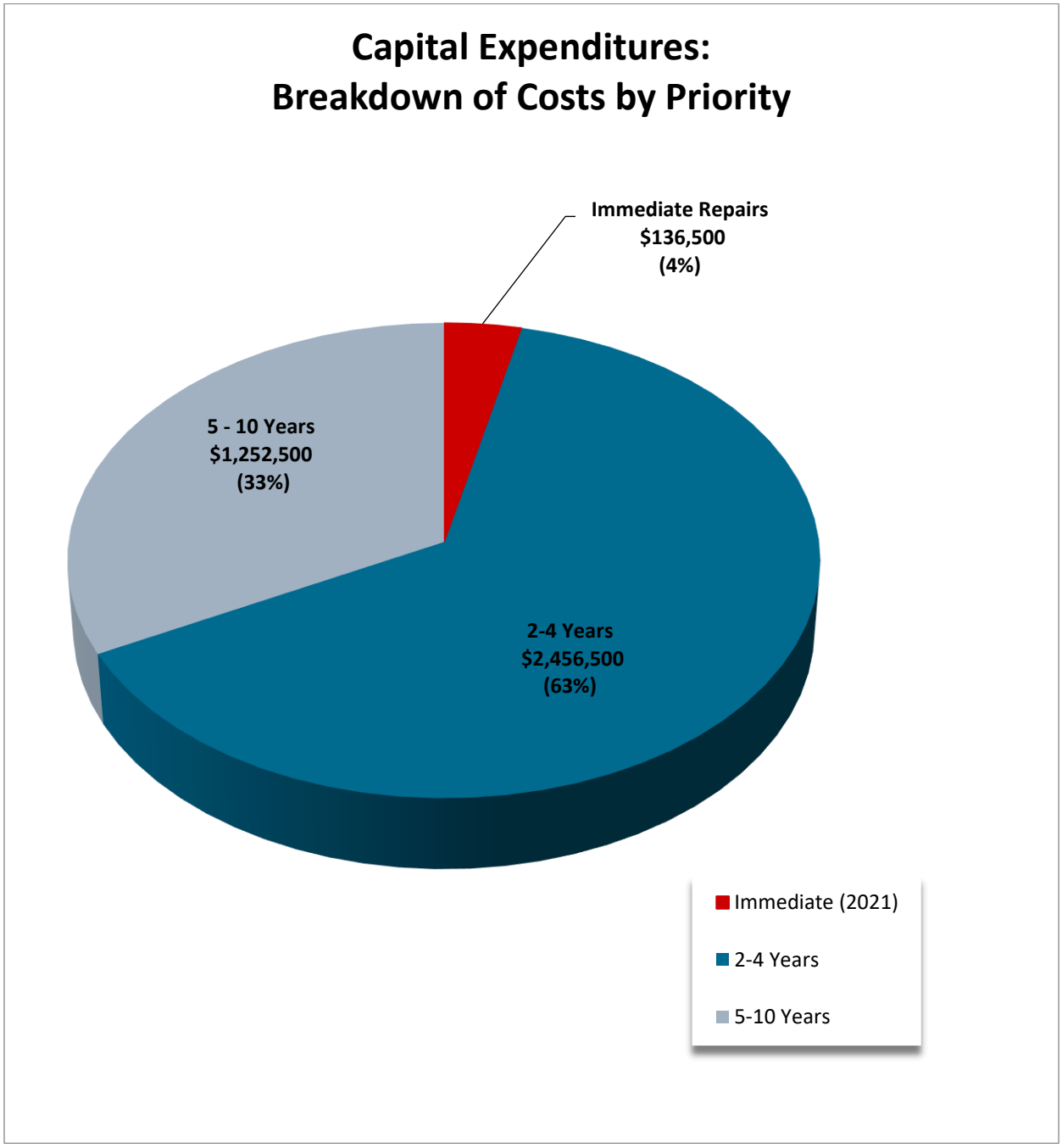


Figure 3.0 - Expenditures by Year



3.0 Condition Assessment

3.1 Structure

3.1.1 Superstructure

Description

The office building superstructure consists of roof metal deck supported by steel beams, columns and concrete block walls. The building lateral resisting system consists of concrete block walls.

The service centre building superstructure consists of roof metal deck supported by open web steel joists, steel beams, columns and concrete block walls. The building lateral system consists of moment frames and concrete block walls.

The original service centre and its addition are separated by an expansion joint.

Observations and Recommendations

The office building superstructure was concealed during our review to the exception of roof metal deck at the roof hatch access. Invasive testing to determine the condition of the concealed structural elements is not within the scope of work for this review. Based on our visual review, we did not observe any cracking of the architectural finishes that could indicate that the structural integrity of the building has been compromised.

The service centre building superstructure was generally exposed to view. The exposed structural elements were observed to be in good condition. We did not notice structural deterioration of the steel elements. However, we noticed the underside of the galvanized roof metal deck in the stockroom was painted and started delaminating because the galvanized metal deck was not properly prepared and primed to accept the paint. This is a non-structural issue and should be dealt as part of the building maintenance if the Owner desires to re-paint the metal deck.

Significant structural capital repair intervention is not anticipated during the term of this report.

