



CDW ENGINEERING
CONSULTING ENGINEERS

March 22, 2024

John Smith
The Group Ltd.
155 Avenue Road,
Vaughan, Ontario L4L 8L9

The enclosed report has been prepared to provide pertinent technical information about the property at 14 Inspection Road, Etobicoke, Ontario. Our Property Condition Assessments conform with the ASTM Standard E2018-24 for Property Condition Assessments. As such, the report is not technically exhaustive.

The entire report must be considered in order to rely on the findings contained within. Sampling information in the report may put it out of context.

The report will not be released to anyone without your permission.

Thank you for giving us the opportunity to be of service. Should you have any questions regarding this report, please do not hesitate to call us.

Sincerely,

E Mulugeta

Emanuel Mulugeta, EIT, B.A.Sc

PROPERTY CONDITION REPORT

14 Inspection Road, Etobicoke, Ontario

Date of Assessment: March 22, 2024
Final Report Issued: March 30, 2024



Prepared For: John Smith
The Group Ltd.
155 Avenue Road
Vaughan, Ontario L4L 8L9

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GLOSSARY



1.0 EXECUTIVE SUMMARY

This is a Property Condition Report (PCR) of the property at 14 Inspection Road, Etobicoke, Ontario.

The following provides a summary of the property details and major findings.

Assessment Information	
Date of Assessment:	March 22, 2024
Point of Contact On-Site:	Terry Di Felice (Sellers Agent)
Property Information	
Building Type:	Industrial
Number of Stories:	1
Total Building Area:	Reported 12,478 ft ²
Number of Tenants:	Commercial: 1
Year of Construction:	1966 (Visible Evidence)
Building Orientation:	Front of the building is facing south.
Building Usage:	Vacant (previously used for offices and warehouse)
Overall Property Condition	
Overall Condition:	Satisfactory
Level of Maintenance:	Satisfactory
Major Findings:	No major deficiencies were noted.

System	Overall Condition	Level of Maintenance	Major Findings
Structure	Satisfactory	Satisfactory	No major deficiencies were noted. Repairs to the slab edge and deteriorated parging at the east side of the building are recommended in the short term.
Exterior	Satisfactory	Serviceable	Minor deficiencies were noted. Budgeting for end of lifespan replacement of the original windows is recommended in the short term.
Roofing	Satisfactory	Satisfactory	No major deficiencies were noted. Budgeting for end of lifespan replacement of the built-up asphalt and gravel roof membranes is recommended in the medium term.
Interior	Satisfactory	Satisfactory	No major deficiencies were noted.
Plumbing	Satisfactory	Satisfactory	No major deficiencies were noted.
HVAC	Satisfactory	Satisfactory	No major deficiencies were noted. End of lifespan replacement of the rooftop heating and air-conditioning units, unit heater and rooftop exhaust fans will likely be required within the report timeframe. Immediate replacement of the rooftop heating and air-conditioning equipment servicing the south office area may also be required.
Electrical	Satisfactory	Satisfactory	No major deficiencies were noted. End of lifespan replacement of the older and original main distribution equipment will likely be required within the report timeframe.
Site Work	Serviceable	Serviceable	Budgeting for end of lifespan replacement of the asphalt pavement at the north and west sides of the building is recommended in the short term.
Fire Protection Systems	Satisfactory	Satisfactory	No major deficiencies were noted. End of lifespan replacement of the fire extinguishers, exit signs/emergency lighting units and fire alarm and detection system will likely be required within the report timeframe. Refer to Appendix C for more information.

This report has been prepared by Carson Dunlop Weldon & Associates Ltd. on behalf of our client, John Smith of The Group Ltd.

Our client is a prospective purchaser of the property and this report has been prepared to provide general information on the condition of the property, for the purpose of pre-purchase due diligence.

This assessment and report conform with the ASTM Standard E2018-24 for Property Condition Assessments, except that at the request of our client:

- A building code and fire code violation inquiry was not undertaken.

1.1 Summary of Recommendations

Please find the following table of recommendations made in this report, the priorities and associated cost estimates. A ten-year timeframe has been considered. Other minor or discretionary recommendations can be found in the Recommendation Tables at the end of each building system section.

10-Year Summary of Recommended Repairs

Report Reference Number	Item	Task	Quantity	Units	Timeframe (years)	Present Cost Estimate	Years out																	
							Immediate 2023	1 2024	2 2025	3 2026	4 2027	5 2028	6 2029	7 2030	8 2031	9 2032	10 2033							
STRUCTURE																								
3.2.3	Slab Edge and Parging	Repair	1	lump sum	1	\$ 10,000		10000																
EXTERIOR																								
4.2.2	Solid Masonry - Brick	Repair	80	sq ft	2	\$ 7,200				7200														
4.2.5	Windows - 1966	Replace	220	sq ft	2	\$ 12,500			12500															
ROOFING																								
5.2.2	Roof Membranes - Built-up Asphalt	Replace	12478	sq ft	5	\$ 187,170							187170											
INTERIOR																								
	No recommendations for major repairs at this time																							
PLUMBING																								
7.2.3	Domestic Water Heater	Replace	1	each	10	\$ 4,500														4500				
HEATING, VENTILATION AND AIR CONDITIONING																								
8.2.2	Rooftop Heating and Air-Conditioning Unit	Replace	4	tons	1	\$ 10,000		10000																
8.2.2	Rooftop Heating and Air-Conditioning Unit	Replace	4	tons	2	\$ 10,000			10000															
8.2.2	Rooftop Heating and Air-Conditioning Unit	Replace	5	tons	3	\$ 12,500				12500														
8.2.2	Rooftop Heating and Air-Conditioning Unit	Replace	7.5	tons	4	\$ 19,000					19000													
8.2.2	Rooftop Heating and Air-Conditioning Unit	Replace	6	tons	0	\$ 15,000	15000																	
8.2.2	Rooftop Heating and Air-Conditioning Unit	Replace	3	tons	6	\$ 7,500							7500											
8.2.4	Unit Heaters	Replace	1	each	10	\$ 4,000														4000				
8.2.8	Exhaust Fans - Roof Mounted	Replace	2	each	3	\$ 5,000				5000														
FIRE PROTECTION																								
Appendix C	Fire and Life Safety Deficiencies	Repair	1	lump sum	0	\$ 700	700																	
Appendix C	Fire Extinguishers	Replace	1	lump sum	6	\$ 4,000							4000											
Appendix C	Exit Signs/Emergency Lighting Units	Replace	1	lump sum	0	\$ 11,500	11500													11500				
Appendix C	Fire Alarm and Detection System	Replace	1	lump sum	6	\$ 30,000							30000											
ELECTRICAL																								
9.2.2	Disconnect Switch, Splitter Panels and Circuit Breaker Panels	Replace	1	lump sum	7	\$ 15,000									15000									
9.2.3	Step Down Transformer (45 kVA)	Replace	1	each	8	\$ 5,000											5000							
9.2.3	Step Down Transformer (30 kVA)	Replace	1	each	9	\$ 4,000													4000					
9.2.6	Standby Generator	Replace	30	kW	10	\$ 40,000														40000				
SITE WORK																								
10.2.2	North and West Asphalt Pavement	Replace	14000	sq ft	2	\$ 55,000			55000															
TOTALS :						\$ 469,570	\$ 27,200	\$ 20,000	\$ 84,700	\$ 17,500	\$ 19,000	\$ 187,170	\$ 41,500	\$ 15,000	\$ 5,000	\$ 4,000	\$ 60,000							

Note: The timeframe for replacement of electrical and mechanical components is unpredictable by nature.



2.0 INTRODUCTION

2.1 Assessment Authorization and Scope

As per the request of John Smith of The Group Ltd. and in accordance with our Proposal dated March 13, 2024, a visual assessment was performed to identify the existing conditions of the following building components:

- The structure.
- The exterior walls and cladding systems, doors and windows.
- The roofing systems.
- Interior finishes (concentrating on non-cosmetic considerations).
- The plumbing system and fixtures.
- The heating systems.
- The air-conditioning systems.
- The ventilation systems.
- The electrical systems.
- Site components including walkways, driveways, parking areas, fencing and retaining walls.
- The fire protection and life safety systems.

No equipment was operated as part of this assessment.

This report provides recommendations, preliminary cost estimates and priorities for:

- remedying major deficiencies,
- updating ageing major components, and
- undertaking further detailed investigations.

The recommendations are for remedial actions over the next ten years that are considered to be beyond the normal maintenance of the building.

Cost estimates are provided for recommendations expected to exceed \$3,000.

The cost estimates are only intended to provide an order of magnitude, and do not include any engineering design or construction management fees, business related costs, contingencies or taxes. Contractors should be contacted for exact quotations.

This report is intended for the exclusive use of our client. Use of the information contained within the report by any other party is not intended and, therefore, we accept no responsibility for such use.

Before any major repairs are undertaken, we recommend that a specialist perform a detailed condition survey and develop a plan of action.

Our assessment was limited to components that were readily visible and not obstructed by storage, finishes, vegetation, etc.

The assessment included a visual review of the building exterior, roof, accessible mechanical/electrical rooms and a sampling of the interior spaces.

The following defined terms are used to describe the condition and level of maintenance of the components and systems reviewed:

- **Satisfactory** – Performing its intended function; no major defects noted. Sufficient level of proactive maintenance as recommended by manufacturers and/or industry practices.
- **Serviceable** – Performing its intended function but has visible defects or is aging. It will require minor to moderate repairs. Sufficient level of maintenance in response to existing conditions.
- **Fair** – Barely performing its intended function. Has visible defects or is aging and will require moderate to major repairs in the short term. General maintenance appears to be deferred.
- **Poor** – Not properly performing its intended function. At or beyond its useful life. Component requires major repair or replacement. Maintenance appears to be absent.

It should be understood that, unless otherwise noted, all building sizes and quantities noted here are rough approximations based on site observations and are for the purposes of this report only.

Only the items specifically addressed in this report were examined. No comment is offered on building code and building bylaw compliance, or environmental concerns.

The weather at the time of the assessment was overcast, with an approximate outdoor temperature of 3°C.