Photo #1: Office Building Front (East) Elevation

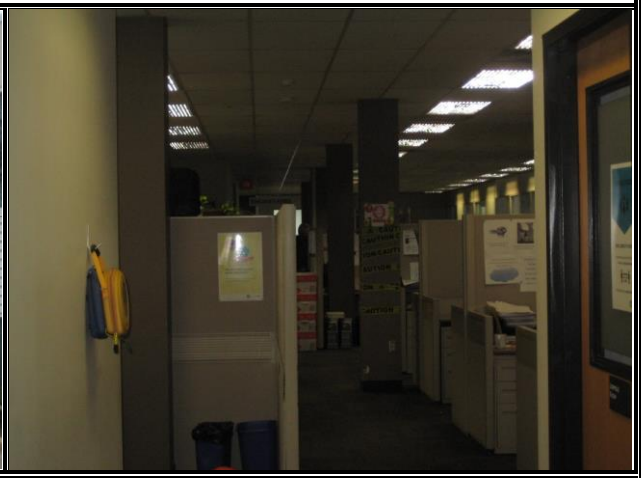


Photo #2: Interior of Office Building

	
Photo #3: Office Building Ground Floor Concrete Framing	**Photo #4: Corridor connecting Office Building to Service Centre**
	
Photo #5: Stockroom Roof Steel Framing	**Photo #6: Stockroom Steel Beam Supported by Column**
	
Photo #7: Service Centre Roof Steel Framing	**Photo #8: Expansion Joint between Original Service Centre and Addition**

3.1.2 Foundations

Description

The building foundations are conventionally reinforced cast-in-place concrete. We expect that the foundation walls are supported by conventionally reinforced concrete strip footings. The office building foundation walls are waterproofed with damp-proofing and drainage board. The buildings' lower floors are concrete slab-on-grade.

Observations and Recommendations

The foundation walls are in good condition where visible and reviewed above grade. We noticed some localized, small cracking. At the present time, none of the cracking is a structural concern and there is no evidence of leakage. We don't anticipate repairs within the term of this report.

The concrete slab-on-grade is cracked at various locations due to concrete shrinkage and scaled at some locations in the service centre due to wear from traffic. The deterioration is not a structural concern; however, it will worsen with wear. We recommend local repairs as part of the building maintenance.

Photo #9: Office Building Foundation Wall Waterproofing

Photo #10: Office Building Concrete Foundation Walls and Slab-on-Grade

Photo #11: Service Centre Concrete Foundation Wall

Photo #12: Cracked Slab-on-Grade at Stockroom

	
Photo #13: Cracked Concrete Foundation Wall at Service Centre	**Photo #14: Scaled Concrete Slab-on-Grade at Service Centre**

3.1.3 Secondary Structures

Description

There are interior staircases providing access to the various office building floors. The stairs consist of reinforced concrete framing with metal handrails.

There are metal ladders providing access to the various roofs.

There is a hoist metal frame at the service centre loading dock.

There is a wooden screen on the office building roof.

Observations and Recommendations

The interior staircase framing providing access to the various floors was concealed by architectural finishes during our review. Invasive testing to determine the condition of the concealed structural elements is not within the scope of work for this review. Based on our visual review, we did not observe any cracking of the architectural finishes that could indicate that the structural integrity of the stairs has been compromised. However, the handrails are not in compliance with Ontario Building Code (OBC) because the spacing between the vertical pickets is greater than 4 inches. The stair handrails need to be replaced or retrofitted to bring the layout and geometry in line with OBC requirements at the time of renovating the building. We included an allowance in the Capital Expenditures for retrofitting the handrails.

The metal ladders providing access to the roofs were in good condition with no obvious signs of deterioration.

The hoist metal frame is in good condition. We did not observe signage present indicating the lifting capacity of the hoist and structural frame. If not certified, we recommend that the hoist frame is certified by a structural engineer. We did not include this cost in the Capital Expenditures as it would fall below capital threshold.

The roof wood screen metal bases are corroded and the wood is deteriorated; some of the boards are detached from the frame. We recommend clean, prime and paint the metal bases and replace the wood screen with a new composite screen. We included an allowance in the Capital Expenditures for replacement.

Photo #15: Interior Stairs

Photo #16: Roof Access Ladder

Photo #17: Lifting Steel Frame

Photo #18: Deteriorated Roof Screen

3.2 Cladding

3.2.1 Flat Roofing

Description

There are seven distinct flat roof areas: the original office main roof, the office north addition, the office south addition, the south link, the north link, the original service centre and the service centre addition. All roofs consist of a built-up roof (BUR) assembly with modified bitumen membrane upturns at the parapets and walls, to the exception of the roof at the service centre addition which is a ballasted loose-laid EPDM membrane and the south link which contains modified bitumen area. The roofs gently slope towards area drains that discharge towards interior piping. The parapets are protected with sheet metal cap flashings.

The lower roof gas lines are supported by rubber blocking.

There are no roof anchors on either roof.

Observations and Recommendations

Most flat roofs have been reportedly replaced and/or installed at the time of the major renovation that was completed in 1991. The service centre original roof was reportedly replaced in 2001 with a BUR assembly.

The roofs and metal flashings are generally in good to fair condition. However, we noticed various areas of water ponding, blueberrying, and vegetation growth on the built-up roof areas. These conditions were more noticeable on the links and service centre roofs.

We also noticed that the service centre addition EPDM roof membrane has shrunk, tented and ripped at various locations along the parapets. Furthermore, the roofs felt spongy, at some locations, when walked on. The spongy feel may indicate significant water ingress into the flat roofing substrate (i.e. insulation). We recommend undertaking repairs to the ripped membrane locations immediately and a thorough inspection and infrared scan be conducted in order to verify that any moisture penetration have been identified and repaired.

The modified bitumen roof at the south link has been previously repaired at the seams between sheets and the upturn membrane. The repair mastic has cracked and has become brittle under exposure to UV. This roof area requires replacement within the next 2-3 years in order to mitigate the potential for leakage.

The remaining roofs at this facility will require replacement within the term of this report. We included costs to prioritize roof replacement in the Capital Expenditures. However, we recommend undertaking an infrared scan in order to determine the timing of replacement more accurately. We have budgeted for an infrared scan to take place this year and we recommend that it take place in the summer for the best results. We would be happy to assist you with this service, if desired.

The roof access hatch is located less than 6 feet away from the roof edge. If you have less than the required six feet of clearance than a variance (i.e. metal guardrail) is required by Ontario Building Code (OBC). We noticed a metal guardrail on the roof which may had been located at the hatch previously. However, this guardrail does not comply with OBC layout and dimensions. We included an allowance in the Capital Expenditures to install a new metal guardrail on the roof.

	
Photo #19: Original Office Building Roof	**Photo #20: Roof Access Hatch less than 6 feet from Roof Edge**
	
Photo #21: Office Building North Addition Roof	**Photo #22: Office Building South Addition Low Roof**
	
Photo #23: Vegetation Growth at Secondary Entrance Low Roof	**Photo #24: Low Roof at South Link between Office and Service Centre**

Photo #25: Mod-Bit Roofing at South Link

Photo #26: Mod-Bit Upturn at Parapet

Photo #27: Blueberrying

Photo #28: Water Ponding

Photo #29: Ripped EPDM Membrane at Service Centre Addition Roof

Photo #30: Corroded Metal Capping and Thorn Seam

3.2.2 Building Soffits

Description

There are building overhangs and soffits, along the east elevation and entrances of the office building. The soffits consist of perforated metal panels and precast concrete.

Observations and Recommendations

The soffits are in good to fair condition. We noticed some stained and faded areas that may be an indication of water exposure and aging. We recommend cleaning and/or painting as part of the building maintenance.

Photo #31: Perforated Metal Soffit at Emergency Exit

Photo #32: Precast Soffit at Front Elevation

Photo #33: Perforated Metal Soffit at Secondary Entrance Canopy

Photo #34: Perforated Metal Soffit at Secondary Entrance

3.2.3 Building Sealants

Description

Building sealants are located at the perimeter wall openings and penetrations, including windows and doors, roof penetrations and sheet metal flashings.

Observations and Recommendations

The sealants vary between fair to poor condition. Some of the sealants have been replaced while others are starting to crack and/or de-bonding from the substrates.

Sealant replacement typically occurs with the replacement of other building elements, like windows and doors, and should be expected to be replaced at least once more within a typical life cycle for those elements, in order to maintain flexibility and water-tightness.

We have not included an allowance for future sealant replacement as it is expected sealants will be replaced in conjunction with a window replacement project. An allowance for general sealant repairs has been included to account for sealants that are not associated with windows.

Photo #35: Cracked Caulking at Metal Flashing

Photo #36: Split Caulking at Precast Cladding

Photo #37: Split Caulking at Window Frame

Photo #38: Cracked Caulking at Precast Panel Joint

3.2.4 Masonry

Description

Both buildings exterior walls are partially clad with brick veneer. Weep vents are placed at window and door heads as well as at overhangs and bottom of walls. There are steel lintels above windows, doors and overhangs. The window sills are metal flashings.

Observations and Recommendations

Our review of the exterior walls was limited as it was performed from grade.

The exterior walls are generally in good to fair condition. The brick faces are generally sound and the mortar joints are devoid of cracks and gaps. However, we noticed several locations on the service centre rear walls where brick units were missing, cracked and/or spalled. The brick will further deteriorate with timing and exposure to weathering. We recommend further assessment of the masonry in this area be completed and localized repairs such as repointing and replacing/installing damaged/missed brick units be undertaken.

The steel lintels are in good to fair condition. However, they have started to corrode. We recommend cleaning, priming and painting.

We included an allowance for brick works and steel lintel repairs in the Capital Expenditures.

Photo #39: Office Building Partial Rear (West) Elevation

Photo #40: Office Building Side (North) Elevation

Photo #41: Service Centre Partial Rear (East) Elevation

Photo #42: Brick Cladding Deterioration

Photo #43: Service Centre Partial Front (West) Elevation

Photo #44: Loose Concrete Block Units below Mechanical Louvre

3.2.5 Metal Cladding

Description

The office building exterior walls between upper and lower windows are clad with horizontally oriented metal siding. The service centre original building upper areas of the exterior walls are clad with vertically oriented metal siding. The seams between the metal panels are lapped but not sealed. There are exposed fasteners connecting the metal panels.

Observations and Recommendations

The corrugated metal siding is in good condition. However, we noticed that the paint is starting to fade at the metal cladding in the office building. This is not impacting the cladding structurally at this time as the metal has not started to corrode. You may wish to repaint the metal cladding as the finish continues to age and wear. We included an allowance for painting in the Capital Expenditures.

Photo #45: Service Centre Upper Wall Metal Cladding

Photo #46: Service Centre Metal Cladding

Photo #47: Stained Metal Cladding at Office Building

Photo #48: Metal Cladding Seam at Office Building

3.2.6 Precast Concrete

Description

The service centre addition exterior walls consist of insulated fluted precast concrete panels in a face-sealed system configuration.

Observations and Recommendations

The precast concrete panels are generally in good condition. However, we observed that panels have cracked and spalled off at a couple of locations at grade. We recommend repairing these damaged areas as part of the building maintenance. We do not anticipate major capital expenses towards this item.