2.2 Document Review

As part of the Property Condition Assessment, a request was made to review available building plans, maintenance records, warranties and equipment lists.

None of the above documentation was available for review.

3.0 STRUCTURE

3.1 Description

Substructure	<i>Type:</i> slab on grade <i>Area:</i> entire building <i>Foundation Type:</i> concrete-block
Superstructure	<i>Walls:</i> masonry exterior walls and concrete-block exterior walls <i>Roof:</i> steel deck on open web steel joists supported by exterior walls, steel beams and steel columns

3.2 Observations and Discussion

3.2.1 The overall structural condition is satisfactory. Maintenance has been satisfactory.

3.2.2 No major structural deficiencies were noted.

3.2.3 The concrete floor slab appears to be supported by the concrete-block foundations walls and the floor slab edge extends to the exterior face of the foundation walls. The masonry and concrete-block exterior walls then appears to be supported by the concrete floor slab. This is not a typical arrangement for a slab on grade building, as the exterior walls are typically supported by the foundation walls directly.

Localized areas of spalled concrete and exposed horizontal steel reinforcement were noted at the slab edge of the concrete floor slab at the east side of the building. Large areas of deteriorated cement parging were also noted at the east side of the building. Localized repairs to the slab edge of the concrete floor slab and repairs to the cement parging are recommended in the short term.

3.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
3.3.1 Slab Edge and Parging (approximately 300 square feet)	Repair	1	\$10,000 and Up

3.4 Limitations

3.4.1 The examination of the structural components was visual only; a design review was not undertaken.

3.4.2 The review of the structural elements was limited because of the finishes in the offices.

4.0 EXTERIOR

4.1 Description

Exterior Walls	solid masonry and metal siding
Entrance Doors	aluminum-framed, single-glazed
Service Doors	steel
Loading Dock	<i>Location:</i> north elevation <i>Quantity:</i> 1 <i>Door Type:</i> insulated steel sectional
Windows	double-glazed, aluminum-framed <i>Operation Type:</i> horizontal sliders, single-hung and awning type

4.2 Observations and Discussion

- 4.2.1** The overall condition of the exterior walls, windows and doors is satisfactory. Maintenance has been serviceable.
- 4.2.2** The masonry walls have a life expectancy beyond the report timeframe. No major deficiencies were noted with the masonry walls. However, the brickwork along the west side was noted to be at grade level. This has lead to moisture related damage to the brick and mortar, and may allow interior water penetration.
- No evidence of interior leakage was noted. It is recommended that the wall in affected area be repaired concurrently with the upcoming anticipated replacement of the asphalt pavement (see Site Work section).
- 4.2.3** The metal cladding has a life expectancy beyond the report timeframe. No major deficiencies were noted.
- 4.2.4** The condition of the entrance, exit and overhead doors is satisfactory and no major deficiencies were noted.

4.2.5 The building windows are of two different vintages. The newer windows are approximately 39 years old. The older windows are original to the building and therefore approximately 57 years old. A typical useful lifespan for windows is 30 to 40 years.

The condition of newer windows is satisfactory. As such, end of lifespan replacement of the newer windows is not expected within the timeframe considered by this report. However, renewing the deteriorated window sealant concurrently with the anticipated replacement of the older windows is recommended.

The condition of the older windows is serviceable. Several cracked windows and windows with lost seals were noted at the south side of the building. Therefore, the original windows are past the end of their typical useful lifespan and may require replacement within the timeframe considered by this report. Budgeting for end of lifespan replacement of the older windows is recommended in the short term.

4.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
4.3.1 Solid Masonry - Brick (approximately 80 square feet)	Repair	2	\$5,000 - \$10,000
4.3.2 Windows Sealant (approximately 200 linear feet)	Replace	2	Minor
4.3.3 Windows - 1966 (approximately 220 square feet)	Replace	2	\$10,000 - \$15,000

5.0 ROOFING

5.1 Description

Flat Roof	<i>Type:</i> built-up asphalt and gravel membrane <i>Roof Area:</i> upper and lower level roofs
Drainage	<i>Type:</i> roof drains <i>Roof Area:</i> upper and lower level roofs
Metal Chimneys	<i>Quantity:</i> 2 <i>Roof Area:</i> upper level roof
Masonry Chimneys	<i>Quantity:</i> 1 <i>Roof Area:</i> upper level roof

5.2 Observations and Discussion

5.2.1 The overall roofing system condition is satisfactory. Maintenance has been satisfactory.

5.2.2 The built-up asphalt and gravel roof membrane is estimated to be 30 or more years old. This type of system has a typical useful lifespan of 20 to 25 years. While short term replacement is not anticipated, given the age of the roofing system, budgeting for roof membrane replacement within the report timeframe is recommended. Existing roofing materials should be removed before adding a new roof covering.

5.2.3 No major deficiencies were noted with the built-up asphalt and gravel roofing system. However, conditions noted include:

- Wind scouring of the gravel has exposed the membrane at southwest corner of the lower level roof. Additional hot asphalt and gravel should be applied at this localized area.
- Wires were noted on the upper level roof surface which may impede proper drainage or cause damage to the roof membrane. The wires should be elevated from the roof surface.

5.2.4 There was only one drain for the lower level roof. There should be at least two roof drains per roof area to prevent flooding in the event of a clogged drain. Additional drainage should be provided when re-roofing.

5.2.5 The condition of the masonry chimney could not be confirmed as the portion of the masonry chimney above the roof line has been clad over with sheet metal in the recent past. Typically masonry chimneys are clad over due to deterioration of the brickwork. This should be monitored.

5.2.6 The metal chimneys throughout show varying degrees of corrosion. Each should be replaced when the equipment it serves is replaced.

5.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
5.3.1 Roofing System	Repair	1	Minor
5.3.2 Roof Membranes - Built-up Asphalt (approximately 12,478 square feet)	Replace	5	\$155,000 - \$195,000

5.4 Limitations

- 5.4.1** As the roof is covered with gravel (as it should be), the membrane could not be closely examined.
- 5.4.2** The sheet metal covering the masonry chimney above the front flat roof limited the assessment of the masonry chimney.

6.0 INTERIOR

6.1 Description

This section addresses the conditions noted in the finished areas of the building. Since the condition of interior components is subjective to some degree, comments here are general except where functional concerns are noted.

Finishes	<i>Floors:</i> carpet, resilient tile and ceramic tile <i>Walls:</i> drywall <i>Ceilings:</i> suspended tile and drywall
Fireplace	<i>Type:</i> wood stove <i>Location:</i> boardroom

6.2 Observations and Discussion

- 6.2.1** The overall interior finish condition is satisfactory. Maintenance has been satisfactory.
- 6.2.2** The walls, ceilings, and floors show cosmetic deficiencies due to normal use. It is not difficult to eliminate these flaws during renovations.
- 6.2.3** No major deficiencies were noted with the floor or wall finishes.
- 6.2.4** No major deficiencies were noted with the ceiling finishes. However, water damaged ceiling finishes were noted in the office gym. The suspected source of moisture appears to be a previous roof leakage. The damaged finishes should be repaired once it is confirmed that the roof leakage has been repaired.
- 6.2.5** A wood energy technology transfer (WETT) specialist should be engaged to review the fireplace prior to use.

6.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
6.3.1 Water Damaged Ceiling Finishes (approximately 5 square feet)	Repair	1	Minor
6.3.2 WETT Specialist for Fireplace	Further Review	Discretionary	Minor

6.4 Limitations

- 6.4.1** It is not possible during a visual inspection to determine whether a fireplace draws properly.
- 6.4.2** The clearance to combustibles at the fireplace could not be verified because of interior finishes.

7.0 PLUMBING

7.1 Description

Service Entrance	<i>Configuration:</i> domestic only <i>Pipe Diameter:</i> 1 1/2-inch <i>Pipe Material:</i> copper <i>Main shutoff valve located:</i> electrical room
Meter(s)	<i>Quantity:</i> 1
Backflow Prevention	<i>Provided at:</i> domestic service entrance
Supply Piping	<i>Type:</i> copper
Sanitary Piping	<i>Type:</i> ABS plastic
Domestic Water Heater	<i>Quantity:</i> 1 <i>Type:</i> gas-fired <i>Capacity:</i> 187 Litres
Washroom (Two-piece)	<i>Quantity:</i> 6 <i>Locations:</i> office area and lunchroom
Washroom (Men's and Women's)	<i>Quantity:</i> 1 set <i>Location:</i> office area
Sauna	<i>Location:</i> office gym

7.2 Observations and Discussion

- 7.2.1** The overall plumbing system condition is satisfactory. Maintenance has been satisfactory.
- 7.2.2** The backflow prevention device at the domestic water service entrance is approximately 7 years old. This type of device has an expected useful lifespan of 20 years. As such, replacement of the backflow prevention device at the domestic water service entrance is not anticipated within the report timeframe.
- 7.2.3** The domestic water heater was manufactured in 2018 and is therefore approximately 5 years old. While it is impossible to predict with certainty when a domestic water heater will fail, these types of units typically last 15 years. Therefore, updating this equipment may be necessary within the report timeframe. No major deficiencies were noted with this equipment.
- 7.2.4** The washroom fixtures and finishes are relatively new and in satisfactory overall condition. As such, replacement of the plumbing fixtures is not anticipated in the report timeframe. No major deficiencies were noted with the plumbing fixtures.

7.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
7.3.1 Domestic Water Heater	Replace	10	\$4,000 - \$5,000

7.4 Limitations

7.4.1 The data plate on the sauna heater was not visible.

8.0 HEATING, VENTILATION AND AIR-CONDITIONING

8.1 Description

Gas Meter(s)	<i>Quantity: 1</i> <i>Location: west exterior</i>
Forced Air	
Rooftop Heating and/or Air-Conditioning Package Units	<i>Quantity: 6</i> <i>Areas Serviced: offices</i> <i>Fresh Air Type: economizer and makeup air duct</i> <i>Comments: See inventory in discussion below.</i>
Refrigerant Type	R22
Supply Air Duct	<i>Location: overhead</i> <i>Area Serviced: office areas</i>
Return Air	<i>Type: ceiling plenum</i> <i>Area Serviced: office areas</i>
Unitary	
Unit Heater	<i>Quantity: 1</i> <i>Type: open-flame gas-fired, ceiling-mounted</i> <i>Area Serviced: warehouse</i>
Electric Heating	<i>Type: wall-mounted fan-forced</i> <i>Area Serviced: front entrance</i>
Ventilation	
Exhaust Fans	<i>Quantity: 2</i> <i>Type: rooftop cabinet</i> <i>Area Serviced: office washrooms</i>

8.2 Observations and Discussion

8.2.1 The overall heating, ventilation and air-conditioning system condition is satisfactory. Maintenance has been satisfactory.