Photo #49: Service Centre Side (North) Elevation

Photo #50: Service Centre Rear (East) Elevation

Photo #51: Precast Panels at Service Centre Windows

Photo #52: Damaged Precast Panels

3.2.7 Exposed Aggregate

Description

The office building exterior walls along the top are clad with a composite panel exposed aggregate in a face sealed system configuration.

Observations and Recommendations

The composite panels are generally in good to fair condition. However, the cladding is stained and it has cracked at some locations. We recommend repairing cracked areas and recoat the panels. We included a repair allowance in the Capital Expenditures.

Photo #53: Exposed Aggregate Panels at Office Addition

Photo #54: Exposed Aggregate Panels at Office Original Building

3.2.8 Windows

Description

The punched windows are thermally-broken strip aluminum frames with fixed insulating glass units (IGUs). Sheet metal sills are provided to shed water away from the building envelope. The frames are an anodized aluminum finish.

The ground floor windows at the entrances and emergency exit are aluminum storefront style windows with fixed insulating glass units.

Observations and Recommendations

The windows are date stamped with the year 1991. The windows are in good condition. Where reviewed, we did not notice the presence of evidence of condensation on the windows. We observed that the metal anchoring channels at grade near entrances are corroded due to exposure to de-icing salts. The extent of corrosion is starting to result in section loss and has already created staining. We recommend that the channels be replaced with an epoxy (grey to match window frame) to protect against further deterioration.

Windows typically have a service life of 30-40 years. Based on age and condition, we recommend replacing the metal flashings in the near future as part of the building maintenance. We don't anticipate wholesale window replacement within the term of this report. However, some of the IGU's may fail as moisture will enter the glazing cavity resulting in fogging (moisture) between the glass panes. We included an allowance in the Capital Expenditures to replace 50% of the IGUs.

Photo #55: Aluminum Windows at South Door

Photo #56: Aluminum Windows at Emergency Exit Door

	
Photo #57: Corroded Metal Flashing at bottom of Window	**Photo #58: Typical Office Addition Aluminum Window**
	
Photo #59: Typical Original Office Building Aluminum Window	**Photo #60: Interior View of Office Aluminum Window**
	
Photo #61: Aluminum Window at Secondary Entrance	**Photo #62: Service Centre Punched Window**

3.2.9 Exterior Doors

Description

The building is equipped with exterior doors at the front, side, and rear entrances. Exterior doors consist the following:

- Front entrance: Outswing double glass doors in a vestibule configuration with aluminum frames and barrier free button operated; and,
- Secondary entrances and front exit: Outswing glass doors in a vestibule configuration with aluminum frames and glass lites; and,
- Service Centre exits: Outswing metal doors and metal overhead roll-up doors, motor operated.

Observations and Recommendations

Most exterior doors are reportedly installed during the 1991 renovation; they are in good working condition.

The stockroom exit door seems original and it is starting to corrode; the paint is fading. The expected service life of doors varies; however, is typically in the range of 30 years depending on type of door, exposure and use. Based on the reported information and observed condition, we included an allowance for the stockroom door replacement, door repairs such as barrier-free door operators, hardware, weather stripping replacement and door painting in the Capital Expenditures.

Photo #63: Front (South) Entrance Door

Photo #64: Emergency Exit Door

Photo #65: Side Entrance Doors

Photo #66: Service Centre Man Door

Photo #67: Service Centre Overhead Door

Photo #68: Stockroom Exit Man Door

3.3 Mechanical

3.3.1 HVAC Systems

Description

The following equipment was installed on the office main roof and the south link roof. The units are gas-fired and supply heating, cooling and ventilation to the office space via ductwork and diffusers:

- York Model No. ZF060N10P5AAA2A; S/N. N1F2966906; 5 Ton; (2012);
- York Model No. ZF090N15N5AAA5A; S/N. N1C1799367; 7.5 Ton; (2011);
- York Model No. ZF060N10P5AAA2A; S/N. N1F2966904; 5 Ton; (2012);
- York Model No. ZF120N20N5AAA5A; S/N. N1C1859290; 10 Ton; (2011);
- York Model No. ZH090N15N5AAA5A; S/N. N1A0547501; 7.5 Ton; (2010);
- York Unit. We were unable to read label as we didn't have access to the office low roof; and,
- Carrier Model No. 38APD0401CA20020; S/N. 4414Q52142; 40 Ton; (2014);

Also, the following equipment was installed on the office roof and provide additional cooling to the office space and data centre:

- Emerson Condenser Model No. MCS028E1YDA291; S/N. Y16HAX0078; and,
- Mitsubishi Outdoor Unit Model No. PUHY-HP72THMU-A.

Fresh air is supplied to the office building by a main air handling located in the basement.

Additional heating for the office building is provided by electric baseboard heaters.

Three RTUs were installed on the service centre roof but we were unable to locate and/or read Model and Serial Numbers but the units appear to be 5 and 6 Ton and seem to be 1991 vintage.

Additional heating for the service centre building is supplied by infrared radiant heaters hanging from the roof structure. The heaters are manufactured by Superior Radiant Products (SRP). Ventilation is accomplished through natural ventilation and exhaust fans that are activated by a carbon monoxide detector system.

Additional cooling for the service centre building is supplied by an air conditioner unit. Make, model and age is unknown as the labels on the unit were faded.