8.2.2 The 6 rooftop package units were noted as follows:

<i>Type of Unit (Cooling Capacity)</i>	<i>Heat Output (MBTU/hr)</i>	<i>Year of Manufacture</i>	<i>Note</i>
Gas heating and cooling (3-tons)	59.2	2004	Boardroom
Gas heating and cooling (4-tons)	92	2000	HVAC Lunchroom
Gas heating and cooling (4-tons)	92	2000	Middle South
Gas heating and cooling (5-tons)	92	2000	Middle North
Gas heating and cooling (6-tons)	92	2001	South (Power Off)
Gas heating and cooling (7.5-tons)	144	2000	North

The rooftop package units are approximately 19, 21 and 23 years old. This type of equipment has an expected useful lifespan of 20 years. As such, this equipment may require replacement within the timeframe considered by this report.

8.2.3 The rooftop package equipment was in heating mode and idle at the time of the assessment. No major deficiencies were noted with the rooftop package equipment. However, the electrical disconnect switch for the rooftop unit servicing the south office area was noted in the off position. Further review of this equipment is required. Immediate replacement may be required.

8.2.4 The unit heater is approximately five to ten years old. The average life for heating systems of this type is 15 to 25 years. As such, this equipment may require replacement within the timeframe considered by this report.

8.2.5 The unit heater was idle at the time of the assessment. No major deficiencies were noted with this equipment.

8.2.6 The wall-mounted fan-forced electric heaters are estimated to be approximately 15 to 25 years old. This type of heating system is considered to have a useful life of 25 to 30 years. Electric heating systems can be repaired indefinitely as long as replacement parts are available. As such, end of lifespan replacement of the electric heating units is not anticipated in the report timeframe.

8.2.7 The electric heating equipment was idle at the time of the assessment. No major deficiencies were noted with this equipment.

8.2.8 The rooftop exhaust fans are approximately 20 to 25 years old. These units have a typical life expectancy of 20 to 25 years. As such, this equipment may require replacement within the timeframe considered by this report.

8.2.9 The rooftop exhaust fans were idle at the time of the assessment. No major deficiencies were noted with this equipment.

8.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
8.3.1 Rooftop Heating and Air-Conditioning Unit (4 tons)	Replace	1	\$8,000 - \$12,000
8.3.2 Rooftop Heating and Air-Conditioning Unit (4 tons)	Replace	2	\$8,000 - \$12,000
8.3.3 Rooftop Heating and Air-Conditioning Unit (5 tons)	Replace	3	\$10,000 - \$15,000
8.3.4 Rooftop Heating and Air-Conditioning Unit (7.5 tons)	Replace	4	\$17,000 - \$21,000
8.3.5 Rooftop Heating and Air-Conditioning Unit (6 tons)	Replace	0	\$13,000 - \$17,000
8.3.6 Rooftop Heating and Air-Conditioning Unit (3 tons)	Replace	6	\$5,000 - \$10,000
8.3.7 Unit Heater	Replace	10	\$3,000 - \$5,000
8.3.8 Exhaust Fans - Roof Mounted (2)	Replace	3	\$4,000 - \$6,000

8.4 Limitations

8.4.1 The heating, ventilation and air-conditioning equipment was not functionally tested.

9.0 ELECTRICAL

9.1 Description

Main Transformer	The location and size of the main transformer for the building could not be verified. This information can be obtained by contacting the electric utility provider.
Service Entrance	<p><i>Service Conductors:</i> underground</p> <p><i>Amps:</i> 200</p> <p><i>Voltage:</i> 600 3-phase 3-wire</p> <p><i>Determined By:</i> This capacity was determined by the rating of the main disconnect switch. The service size could be verified by opening the main disconnect switch or contacting the electric utility provider.</p>
Meter(s)	single meter for building
Transformers	<p><i>Location:</i> Main electrical room and warehouse</p> <p><i>Quantity:</i> 2</p> <p><i>Comments:</i> These transformers step a portion of the 600-volt service down to 120/208-volts for low-voltage distribution. Other transformers may be present. Refer to Inventory in discussion below.</p>
Distribution Panels	circuit breakers
Wiring Type	copper
Light Fixtures	<p><i>Location:</i> interior</p> <p><i>Types:</i> fluorescent, incandescent and LED</p>
Light Fixtures	<p><i>Location:</i> exterior</p> <p><i>Types:</i> LED and high-intensity discharge (HID)</p>
Standby Generator	<p><i>Quantity:</i> 1</p> <p><i>Type:</i> natural gas-fired</p> <p><i>Location:</i> on the roof</p> <p><i>Size:</i> 30 kW</p> <p><i>Services:</i> building</p>

9.2 Observations and Discussion

9.2.1 The overall electrical system condition is satisfactory. Maintenance has been satisfactory.

9.2.2 The main distribution equipment is of two different vintages. The older main distribution is original to the building and therefore approximately 57 years old. The remaining (and majority) main distribution equipment is newer and ranges from approximately 10 to 25 years old. This equipment has a 40-year typical useful lifespan. The condition of the main distribution equipment is satisfactory and no major deficiencies were noted. This older equipment should be expected to require refurbishment or replacement within the timeframe considered by this report.

9.2.3 The 2 base building transformers were noted as follows:

Location Of Transformer	Size (kVA)
Main electrical room	45
Warehouse	30

The transformers are approximately 20 to 30 years old. This equipment has a 30-year typical useful lifespan. While ultimate longevity of this equipment is unpredictable, replacement may be required within the report timeframe. No major deficiencies were noted with this equipment.

9.2.4 Representative samples of the accessible wiring and lighting were examined. No major deficiencies were noted.

9.2.5 The year of manufacture of the generator was not determined as the date plate was not visible, however the generator is estimated to be 20 to 30 years old. This type of equipment has a typical useful lifespan of 30 to 35 years. The generator should be expected to require refurbishment or replacement within the timeframe considered by this report.

9.2.6 The generator was idle at the time of the assessment. No major deficiencies were noted with standby generating equipment. However, surface corrosion on the casing of the generator was noted. As end of lifespan of the generator is anticipated within the report timeframe, no repairs are currently warranted, however this condition should be monitored.

9.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
9.3.1 Disconnect Switch, Splitter Panels (2) and Circuit Breaker Panels (4)	Replace	7	\$10,000 - \$20,000
9.3.2 Step Down Transformer (45 kVA)	Replace	8	\$4,000 - \$6,000
9.3.3 Step Down Transformer (30 kVA)	Replace	9	\$3,000 - \$5,000
9.3.4 Standby Generator	Replace	10	\$35,000 - \$50,000

10.0 SITE WORK

10.1 Description

Asphalt Pavement	<i>Locations:</i> north, east, south and west sides of the building
Parking	<i>Locations:</i> north and south sides of the building <i>Standard Parking Spaces:</i> 28
Walkway	Type: poured concrete Location: front entrance
Steps	Type: poured concrete Location: south side of the building
Fence	Type: chain-link with security wire Location: east, west sides of the property and enclosing the rear yard
Pylon Sign	Location: south side of the building

10.2 Observations and Discussion

10.2.1 The overall condition of the site work is serviceable. Maintenance has been serviceable.

10.2.2 The asphalt pavement on the property appears to be of two different vintages. The asphalt pavement at the east and south sides of the building appears to be five years old based on historical imagery and visible evidence. The older asphalt pavement at the remaining sides of the building is estimated to be beyond 20 years old. Asphalt pavement has a typical useful lifespan of 20 to 30 years.

The condition of the asphalt pavement at the east and south sides of the building is satisfactory and no major deficiencies were noted. As such, end of lifespan replacement is not anticipated within the report timeframe.

The condition of the asphalt pavement at the north and west sides of the building is serviceable to fair. Large cracking and potholes and advanced surface deterioration of the asphalt pavement were noted at the north and west sides of the building. The asphalt pavement at the north and west sides of the building should be expected to require major repairs or replacement within the short term.

10.2.3 The condition of the poured concrete walkway and steps is satisfactory and no major deficiencies were noted.

10.2.4 The condition of the chain-link fence is satisfactory and no major deficiencies were noted.

10.2.5 The condition of the pylon sign is satisfactory and no major deficiencies were noted.

10.3 Recommendations

Item	Task	Timeframe (years)	Present Cost Estimate
10.3.1 North and West Asphalt Pavement (approximately 14,000 square feet)	Replace	2	\$45,000 - \$65,000

11.0 INQUIRIES

11.1 Pre-Survey Questionnaire

A pre-survey questionnaire was sent electronically to our client to be completed by someone knowledgeable about the property.

At the time of finalizing this report, the questionnaire had not been returned to us. A copy of the questionnaire is attached in Appendix B.

12.0 CLOSING COMMENTS

This report provides you with an overview of the condition of the major components in the building. We trust this information is of value. CDW Engineering would be pleased to provide additional engineering services, as required, to implement any of our recommendations. Should you have any questions, please do not hesitate to contact us.

Appendix A contains photographs documenting conditions noted in our report.

Please find the pre-survey questionnaire in Appendix B.

Please find the fire safety audit report in Appendix C.

A statement of qualifications and a glossary of terms that may have been used in this report are also included for your reference.

Sincerely,

E Mulugeta

Emanuel Mulugeta, EIT, B.A.Sc

Reviewed by,

Richard Weldon

Richard Weldon, P.Eng., LEED AP

APPENDIX A

PHOTOGRAPHS

**14 Inspection Road
Etobicoke, Ontario**



Photo 1. Deteriorated parging, localized spalling of the floor slab edge and exposed horizontal reinforcement at the northeast corner of the building.



Photo 2. North elevation.



Photo 3. East elevation.



Photo 4. South elevation.



Photo 5. West elevation.



Photo 6. Typical exit door.



Photo 7. Main entrance door.



Photo 8. Loading dock overhead door.

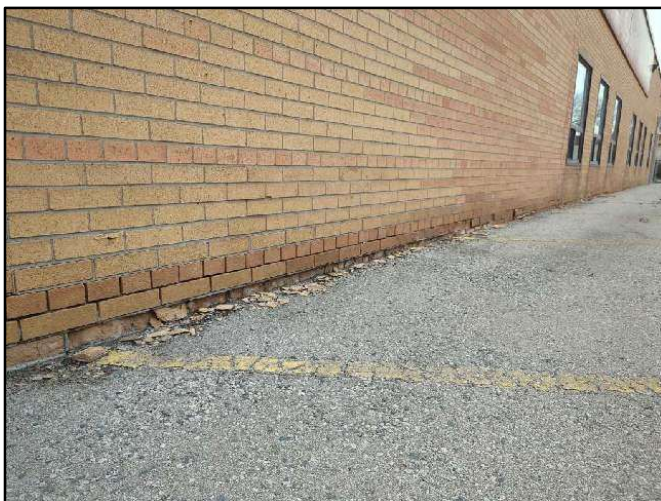


Photo 9. Brickwork at grade that requires repair at the northwest corner of the building.



Photo 10. Example of a cracked window.



Photo 11. Example of a window with a lost seal. Note the condensation between the glazing.



Photo 12. North side of the property.



Photo 13. East side of the property.



Photo 14. South side of the property.

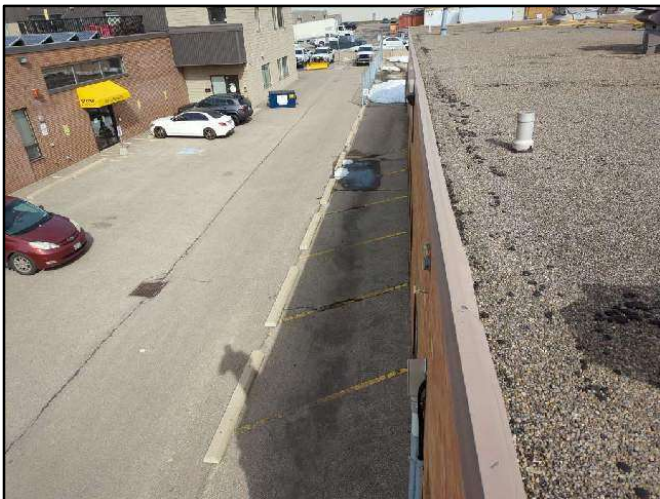


Photo 15. West side of the property.



Photo 16. Typical perimeter fence.



Photo 17. Concrete sidewalk at main building entrance.



Photo 18. Pylon sign at property.



Photo 19. South parking area.



Photo 20. Poured concrete steps at the southeast exit.



Photo 21. Example of potholes in asphalt paving at the north side of the property.



Photo 22. Example of cracking in asphalt paving at the north side of the property.

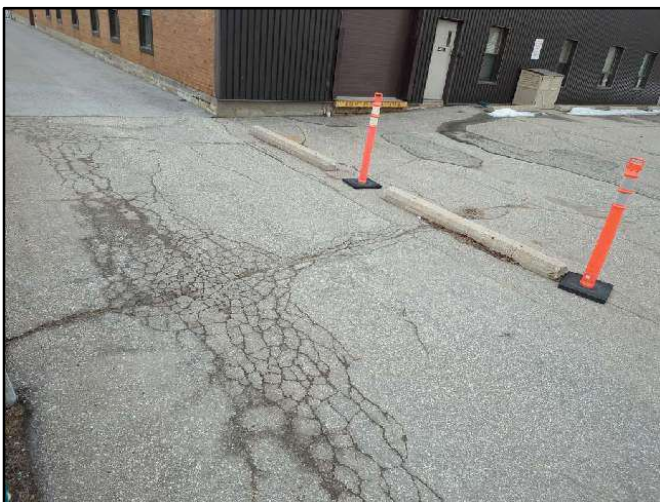


Photo 23. Example of surface deterioration of the asphalt pavement at the north side of the property.



Photo 24. Overview of the built-up asphalt and gravel membrane on the upper roof level.



Photo 25. Metal chimney at the upper roof level.



Photo 26. Masonry chimney covered with metal cladding at the upper level roof.



Photo 27. Overview of the built-up asphalt and gravel membrane on the lower level roof.



Photo 28. Steel-framed front entrance canopy.



Photo 29. Wind scouring of gravel, exposing the membrane at the southwest corner of the lower level roof.



Photo 30. Office reception.



Photo 31. Men's office washroom.



Photo 32. Women's office washroom.



Photo 33. Executive office suite.



Photo 34. Typical perimeter office suite.



Photo 35. First aid room.



Photo 36. North office corridor.



Photo 37. North conference room.



Photo 38. Office gym.



Photo 39. Sauna and Shower room.



Photo 40. Shipping and receiving area at the north of the warehouse.



Photo 41. General view of the warehouse.

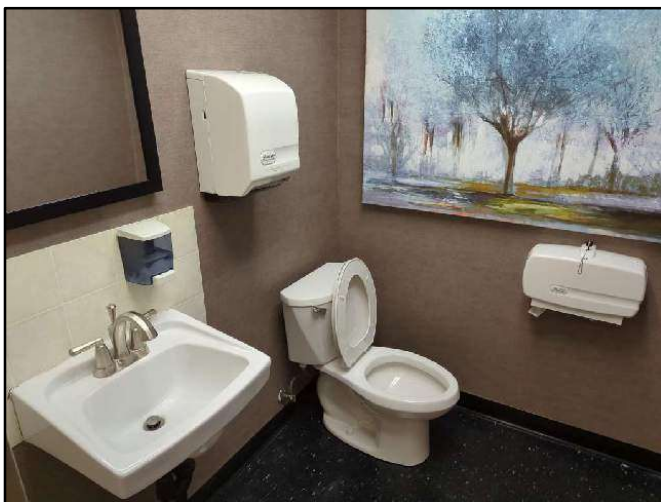


Photo 42. Men's two-piece office washroom.



Photo 43. Women's two-piece office washroom.



Photo 44. Boardroom.

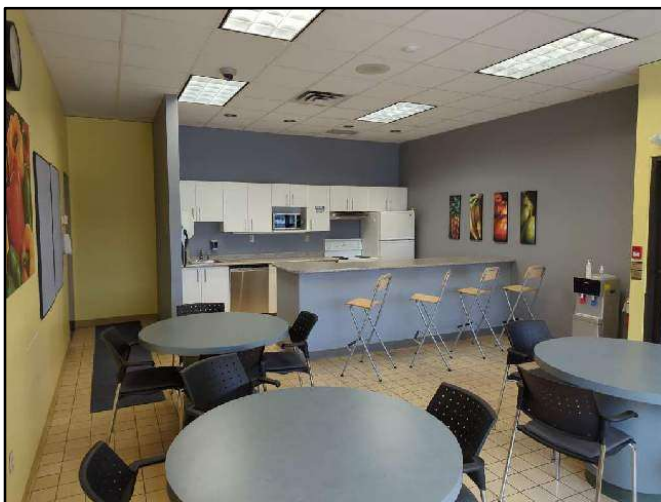


Photo 45. Lunchroom.

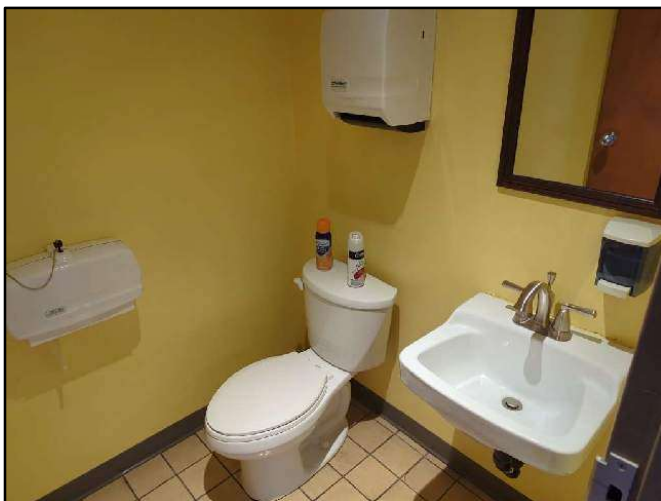


Photo 46. Men's two-piece lunchroom washroom.



Photo 47. Women's two-piece lunchroom washroom.



Photo 48. South conference room.



Photo 49. South office area.



Photo 50. Boardroom fireplace.



Photo 51. Main domestic water service entrance.



Photo 52. Backflow prevention device at the domestic water service entrance.



Photo 53. Gas-fired domestic water heater.



Photo 54. Gas meter for building.



Photo 55. Typical rooftop heating and cooling unit.



Photo 56. Typical open flame unit heater.



Photo 57. Typical rooftop exhaust fan for the office washrooms.



Photo 58. Overview of main electrical service entrance equipment.



Photo 59. Typical circuit breaker panel.



Photo 60. Emergency generator.

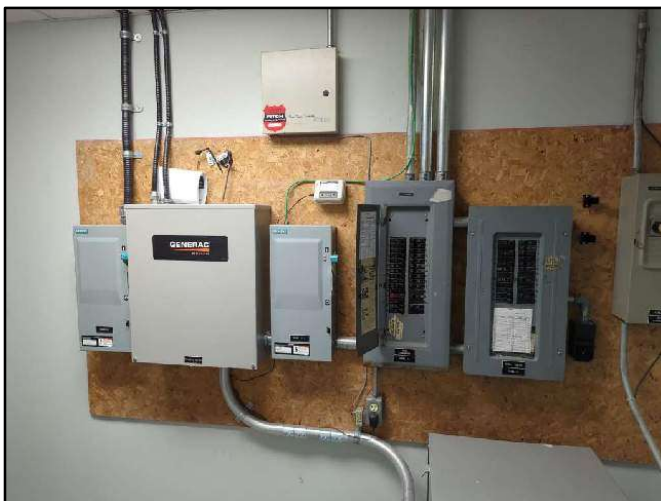


Photo 61. Generator transfer switch.