Observations and Recommendations

The most northern service centre roof top unit is reportedly decommissioned. The remaining units appeared to be in good to fair working condition. The older roof top units may contain R-22 refrigerant which has been phased out through federal legislation. Compatible refrigerants are available on the market, depending on the unit. We recommend that you discuss this with the service contractor to determine if you will be able to continue servicing the units of if premature replacement will be required due to the refrigerant.

The service life expectancy of this equipment varies, depending on the type of unit, service conditions, and maintenance practices. We have seen some roof top units replaced after only 15 years of service, and others that remain in use beyond 30 years. Based on age and appearance, we anticipate maintenance repairs and replacement of the units that will reach 30 years of life within the term of this report. We included an allowance for replacement in the Capital Expenditures.

The additional heating and cooling equipment service life varies, depending on the type of unit, service condition, and maintenance practices. No issues were observed or reported to us by management. However, the service life of the units is 15 to 20 years. We included an allowance in the Capital Expenditures to replace the air conditioner unit within the term of the report.

Photo #69: Office Building Roof Top Units

Photo #70: Data Centre Cooling Unit

Photo #71: Roof HVAC Unit

Photo #72: Decommissioned Roof Top Unit

Photo #73: Basement Air-Handling Unit

Photo #74: Service Centre Office Air Conditioner Unit

	
Photo #75: Office Air Supply	**Photo #76: Electric Baseboard Heater**
	
Photo #77: Service Centre Radiant Heating	**Photo #78: Exhaust Fans**

3.3.2 Plumbing Systems

Description

The site is municipally serviced. The main water service to the office building is located in the basement mechanical room. Water through the building is distributed via insulated and uninsulated copper piping.

There are two electric water heaters manufactured by A.O. Smith as follows:

- Model No. DVE-120 100; S/N. 1937116294151 with 450 Litres capacity; and,
- Model No. was illegible; S/N. R68-810-05-6-AC16 with 400 Litres approximate capacity.

Observations and Recommendations

Our review was limited as most piping is concealed above ceilings and in drywall plumbing chases. Generally, no problems with pinhole leaks were noted or reported. Full replacement of the piping is not anticipated within the term of this report. We understand that isolated pinhole leaks may occur and they will be addressed as part of the building maintenance.

The domestic hot water tanks are in good condition. They are different vintage as one seems less than 5 years old and the second one seems to be over 10 years old. Based on observed condition and estimated age, we anticipate one water heater to be replaced within the term of this report. An allowance was included in the Capital Expenditures.

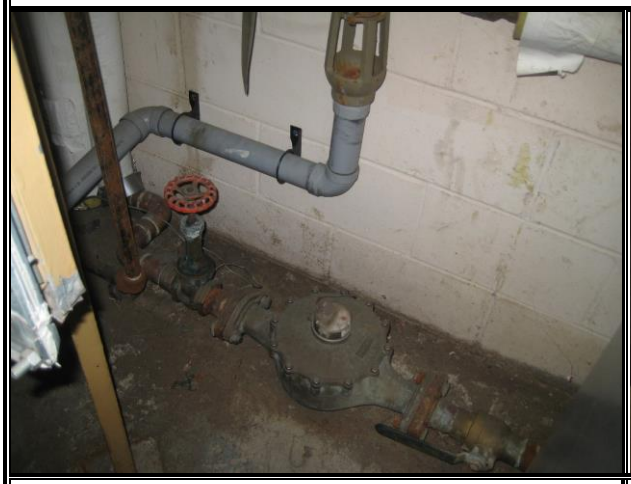


Photo #79: Domestic Water Supply and Meter

Photo #80: Domestic Water Heaters

Photo #81: Water Distribution System

Photo #82: Not Used

3.3.3 Storm and Sanitary Systems

Description

The storm drainage from roof drains, floor trenches and catch basins is directed to the municipal main storm system via internal and underground piping. Where reviewed, drainage piping below the sinks is PVC. The type of material used for below grade drainage piping is expected to be cast-iron and/or PVC based on vintage.

The sanitary effluent connects into the municipal main sanitary sewer system via sanitary underground piping.

Observations and Recommendations

Drainage piping is anticipated to be replaced on as-needed basis as part of the building maintenance. Significant capital costs are not anticipated for above-grade drainage piping during this report period.

An allowance has been included in the Capital Expenditures for the future repair of the buried storm and sanitary piping.

Photo #83: Roof Area Drain

Photo #84: Bathroom Sink Drainage

Photo #85: Service Centre Floor Trench

Photo #86: Catchbasin at Landscaping Area

3.4 Electrical

3.4.1 Power and Distribution Systems

Description

Electricity enters the building via underground to an electrical room located in the basement. Power is supplied to a main switchboard panel, manufactured by Westinghouse Canada Inc., rated for 347/600V service at 1,200A.

Power is distributed to electrical breakers in the basement, office floors and service centre. These breakers range in service between 20A and 400A.

The branch wiring is insulated copper. The wiring feeds subpanels, light switches, receptacles and fixtures.

Observations and Recommendations

Based on our visual review, the electrical distribution system was upgraded during the 1991 renovation. The equipment was noted to be in good operating condition without significant problems or lack of power.

Major electrical equipment has an average life of 40 to 50 years or more. Given the age and condition of the electrical equipment, we do not anticipate capital renewal within the term of the report. However, regular infrared scans are recommended on a regular basis to ensure that all contacts are tightened, and the equipment is not overheating. This procedure can be completed as part of building on-going maintenance.