Photo 62. Step-down transformer.

APPENDIX B

PRE-SURVEY QUESTIONNAIRE

**14 Inspection Road
Etobicoke, Ontario**



	Question
1	Are you aware of any previous or outstanding building code or fire code violations?
2	Are you aware of any major upcoming repairs or replacements? If so, of what nature?
3	Have there been any recent major repairs or replacements of building components? If so, what were the appropriate costs?
4	Are you aware of any major structural deficiencies in the building? If so, of what nature?
5	What is the age of the roof membrane?
6	Is there a roof warranty available for the existing roof membrane?
7	Was the roof membrane installer bonded?
8	Are you aware of any active roof leaks? If so, where?
9	Is there a maintenance contract for the heating & air-conditioning systems?
10	What is the age of the heating & air-conditioning systems?
11	What type of refrigerant is used in the air-conditioning equipment?
12	Have you any warranty information on the heating or air-conditioning systems?
13	Are you aware of any aluminum wiring in the building?
14	Are you aware of any inoperative components or systems in the building?
15	Is there any ongoing or pending litigation related to the subject property's physical condition?
16	Are you aware of any parking inadequacies at the property?
17	Is there a maintenance contract for the elevator? If so, who is the service contractor?



APPENDIX C

FIRE SAFETY AUDIT REPORT

**14 Inspection Road
Etobicoke, Ontario**



**Fire Code and Fire Safety Planning
Solutions for Your Building**

Tel: 416-809-6186

Email: kchamberlain@fireadvisor.ca

Web: www.fireadvisor.ca

ONTARIO FIRE CODE INSPECTION REPORT

Via E-mail

To: Mr. Richard Weldon Carson Dunlop Weldon and Associates Ltd.
richard@cdwengineering.com

cc: Ms. Tracy Gaudet Carson Dunlop Weldon and Associates Ltd.
tracy@cdwengineering.com

From: Kyle Chamberlain, A.Sc.T., CBCO

Project: 14 Inspection Road
Toronto, ON
Fire Advisor Consulting Inc. Project No: 23-030

Topic: Ontario Fire Code Inspection
Inspection Date: March 24, 2024

Date: March 27, 2024

Total number of pages: 20

1.0 INTRODUCTION

As requested, Fire Advisor Consulting Inc. conducted a visual, non-destructive inspection of the existing one-storey office building (no basement level) located at 14 Inspection Road in Toronto, Ontario. Our inspection was conducted with respect to the fire protection and life safety requirements in Part 2 and Part 6 of the 2007 Ontario Fire Code (O.Reg. 213/07, as amended).

Our inspection was also conducted for the purpose of projecting anticipated replacement costs necessary over the next 10 years for the existing fire protection and life safety systems serving the building based on the assumption that the systems are regularly serviced and maintained.

While on site, building maintenance records and inspection / testing reports were not available for review.

*This document is for use by Carson Dunlop Weldon and Associates Ltd.
It is not intended for use by any third party or subsequent owners.*



Inspection Date: March 24, 2024
Mr. Richard Weldon – Carson Dunlop Weldon and Associates Ltd.
14 Inspection Road, Toronto, ON
Project No: 23-030

2.0 SCOPE OF INSPECTION

Our inspection consisted of a walk-through of the existing building during which deficiencies were noted with respect to Part 2 and Part 6 of the 2007 Ontario Fire Code (OFC). The inspection was visual in nature and did not incorporate any system testing or destructive analysis in order to determine the construction materials or operation of building systems. As such, this report is not intended to be an all-inclusive list of building deficiencies.

In addition, existing fire protection and life safety systems serving the building were also reviewed for the purpose of projecting anticipated replacement costs necessary over the next 10 years for the maintenance and upkeep of the systems (for items greater \$3,000.00).

This report does not consider the requirements for new construction under the Ontario Building Code.

Fire Advisor Consulting Inc. has not reviewed activities / operations within the building that may be considered as hazardous activities (OFC, 2.1.2.2.).

Additionally, please note that OFC Part 9 retrofit requirements are not currently applicable to office, retail, commercial and / or industrial occupancies.



3.0 BUILDING DESCRIPTION

3.1 General

The existing building located at 14 Inspection Road in Toronto, Ontario, is a one-storey office building (no basement level) with an approximate “building area” of 1,159.2 m² (12,478 ft²). It is our understanding that the original building was built circa 1984 and is approximately 39 years old.

The majority of the building is comprised of office space and associated uses (including a lunchroom, board rooms and an exercise room). There is also a warehouse area provided at the Northeast portion of the building.

The building is constructed of non-combustible construction consisting of a poured concrete foundation, exterior brick cladding, masonry exterior walls (concrete block), concrete floors, steel columns and beams, and open web steel joists supporting corrugated steel pan roof decking. Interior walls consist of concrete block and drywall on steel studs.

The existing one-storey building consists of office spaces (and associated office uses) on the Ground Floor. The office portion of the building also contains subsidiary assembly spaces (board rooms, lunchroom, exercise room, etc.). Additionally, the Northeast portion of the building contains a warehouse space. The building is considered a Group D office / business and personal services major occupancy for purposes of the OFC with subsidiary occupancies consisting of Group A, Division 2 assembly areas and a Group F, Division 3 warehouse area.

Based on discussions with on-site personnel, it is our understanding the existing office building is currently unoccupied.

It is our understanding that there is a storage space situated above the ceiling in the Northwest portion of the building and an additional ceiling storage space adjacent to the industrial warehouse area. It is our understanding that the storage space at the Northwest portion of the building is accessed by removing ceiling tiles and using a ladder and that the storage space adjacent to the warehouse area also requires ladder access to reach the access door near the ceiling level (there are no stairs / fixed ladders accessing these storage spaces). Fire Advisor Consulting Inc. was not provided with access to both of these storage spaces.



3.2 Fire Department Access

Fire department access is provided to this building via Inspection Road located to the South of the building.

The principal fire department entrance for the building is situated at the South face of the building (near the Southwest corner). Access to the principal fire department entrance for the building is via Inspection Road located to the South of the building.

Municipal fire hydrants are located to the East and West of the building along Inspection Road.

3.3 Exiting

The Ground Floor of the building is provided with direct access to perimeter exterior exit doors at the North, East, and South exterior walls that discharge directly to the exterior at grade.



3.4 Fire Alarm System

The building is equipped with a zoned, single-stage “MIRCOM – FA 1000 Series” fire alarm system. The fire alarm system consists of the following actuation devices:

- Manual pull stations at exits and in some access to exits in corridors,
- Heat detectors in office areas, board rooms, server room, washrooms, changeroom / shower area, exercise room, storage closets and in some corridor locations.
- Heat detectors in the Main Electrical Rooms, service rooms, and warehouse area,
- Smoke detectors in both board rooms,
- Smoke detectors in some corridors, and
- Smoke detector in the warehouse area.

The main fire alarm control is located within the Server Room situated in the mid-North portion of the building. Additionally, a fire alarm annunciator panel is provided in the main entrance vestibule (principal fire department entrance) situated at the Southwest side of the Ground Floor.

Audible signals consist of bells installed throughout the entire building.

Fire alarm zones (as shown on the fire alarm control / annunciator panel) are provided as Attachment C to this report.

The fire alarm system is provided with emergency back-up power from batteries located within the main fire alarm control panel.

There was no visual indication or documentation provided identifying that the fire alarm system is monitored by an off-site central monitoring station.

A certificate was hanging from the main fire alarm control panel and indicated that the system was last inspected / tested (annual) in May 2019.

Additionally, there was a sticker affixed to the main fire alarm control panel indicating that the system underwent a fire alarm system verification test / inspection on August 12, 2004.

Testing and maintenance reports / documentation for the fire alarm system were not available for review while on-site.



3.5 Exit Signage and Emergency Lighting

Combination emergency lighting units / exit signage and emergency lighting unit remote heads (provided with emergency power from batteries) were located throughout the building (i.e.; above exit / egress doors, within corridors / egress pathways, within offices, lunchroom, washrooms, service rooms, etc.).

Additionally, standalone exit signage (provided with emergency power from batteries) was noted in egress pathways / corridors and above exits throughout the entire facility.

The emergency lighting units / exit signs are provided with emergency power from a centralized battery system that is situated in the Server Room.

Monthly and annual testing and maintenance reports for emergency lighting units were not available for review at the time of the inspection.



3.6 Fire Suppression

3.6.1 Portable Fire Extinguishers

Portable, multi-purpose, dry-chemical fire extinguishers are provided throughout the building. The fire extinguishers were provided were mounted with brackets.

Maintenance tags were provided on the portable fire extinguishers and indicated monthly inspections were conducted in 2022. However, annual inspections were not recorded on the fire extinguisher inspection tags and an annual inspection report / documentation for the portable fire extinguishers was not provided while on-site.

3.6.2 Standpipe and Hose System

The building is not provided with a standpipe and hose system.

3.6.3 Automatic Sprinkler Protection

The building is not provided with automatic sprinkler protection.

3.7 Fire Safety Plan

A Fire Safety Plan was not apparent / provided for review while on-site.

Emergency procedure signage was provided above or adjacent to the majority of manual pull stations within the building. Additionally, schematic evacuation diagrams were noted in the main entrance vestibule of the building.



Inspection Date: March 24, 2024
Mr. Richard Weldon – Carson Dunlop Weldon and Associates Ltd.
14 Inspection Road, Toronto, ON
Project No: 23-030

3.8 Testing, Maintenance and Inspection Documents and Records

Testing, maintenance and inspection reports / documents and records (excluding inspection tags) for fire protection and life safety systems (fire alarm system, portable fire extinguishers, emergency lighting units, fire doors) were not available for review or information purposes.

If this Code requires tests and corrective measures or operational procedures to be carried out, records shall be made noting what was done and the date and time it was done (1.1.2.1.(1)).

The written records described in Sentences (1) and (2) shall be retained at the building premises for examination by the Chief Fire Official (1.1.2.1.(3)).