Photo #87: Electrical Room

Photo #88: Main Electrical Switchboard

Photo #89: Electrical Panel

Photo #90: Office Electrical Panel

3.4.2 Lighting Systems

Description

In general, the building interior lighting consists of LED and HID tube and recessed pot light fixtures.

Exterior lighting is provided by wall-mounted LED and pole-mounted HID light fixtures.

Observations and Recommendations

The light fixtures are in good working order as they are replaced on an as-needed basis. Replacement of light fixtures is expected during the term of this report and are considered a maintenance and operation item.

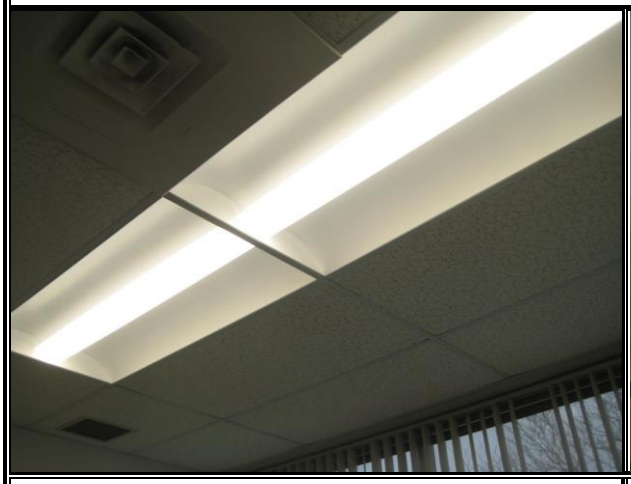


Photo #91: Office LED Tube Lighting

Photo #92: Lunch Room Lighting

Photo #93: Stockroom LED Lighting

Photo #94: LED Outdoor Lighting

Photo #95: LED Wall-Mounted Exterior Lighting

Photo #96: HID Pole-Mounted Site Lighting

3.4.3 Emergency Power

Description

Emergency power is supplied to the building by a natural gas powered generator (80kW, 600V N/G) located outside, between the office building and the service centre. The generator provides power through an automatic transfer switch to exit signs, emergency lighting, lift and the fire alarm system.

Observations and Recommendations

The generator is original to the building. Management reported that the generator is to be replaced in year 2021. The outer metal case is starting to corrode and the generator is outdated. We included an allowance in the Capital Expenditures for generator replacement with a new diesel generator.

Photo #97: Emergency Propane Generator

Photo #98: Emergency Panel Board

3.5 Site

3.5.1 Asphalt Pavements

Description

Access to the property is from Brant Street via three asphalt driveways. There are asphalt-paved driving aisles and on-grade parking spaces surrounding the office building and the service centre. Drainage is directed to catchbasins and landscaped areas.

Some sections of the asphalt pavements are lined by cast-in-place concrete curbs.

Observations and Recommendations

The asphalt pavement is in good to fair condition. We observed areas in the asphalt pavement with cracking, pot holes and localized settlement that is consistent with age and wear. Pavement markings have started to wear out and require repainting. The concrete curbs are cracked and have spalled at some locations. Asphalt renewal and concrete curb replacement is expected within the term of this report. We included an allowance in the Capital Expenditures to replace 50% of the asphalt pavement within the term of this report. We have also included a budget to repair potholes and locally seal cracks to mitigate risk and prolong the pavement service life.

	
Photo #99: North (Side) Asphalt Parking Lot	**Photo #100: West (Rear) Asphalt Parking Lot**
	
Photo #101: Cracked Asphalt Pavement	**Photo #102: Potholes**
	
Photo #103: Asphalt Pavement Settlement at Catchbasin	**Photo #104: Damaged Concrete Curb**

3.5.2 Concrete Pavements

Description

There are concrete sidewalks and concrete slabs providing access to the building entrance. There are concrete pads providing an outdoor area for storage of electrical transformers.

There is a concrete stair between high and low levels of the asphalt parking lot. The stairs and concrete are equipped with metal handrails.

There are precast concrete steps at the stockroom rear exit.

Observations and Recommendations

The concrete pavements are in good condition. However, we anticipate the concrete will begin to show sign of deterioration as they continue to age. The concrete hardscapes adjacent to the building are sloped to drain away from the building foundations.

We observed that the precast steps, outside the stockroom exit door, have settled resulting in the upper step to be higher, not compliant with OBC.

We have included a general allowance for localized repairs and replacement of the precast concrete steps in the Capital Expenditures.

Photo #105: Front Entrance Concrete Sidewalk

Photo #106: Concrete Porch at Secondary Entrance

Photo #107: Concrete Pad for Storage of Electrical Transformers

Photo #108: Concrete Pavement at Gate

Photo #109: Concrete Stairs

Photo #110: Precast Concrete Steps at Stockroom Exit Door

3.5.3 Gravel Pavements

Description

There is gravel pavement at the rear of the property.

Observations and Recommendations

The gravel pavement is in good to fair condition. We noticed localized settlement and pot holes. We recommend local repairs such as fill in pot holes with new gravel, locally re-grade and re-compact. We have carried an allowance in the Capital Expenditures.

Photo #111: Rear Gravel Pavement

Photo #112: Potholes in Gravel Pavement

3.5.4 Interlocking Pavers

Description

There are interlocking pavers at the courtyard.

Observations and Recommendations

The pavers are in good condition. However, some pavers are unleveled resulting in tripping hazards. We recommend repairs such as repositioning and replacement of concrete pavers. We included an allowance for this work in the Capital Expenditures.