The original or a copy of any record required by this Code shall be retained at the building to which the record relates for a period of at least two years after being prepared and so that at least the most recent and the immediately preceding record of a given test or inspection are retained (1.1.2.2.(1)).



4.0 OFC DEFICIENCIES

This portion of the inspection report contains items which are not in compliance with the fire protection and life safety requirements in Part 2 and Part 6 of the 2007 Ontario Fire Code (OFC).

Please refer to Attachment A in this inspection report for Recommended Budget Allowances associated with required upgrading. These are ballpark figures only and are required to be verified by qualified contractors and may vary depending on the complexity and degree of outsourced work.

4.1 OFC Part 2 and Part 6 Deficiencies

The following sections outline areas within the building that do not comply with Part 2 and Part 6 of the OFC.

4.1.1 General / Site Comments

Item No.	Div. B, OFC Reference	Deficiency Description
1.	1.1.2.1.(1) / 1.1.2.1.(3)	<p>If this code requires tests and corrective measures or operational procedures to be carried out, records shall be made noting what was done and the date and time it was done.</p> <p>The written records described in Sentences (1) and (2) shall be retained at the building premises for examination by the Chief Fire Official.</p> <p>Inspection and testing documents for periodic (monthly, annual, etc.) maintenance of fire protection and life safety equipment (i.e., fire alarm system, portable fire extinguishers, emergency lighting units, fire doors) were not available for review at the time of our inspection.</p> <p>Written records for fire protection and life safety equipment are required to be maintained on-site for a minimum of two years.</p>
2.	2.2.3.4.(4)	<p>A door in a fire separation shall be inspected monthly.</p> <p>Monthly inspections of fire doors are required to be conducted. Monthly records for fire doors are required to be maintained.</p>



4.1.1 General / Site Comments (Cont.)

Item No.	Div. B, OFC Reference	Deficiency Description
3.	2.7.3.3.(3)	<p>Emergency lighting unit equipment shall be tested:</p> <ul style="list-style-type: none"> • monthly to ensure that the emergency lights will function upon failure of the primary power supply, and • annually to ensure that the unit will provide emergency lighting for a duration equal to the design criteria under simulated power failure conditions. <p>Testing and maintenance reports for the emergency lighting units were not available for review at the time of the inspection.</p> <p>As such, the emergency lighting units are required to be inspected / tested monthly and annually and repaired as necessary. Records of these inspections / tests are required to be maintained on-site.</p>
4.	2.8.3.2.(1)	<p>Subject to Sentences (2), (3), (4) and (5), a fire drill shall be held for the supervisory staff at least once during each 12-month period.</p> <p>Records of annual fire drills were not provided during the inspection. A fire drill for supervisory staff is required to be conducted annually and records maintained.</p>
5.	6.2.7.1. / 6.2.7.2.	<p>Maintenance and testing of portable extinguishers shall be in conformance with NFPA 10 “Portable Fire Extinguishers”.</p> <p>Portable extinguishers shall be inspected monthly.</p> <p>Monthly and annual inspection records / reports for portable fire extinguishers were not available for review while on-site.</p> <p>Monthly and annual inspections of portable fire extinguishers are required to be conducted. Monthly and annual records for portable fire extinguishers are required to be maintained on-site.</p>



4.1.1 General / Site Comments (Cont.)

Item No.	Div. B, OFC Reference	Deficiency Description
6.	6.3.2.2.(1)	<p>Except as provided in Sentence (2), a fire alarm system, with or without voice communication capability, shall be inspected and tested in conformance with CAN/ULC-S536, “Inspection and Testing of Fire Alarm Systems”.</p> <p>Monthly and annual inspection / test records / reports for the fire alarm system installed within the building were not available for review.</p> <p>Monthly and annual test / inspection / maintenance for the fire alarm system is required to be conducted and records are required to be maintained on-site.</p>



4.1.2 Ground Floor

Item No.	Div. B, OFC Reference	Deficiency Description
1.	2.2.3.3.	<p>Closures in fire separations shall not be obstructed, blocked, wedged open, or altered in any way that would prevent the intended operation of the closure.</p> <p>The closure (fire door) for the Main Electrical Room at the Southeast portion of the Ground Floor was noted to have a “kick-stop” installed at the bottom of the door (allowing it to be propped open).</p> <p>The “kick-stop” is required to be removed from the above noted closure (fire door) such that it closes and latches after each use.</p>
2.	2.2.3.1.	<p>Where closures are damaged so as to affect the integrity of their fire-protection rating, the damaged closures shall be repaired so that the integrity of the closures is maintained.</p> <p>The fire door (closure) for the Main Electrical Room situated at the East side of the facility is currently not provided with a self-closing device. This door is required to be equipped with a self-closing device and a positive latching mechanism.</p>



4.1.2 *Ground Floor (Cont.)*

Item No.	Div. B, OFC Reference	Deficiency Description
3.	2.6.1.4.(1)(a)	<p>Every chimney, flue and flue pipe shall be inspected to identify any dangerous condition</p> <p style="padding-left: 40px;">(a) at intervals not greater than 12 months</p> <p>There was a wood burning fireplace / chimney installed in the main Boardroom situated in the central portion of the facility. The chimney for the wood burning fireplace is required to be inspected on an annual basis. Written records of annual inspections of the chimney are required to be retained.</p> <p>Additionally, it is recommended that the wood burning fireplace be inspected / reviewed by a Wood Energy Technology Transfer (W.E.T.T.) certified technician and written documentation obtained from the W.E.T.T. technician identifying that the wood burning fireplace / chimney are installed correctly (in accordance with the manufacturer's recommendations) <u>prior</u> to using the wood burning fireplace.</p>



4.1.2 Ground Floor (Cont.)

Item No.	Div. B, OFC Reference	Deficiency Description
4.	2.7.2.2.(1)(a)	<p>Subject to Sentences (2) and (3), and unless otherwise approved, locking, latching and other fastening devices shall be such that a door can be readily opened from the inside with no more than one releasing operation and without requiring keys, special devices or specialized knowledge of the door opening mechanism on</p> <p style="padding-left: 40px;">(a) every required exit door</p> <p>It was noted during the inspection that the exterior exit door at the East side of the Ground Floor had two sliding bolt latches and panic hardware installed. The sliding bolt latches on the exterior exit door are required to be removed.</p>
5.	2.7.3.2.(1)	<p>Exit signs shall be illuminated externally or internally, as appropriate for the sign’s design, while the building is occupied.</p> <p>There were two exit signs in the Lunchroom situated at the Southeast portion of the Ground Floor that appeared to have burnt out bulbs.</p> <p>Illumination for the above noted exit signs is required to be provided. The burnt out bulbs are required to be replaced.</p>



5.0 10 YEAR CAPITAL REPLACEMENT ESTIMATES

5.1 General Scope

This portion of the inspection report addresses the existing fire protection and life safety systems within the building and identifies the recommended replacement reserves necessary for a projection of 10 years on a per life safety system basis.

Attachment B contains 10 year capital replacement estimates for the fire protection and life safety equipment. These costs do not include operating costs that may be associated with regular servicing and maintenance of these systems. The regular servicing and maintenance are necessary in order to provide the maximum life span for the life safety systems and to meet minimum legislated OFC requirements.

5.2 FP1 Portable Fire Extinguishers

The maintenance and upkeep of portable fire extinguishers is considered as on-going operational costs. Portable fire extinguishers are required to be inspected / tested on a monthly and annual basis.

The portable fire extinguishers throughout the building appeared to be less than 10 years old (the tags on the portable fire extinguishers identified a purchase date of November 1, 2019). While portable fire extinguishers throughout the building appeared to be in good condition, it is anticipated that all existing portable fire extinguishers will be required to be replaced at least once during the next 10 years.

5.3 FP2 Exit Signs and Emergency Lighting Units / Central Battery System

The OFC and NFPA do not identify required replacement timelines for exit signs and emergency lighting units.

In our opinion, the emergency lighting units have a life span of 20 years. The batteries for the exit signs and emergency lighting units have a lifespan of 10 years (based on maintenance / warranty specifications identified in Lumacell documentation). As well, it is estimated that the central battery system / unit and batteries have a 10 year lifespan. The majority of exit signs / emergency lighting units appeared to be original or greater than 10 years old.

As such, it is anticipated that the exit sign and emergency lighting units / batteries and the central battery system / unit and batteries will be required to be replaced within the 10 year period for which this study is intended.



Inspection Date: March 24, 2024
Mr. Richard Weldon – Carson Dunlop Weldon and Associates Ltd.
14 Inspection Road, Toronto, ON
Project No: 23-030

5.0 10 YEAR CAPITAL REPLACEMENT ESTIMATES (CONT.)

5.4 FP3 Fire Alarm System

The OFC, CAN/ULC S536-04 “*Inspection and Testing of Fire Alarm Systems*” and NFPA 72 “*National Fire Alarm Code*” do not specify timelines / requirements for replacement of fire alarm systems. However, in general, fire alarm system components (main control panels, annunciator panels, devices, etc.) may become obsolete and / or incompatible and replacement parts will not be available. We have estimated that a fire alarm system may have a lifespan of 25 years until replacement may become necessary.

There were no fire alarm verification reports provided on-site during the inspection. However, there was a sticker affixed to the main fire alarm control panel indicating “*Verified in accordance with CAN / ULC S537-97*” on August 12, 2004”. Based on this information, it appears that the fire alarm system is approximately 19 years old. As such, it is estimated that the replacement of the entire fire alarm system within the building will be required during the 10 year period for which this Study is intended.



Inspection Date: March 24, 2024
Mr. Richard Weldon – Carson Dunlop Weldon and Associates Ltd.
14 Inspection Road, Toronto, ON
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6.0 SUMMARY

In summary, this inspection report outlines items which are required to be corrected / upgraded in accordance with the 2007 Ontario Fire Code. This inspection report is based on our visual inspection that was conducted on March 24, 2024.

Please refer to Attachment A of this inspection report for a table containing Recommended Budget Allowances associated with the required upgrading. These costs are considered budget estimates and are required to be confirmed by qualified contractors / professionals.

Attachment B to this report includes a table identifying the estimated costs associated with the major capital expenditures which may be anticipated over the next 10 years. These costs are in Canadian 2024 figures. This study is for the purposes of capital planning only for major capital expenditures on fire and life safety equipment over the next 10 years. No guarantees are provided on the actual cost which may be incurred.

Prior to any modifications or demolition, appropriate building permits are required to be obtained from the local authorities.

Prepared by:

KChamberlain

Kyle Chamberlain, A.Sc.T., CBCO
Fire Protection Consultant

KC/
Project No: 23-030



Attachment A

Recommended Budget Allowances

Report Reference	Item Number	Item Description	Recommended Budget Allowance
4.1.1.	(1)	Maintain written inspection, testing and maintenance documents for fire and life safety equipment.	Maintenance
4.1.1.	(2)	Maintain monthly records of fire door inspections.	Maintenance
4.1.1.	(3)	Maintain monthly and annual written inspection records of emergency lighting units.	Maintenance
4.1.1.	(4)	Maintain records of annual fire drills.	Maintenance
4.1.1.	(5)	Maintain monthly and annual written inspection records of portable fire extinguishers.	Maintenance
4.1.1.	(6)	Maintain monthly and annual written inspection records for the fire alarm system.	Maintenance
4.1.2.	(1)	Remove the “kick-stop” from the closure (fire door) such that it closes and latches after each use.	Maintenance / Housekeeping
4.1.2.	(2)	Provide a self-closing device for the closure (fire door)	Maintenance
4.1.2.	(3)	Recommendation to have wood burning fireplace / chimney inspected by a W.E.T.T certified technician prior to use.	Maintenance / \$500.00
4.1.2.	(4)	Remove sliding bolt latches on the exit door	Maintenance
4.1.2.	(5)	Replace the burnt out bulbs in the exit signs (4 bulbs).	\$200.00



Attachment B

Capital Replacement Study Summary Table – Fire Protection & Life Safety Systems

Site Name: N/A Site Address: 14 Inspection Road Site City / Province: Toronto, ON						
Report Reference	Item	Estimated Replacement Costs	Year of Major Repair or Acquisition	Present Age (Years)	Typical Life (Years)	Estimated Life Remaining (Years)
FP1	Fire Extinguishers	\$4,000.00	2019	4	10	6
FP2	Exit Signs / Emergency Lighting Units	\$11,500.00	1984	23	10	0
FP3	Fire Alarm and Detection System	\$30,000.00	2004	19	25	6

Note (1): These costs do not take into account routine maintenance and outstanding repair costs.

Note (2): These costs are in Canadian 2024 figures. These figures do not take into account the effects of inflation or interest.



Inspection Date: March 24, 2024
Mr. Richard Weldon – Carson Dunlop Weldon and Associates Ltd.
14 Inspection Road, Toronto, ON
Project No: 23-030

Attachment C

Fire Alarm / Supervisory Zones

ZONE 1	ZONE 4
ZONE 2	ZONE 5
ZONE 3	ZONE 6

Note: The fire alarm / supervisory zones noted above are as indicated on the buildings' main fire alarm main control / annunciator panel.

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATION

RICHARD WELDON, P.Eng., LEED AP **Carson Dunlop Weldon and Associates Ltd.**

- Graduated in 1987 from the University of Toronto with a B.A.Sc in Mechanical Engineering
- Designated by the Association of Professional Engineers of Ontario as a Professional Engineer in 1989
- Designated as a Consulting Engineer in 1995
- Designated LEED AP by Canada Green Building Council in 2009
- Previous West Central Region Councillor and Councillor-at-Large, Professional Engineers Ontario
- An employee of Carson Dunlop & Associates Limited from 1987 to 1997. Duties include inspecting over 4,000 residential and commercial buildings of various descriptions and reporting on conditions of major components such as structure, building envelope and mechanical systems.
- An employee of Carson Dunlop Rohmann & Associates Ltd. in 1991. Duties include detailed progress inspections of roofing membrane installations, consulting with architects on roofing details and procedures and specification writing for roofing applications.
- Formed Carson Dunlop Weldon & Associates Ltd. with Alan Carson and Robert Dunlop in 1997

MEMBERSHIPS:

- Ontario Plumbing Inspectors Association
- Served as an expert witness to the Ontario Courts—General Division and Superior Court of Ontario
- Presenter at various functions, including, the Toronto Real Estate Board, the American Society of Home Inspectors National Conferences, the Society of Industrial and Office Realtors and the Ontario Association of the Appraisal Institute of Canada

CONTINUING EDUCATION COURSES:

- Deterioration and Failure of Concrete Structures, University of Toronto
- Ontario Building Code, Part 9: Technical Requirements, Ontario Ministry of Housing
- Electrical Safety Code, University of Toronto
- Structural Design, University of Toronto
- Advanced Plumbing Design, Seneca College
- Fall Arrest Training – Ontario Power Generation – Darlington
- LEED New Construction and Major Renovations – Canada Green Building Council
- Business Management – University of Toronto School of Continuing Studies
- Co-authored and currently teaches Commercial Property Condition Assessment courses for various public and private groups across North America

PUBLICATIONS:

- “Top 10 Building Deficiencies” – Society of Industrial and Office Realtors Professional Report Magazine - Fall 2006
- “Dealing with Shortfalls Uncovered by a Reserve Fund Study” – Condo News of the Golden Horseshoe - Volume 2 2012

STATEMENT OF QUALIFICATION

EMANUEL MULUGETA, EIT, B.A.Sc **Carson Dunlop Weldon and Associates Ltd.**

- Graduated in 2019 from the University of Waterloo with a B.A.Sc in Civil Engineering.
- Completed two years of co-operative work experience in the areas of academic research, construction management, building science and restoration
- Joined Public Services and Procurement Canada in 2018 as an Assistant Project Manager to work on the East Block Rehabilitation Project located on Canada's Parliament Hill. Primary responsibilities included documenting weekly construction progress, performing daily health and safety inspections and co-ordinating special projects.
- Joined Carson Dunlop Weldon & Associates Ltd. in 2020 as a Building Consultant. Primary duties include inspecting residential and commercial buildings of various descriptions and reporting on conditions of major components such as structure, building envelope, asphalt, electrical and mechanical systems.

MEMBERSHIPS:

- Enrolled in the Engineering Intern Training Program with Professional Engineers Ontario.

CONTINUING EDUCATION COURSES:

- Commercial Building Inspection Course – Carson Dunlop Weldon & Associates Ltd.

STATEMENT OF QUALIFICATION

KYLE CHAMBERLAIN, A.Sc.T., CBCO, CFEI
Fire Advisor Consulting Inc.

QUALIFICATIONS:

- Ontario Fire College - Fire Prevention Officer Program (2010 to 2020)
- Seneca College - Fire Protection Engineering Technology (2003 to 2006)

EXPERIENCE:

- Principal Fire Protection Consultant - Fire Advisor Consulting Inc. (2020 to Present)
- Fire Prevention Inspector - Ajax Fire and Emergency Services (2010 – Present)
- Fire Investigation - Seneca College Instructor (2018)
- Fire Protection Consultant - Randal Brown & Associates Ltd. (2006 – 2010)

MEMBERSHIPS:

- Applied Science Technologist – Fire Protection - Ontario Association of Certified Engineering Technicians and Technologists
- Certified Fire Inspector – National Fire Protection Association
- Qualified Inspector - Fire Protection (BCIN: 40388) – Ministry of Municipal Affairs and Housing
- Certified Building Code Official – Fire Protection – Ontario Building Officials Association
- Certified Fire and Explosion Investigator – National Association of Fire Investigators
- Certified Fire Investigator – National Fire Protection Association

PROFESSIONAL AFFILIATIONS:

- Ontario Association of Certified Engineering Technicians and Technologists (OACETT)
- National Fire Protection Association (NFPA)
- Ontario Building Officials Association (OBOA)
- National Association of Fire Investigators (NAFI)

GLOSSARY

ABS — A type of black plastic pipe commonly used for waste water lines.

Aggregate — Crushed rock or stone.

Air chamber — A vertical, air filled pipe that prevents water hammer by absorbing pressure when water is shut off at a faucet or valve.

Air-conditioner condenser — The outside fan unit of the air conditioning system. The condenser discharges heat to the building exterior.

Alligatoring — Coarse checking pattern on the surface of a material. Typically caused by ageing, exposure to sun and/or loss of volatiles.

Ampacity — Refers to the how much current a wire can safely carry. For example, a 12-gauge electrical copper wire can safely carry up to 20 amps.

Asphalt — A bituminous material employed in roofing and road paving materials because of its waterproofing ability.

Backfill — The replacement of excavated earth into a trench or pit.

Backflow — A reverse flow of water or other liquids into the water supply pipes, caused by negative pressure in the pipes

Ballast — A transformer that steps up the voltage in a florescent lamp.

Balusters — Vertical members in a railing used between a top rail and bottom rail or the stair treads. Sometimes referred to as pickets or spindles.

Base sheet — Bottom layer of built-up roofing.

Batt — A section of fiberglass or rock-wool insulation.

Bay window — Any window space projecting outward from the walls of a building, either square or polygonal in plan.

Beam — A structural member transversely supporting a load. A structural member carrying building loads (weight) from one support to another. Sometimes called a girder.

Bearing wall — A wall that supports any vertical load in addition to its own weight.

Bird's-mouth cut — A cutout in a rafter where it crosses the top plate of the wall providing a bearing surface for nailing. Also called a heel cut.

Bitumen — Term commonly applied to various mixtures of naturally occurring solid or liquid hydrocarbons, excluding coal. These substances are described as bituminous. Asphalt is a bitumen. See *Asphalt*.

Blocking — Small wood pieces to brace framing members or to provide a nailing base for gypsum board or paneling.

Board and batten — A method of siding in which the joints between vertically placed boards or plywood are covered by narrow strips of wood.

Bottom chord — The lower or bottom horizontal member of a truss or open web steel joist.

Brick tie — Metal strips or wires that are inserted into the mortar joints of the brick veneer. Ties hold the veneer wall to the backer wall behind it.

Brick veneer — A vertical facing of brick used to clad a building. Brick veneer is not a load-bearing component.