Photo #113: Concrete Pavers at Courtyard

Photo #114: Settled Concrete Pavers

3.5.5 Guardrails

Description

There are various types of guardrails throughout the property. The guardrails are located at the front and secondary entrances, at the exterior concrete stairs and in the service centre.

Main Entrance – Prefinished aluminum picket-style railings.

Secondary Entrance – Painted Metal railings.

Interior Stairs – Painted Metal Railings.

At Concrete Steps in Parking Lot - Painted Metal Railings.

Observations and Recommendations

The metal railings are in good to fair condition. Some of the guardrails have started to corrode due to exposure to de-icing salts. We recommend cleaning, priming and painting as part of the building maintenance.

At end of service life, we recommend replacement with prefinished aluminum which has lower maintenance requirements (not painting needed, more corrosion resistant).

	
Photo #115: Aluminum Railings at Front Entrance	**Photo #116: Corroded Metal Railings at Secondary Entrance**

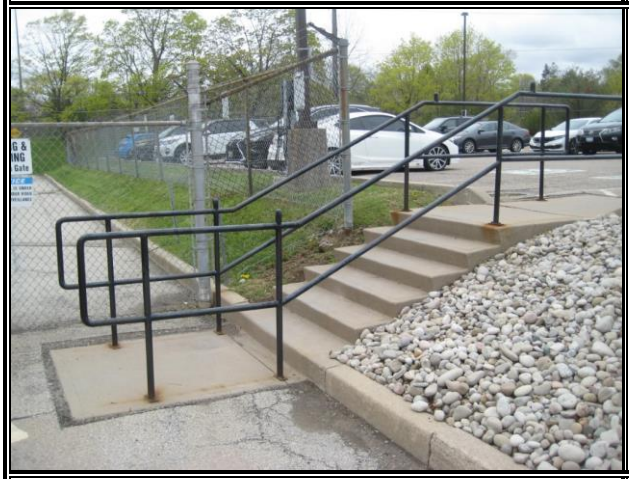



Photo #117: Corroded Metal Railings at Concrete Stairs	**Photo #118: Service Centre Metal Railings**

3.5.6 Soft Landscaping

Description

Site landscaping generally consists of sodded areas, shrubs, planting beds and mature trees along Brant Street, the rear property line and in the courtyard.

Observations and Recommendations

The soft landscaping is in good condition. However, we anticipate maintenance and updating will be required within the term of this report. We included an allowance for sod repair and tree pruning in the Capital Expenditures.

Photo #119: Landscaping along the Front

Photo #120: Landscaping along the Side Parking Lot

3.6 [redacted]

[redacted]

3.6.1 [redacted]

Description

[redacted]

3.7 Accessibility

Our scope of work does not include a full accessibility audit. However, we reviewed the existing site conditions and made the following recommendations to improve exterior and interior areas that serves the office building.

3.7.1 Site Signage and Parking

Description

There are three accessible parking stalls located in the south asphalt parking lot and two accessible parking stalls located in the north asphalt parking lot.

Observations and Recommendations

There is no site signage indicating the locations of the accessible parking and entrances to the building.

The accessible parking stalls in the south parking lot are the closest parking stalls to the building front (south) entrance and they are Type A shared spaces; they have access aisles between them. Two of those stalls are identified with wall-mounted signage. The accessible parking stalls in the north are single parking stalls without an access aisle. The stalls are not identified with vertical signage. The pavement accessibility symbols and lines are faded.

The accessible parking signage and dimensions do not comply with City of Burlington Accessibility Design Standards. Furthermore, the location of the north accessible parking stalls is not desirable as access routes should avoid crossing vehicular routes where possible and the north entrance is not barrier-free compliant. For existing surface parking lots undergoing renovations, the City of Burlington standards should be employed to the greatest extent possible but in no case shall be less than the requirements set by AODA. This would include changes to the stall sizes, number of accessible stalls, and the addition of Type B Van accessible stalls. These changes could be incorporated now or at the time of pavement replacement.

Due to the site conditions and operations, we recommend accessible parking to be improved for the office building by relocating the north parking stalls to the south parking lot, install site signage, increase parking stall dimensions and repaint lines and symbols. We included an allowance in the Capital Expenditures for these improvements.

Photo #125: South Accessible Parking Wall Signage

Photo #126: South Accessible Parking Faded Pavement Symbols

3.7.2 Barrier Free Path – Exterior

Description

There are two asphalt ramps providing access from the accessible parking stalls to the concrete sidewalk. The concrete sidewalk provides access to the office building front (south) entrance.

Observations and Recommendations

There are no exterior tactile walking indicator surfaces at changes in the paths (i.e. asphalt ramp/concrete sidewalk and concrete sidewalk/ceramic floor tile).

There is a garbage can on the sidewalk resulting in reduced width of the sidewalk. The sidewalk widths in general, are compliant with AODA requirements.

We recommend installing surface-mounted tactile walking indicators (preferably a high contrast plastic) at surface changes and relocating the garbage can to increase the width of the sidewalk. These improvements are below threshold amount for this report and were not included in the Capital Expenses.

At the time of asphalt replacement, you may consider including a roll-mount curb in front of the accessible parking stalls to allow for greater access.

Photo #127: Asphalt Ramp

Photo #128: Sidewalk Width reduced by Garbage Can

	
Photo #129: Main Building Entrance	**Photo #130: Front (South) Entrance Door**

3.7.3 Barrier Free Path – Interior

Description

The south end of the building has a barrier-free entrance and barrier free routes. The building front (south) entrance is equipped with a metal guardrail and automatic doors at the vestibule, push button operated, with a flush threshold. The front vestibule provides access to the customer area on the main floor, main floor corridors and lift to the various floors within the office building.

There is one barrier free washroom located on the upper floor, near the lift. The washroom is equipped with a water closet with grab bars and a sink.

There is a cafeteria in the lower floor.

Observations and Recommendations

Generally, the office building south end is better suited for barrier-free access because of the proximity to the accessible parking stalls, barrier-free features and lift. However, improvements are necessary to comply with City of Burlington and/or AODA standards.

We noticed that secondary office building entrance doors (i.e. north entrance) have no barrier free features. We also noticed that interior spaces on the north end of the office building are not AODA compliant.

The costumer service counter is not AODA compliant as it is not accessible for a customer on a wheelchair. There are no assistance call stations. There are no floor tactile walking surface indicators in any of the areas and there are no auditory controls or interior Barrier Free signage to the exception of the washroom. The newer office interior doors are equipped with a bar handles at doorways but none of the doors contain power door operators. Where reviewed, we noticed little door resistance when opening and closing the doors.

The washroom we reviewed in the upstairs floor is not equipped with emergency call button, the mirror is installed too high or should be tilted downwards, there is no shelf or counter space and the water closet has no back support. The door is not equipped with a barrier-free operator. Grab bars are present within the washroom. The washroom felt spacious enough to accommodate a wheel chair and the area could be renovated to include compliant fixtures.

The kitchenette counters are not accessible for a user on a wheelchair as the counters are too high. However, the tables are accessible as long as there is a designated area, without chairs.

We recommend improvements to the office building interior spaces. We included an allowance in the Capital Expenditures.

Photo #131: Front Entrance Vestibule

Photo #132: New Office Door

Photo #133: Accessible Washroom Door

Photo #134: Accessible Toilet

Photo #135: Accessible Washroom Sink

Photo #136: Lower Floor Cafeteria

3.7.4 Lift

Description

The office building is equipped with one lift passenger that contains a handrail. The lift has a 454 kg or 2 persons and wheelchair capacity.

Observations and Recommendations

The cab size appears to be undersized when comparing to the dimensions required by the City of Burlington standards. However, it seems technically infeasible to retrofit the lift to be compliant. The signage at the lift is inadequate and should be larger and have braille.

The lift door is not push-button operated as it should be due to the outswing. The door does not remain open for a period of time. The door is not equipped with a door re-opening device in the cab or an emergency call system. The lift cab finishes are in good to fair condition with minor damage; however, does not fully comply with City standards and/or AODA and it is outdated. There is no braille on the interior control panel and there are no audible beeps. We included an allowance for lift upgrades in the Capital Expenditures.

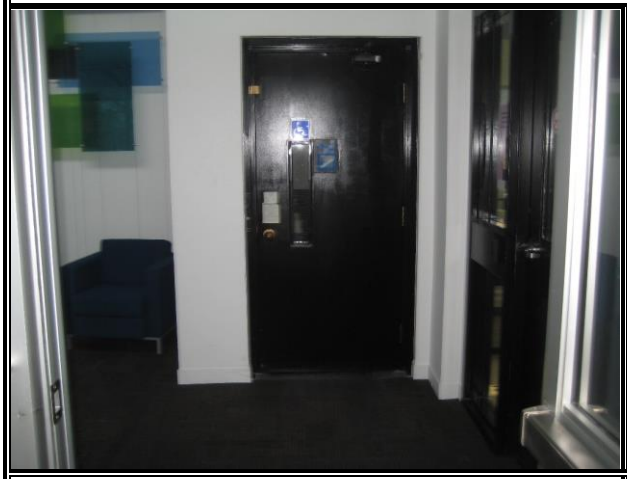


Photo #137: Lift Lobby at Ground Floor

Photo #138: Lift Lobby at Upper Floor

Photo #139: Lift Cab

Photo #140: Lift Controls

4.0 Limitations

This report has been prepared by **MTE Consultants Inc**. (MTE). The material in it reflects the best judgment of MTE in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. MTE accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this letter.

This assessment does not wholly eliminate uncertainty regarding the potential for existing or future costs, hazards or losses in connection with a property. No physical or destructive testing and no design calculations have been performed unless specifically recorded. Conditions existing but not recorded were not apparent given the level of study undertaken. We can perform further investigation on items of concern if so required. Only the specific information identified has been reviewed. The consultant is not obligated to identify mistakes or insufficiencies in the information obtained from the various sources or to verify the accuracy of the information. The Consultant may use such specific information obtained in performing its services and is entitled to rely upon the accuracy and completeness thereof.

Responsibility for detection of or advice about pollutants, contaminants or hazardous materials is not included in our mandate. In the event the Consultant or any other party encounters any hazardous or toxic materials, or should it become known to the Consultant that such materials may be present on or about the jobsite or any adjacent areas that may affect the performance of the Consultant's services, the Consultant may, at its option and without liability for consequential or any other damages, suspend performance of its services under this Agreement until the Client retains appropriates consultants to identify and abate or remove the hazardous or toxic materials and warrants that the jobsite is in full compliance with all applicable laws and regulations.

Any time frame given for undertaking work represents an educated guess based on apparent conditions existing at the time of our letter. Failure of the item, or the optimum repair/replacement process, may vary from our estimate. We accept no responsibility for any decisions made or actions taken as a result of this letter unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time. Any user of this letter specifically denies any right to claims against the Consultant, Sub-Consultants, their Officers, Agents and Employees in excess of the fee paid for professional services.

All of which is respectfully submitted,

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