Building paper — A general term for papers, felts and similar sheet materials used in buildings without reference to their properties or uses. Generally comes in long rolls.

Built-up roof — A roofing composed of three to five layers of asphalt felt laminated with coal tar, pitch or asphalt. The top is finished with crushed slag or gravel. Generally used on flat or low-pitched roofs.

Butt joint — The junction where the ends of building materials meet. To place materials end-to-end or end-to-edge without overlapping.

Cant strip — A triangular shaped piece of lumber used at the junction of a flat deck and a wall to prevent cracking of the roofing which is applied over it.

Cantilever — Any part of a structure that projects beyond its main support and is balanced on it.

Cap flashing — The flashing covering over a horizontal surface to prevent water from migrating behind the base flashing.

Cap sheet — The top layer in modified bitumen roofing.

Casement window — A window with hinges on one of the vertical sides and swings open like a door.

Ceiling joist — One of a series of parallel framing members used to support ceiling loads and supported in turn by larger beams, girders or bearing walls. Can also be roof joists.

Cement — The grey powder that is the "glue" in concrete. Portland cement. Also, any adhesive.

Certificate of Occupancy — Certificate is issued by the local municipality and is required before anyone can occupy and live within the building. It is issued only after the local municipality has made all inspections and all monies and fees have been paid.

CFM (cubic feet per minute) — A rating that expresses the amount of air a blower or fan can move. The volume of air (measured in cubic feet) that can pass through an opening in one minute.

Chase — A framed enclosed space around a flue pipe or a channel in a wall, or through a ceiling for something to lie in or pass through.

Checking — Cracks that appear with age in many large timber members. The cracks run parallel to the grain of the wood. At first superficial, but in time may penetrate entirely through the member and compromise its integrity.

Cleanout — An opening providing access to a drain line. Closed with a threaded plug.

Closed-cut valley — A method of valley treatment in which shingles from one side of the valley extend across the valley, while shingles from the other side are trimmed 2 inches from the valley centerline. The valley flashing is not exposed.



Collar tie — Nominal one- or two-inch-thick members connecting opposite roof rafters. They serve to stiffen the roof structure.

Column — A vertical structural compression member that supports loads acting in the direction of its longitudinal axis.

Combustion air and ventilation air — The ductwork installed to bring fresh, outside air to the furnace or boiler room. Normally two separate supplies of air are brought in: one high for ventilation and one low for combustion.

Compressor — A mechanical device that pressurizes a gas in order to turn it into a liquid, thereby allowing heat to be removed or added. A compressor is the main component of conventional heat pumps and air conditioners. In an air conditioning system, the compressor normally sits outside and has a large fan (to remove heat).

Concrete board or cement board — A panel made out of concrete and fiberglass, usually used as a tile backing material.

Condensate drain line — The pipe that runs from the air conditioning cooling coil to the exterior or internal building drain, to drain away condensation.

Condensation — The change of water from vapor to liquid when warm, moisture-laden air comes in contact with a cold surface.

Condensing unit — The outdoor component of a cooling system. It includes a compressor and condensing coil designed to give off heat.

Conduit, electrical — A pipe, usually metal, in which wire is installed. The pipe serves to protect the wire.

Control joint — Tooled, straight grooves made on concrete floors or structures to "control" where the concrete should crack (as a result of shrinkage).

Cooling load — The amount of cooling required to keep a building at a specified temperature during the summer, usually 25° C, based on a design outside temperature.

Corbel — To build out one or more courses of brick or stone from the face of a wall. This may be decorative, or serve to support a structural component.

Counterflashing — A metal flashing usually used to cover another flashing and prevent moisture entry.

Course — A row of shingles or roll roofing running the length of the roof. Parallel layers of building materials such as bricks, or siding laid up horizontally.

CPVC — See PVC.

Crawlspace — A shallow space below a building, normally enclosed by the foundation walls.

Cricket — A saddle-shaped, peaked construction connecting a sloping roof plane with a wall or chimney. Designed to encourage water drainage away from the chimney or wall joint.

Culvert — Round, corrugated drain pipe (normally 15 or 18 inches in diameter) installed beneath a driveway and parallel to and near the street.

Cupping — A type of warping that causes boards or shingles to curl up at their edges. Typically caused by uneven drying or loss of volatiles.

Curb — The short elevation of a supporting element above the deck of a roof. Normally a box (on the roof) on which a skylight or piece of mechanical equipment is attached.

Curtain wall — An exterior building wall that is supported entirely by the building structure, rather than being self-supporting or load-bearing.

Damper — A metal "door" placed within the ductwork, typically. Used to control flow of air, etc., in the ductwork.

Damp-proofing — The black, tar-like material applied to the exterior of a foundation wall. Used to minimize moisture penetration into the wall.

Deck — The surface, installed over the supporting framing members, to which the roofing is applied.

Dedicated circuit — An electrical circuit that serves only one appliance or a series of electric heaters or smoke detectors.

Dew point — Temperature at which a vapor begins to deposit as a liquid. Applies especially to water in the atmosphere.

Disconnect — A large electrical ON-OFF switch.

Diverter valve — A device that changes the direction of water flow from one faucet to another.

Dormer — A box-like projection from the sloping plane of a roof that frames a window.

Double-hung window — A window with two vertically sliding sashes, both of which can move up and down.

Downspout — A pipe for draining water from roof gutters. Also called a leader.

Drain tile — A perforated, corrugated plastic pipe laid at the bottom of the foundation wall and used to drain excess water away from the foundation. It prevents ground water from seeping through the foundation wall. Sometimes called perimeter drain.

Drip — A groove in the underside of a sill or drip cap to cause water to drop off on the outer edge instead of drawing back and running down the face of the building.

Ducts — Usually round or rectangular metal pipes installed for distributing warm or cold air from the heating and air-conditioning equipment.

Eaves protection — Additional layer of roofing material applied at the eaves to help prevent damage from water backup (typically caused by ice damming).

Economizer — Economizers allow fresh air from the exterior to mix with the return air stream. This introduction of fresh air helps to improve indoor air quality, and compensates for air that is expelled through exhaust fans. Furthermore, an economizer mixes varying amounts of fresh air from the exterior into the return airflow to allow for low-cost cooling on cool days. For example, when the outdoor air is not too warm or humid, an economizer can allow greater amounts of outdoor air into the building to provide cooling as required. This is a desirable feature.

Efflorescence - A crystalline or powdery deposit of salts often visible on the surface of concrete, brick, stucco, or natural stone surfaces. It occurs when water evaporates from the material and leaves behind salt deposits on the masonry surface. The soluble salts are typically in the mortar mix or the masonry materials.

EIFS —Exterior Insulation Finish System. An exterior cladding system that employs a relatively thin acrylic stucco coating over insulation panels.

Elbow — A plumbing or electrical fitting that lets you change directions in runs of pipe or conduit.

Evaporator coil — The part of a cooling system that absorbs heat from air passing through it. The evaporator coil is found within the ductwork.

Expansion joint — A joint that allows for building material expansion and contraction caused by temperature changes.

Exposed aggregate finish — A method of finishing concrete which washes the cement/sand mixture off the top layer of the aggregate — usually gravel. Often used with precast concrete exterior wall finishes.

Exposure — The portion of the roofing or wall cladding material exposed to the weather after installation.

Fascia — a vertical member attached to the ends of the roof structure and often the backing of the gutter.

Felt — Fibrous material saturated with asphalt and used as an underlayment or part of a built-up roofing system.

Finger joint — A manufacturing process of interlocking two shorter pieces of wood end to end to create a longer piece of dimensional lumber or molding. Often used in jambs and casings and are normally painted (instead of stained).

Fire stop — A solid, tight closure of a concealed space, placed to prevent the spread of fire and smoke through such a space. Includes stuffing wire and pipe holes in the fire separations.

Flashing — (1) Sheet metal or flexible membrane pieces fitted to the joint of any roof intersection, penetration or projection (chimneys, copings, dormers, valleys, vent pipes, etc.) to prevent water leakage. (2) The building component used to connect portions of a roof, deck, or siding material to another surface such as a chimney, wall, or vent pipe. Often made out of various metals, rubber or tar and is mostly intended to prevent water entry.

Flatwork — Common word for concrete floors, driveways, patios and sidewalks.

Flue — The space or passage in a chimney through which smoke, gas, or fumes ascend.

Fluorescent lighting — A fluorescent lamp is a gas-filled glass tube with a phosphor coating on the inside. Gas inside the tube is ionized by electricity which causes the phosphor coating to glow. Normally with two pins that extend from each end.

Footing — A widened, below-ground base of a foundation wall or a poured concrete, below-ground, base used to support foundations or piers.

Forced air heating — a common form of heating with natural gas, propane, oil or electricity as a fuel. Air is heated through a heat exchanger and distributed through a set of metal ducts.

Form — Temporary structure erected to contain concrete during placing and initial hardening.

Foundation — The supporting portion of a structure below the first floor construction, or below grade, including the footings.

Framing — The structural wood, steel or concrete elements of the building.

Framing, balloon — A system of framing a building in which all vertical structural elements of the bearing walls consist of single pieces extending from the top of the foundation sill plate to the roof plate and to which all floor joists are fastened.

Frost line — The depth of frost penetration in soil and/or the depth at which the earth will freeze and swell. This depth varies in different parts of the country.

Furring — Strips of wood or metal applied to a wall or other surface to even it and normally to serve as a fastening base for finish material.

Gable — A sidewall, typically triangular, that is formed by two sloping roof planes.

Gable roof — A type of roof with sloping planes of the same pitch on each side of the ridge. Has a gable at each end.

Gasket — A device used to seal joints against leaks.

GFI or **GFCI** or **Ground Fault Current Interrupter** — A electrical device used to prevent injury in locations where one might be in contact with a grounded surface and an electrical appliance. Most GFIs are located in a receptacle or circuit breaker and can be identified by the presence of a "test" and a "reset" button.

Glued laminated beam (glulam) — A structural beam composed of wood laminations. The laminations are pressure-bonded with adhesives.

Granules — Crushed rock coated with ceramic material, applied to the exposed surface of asphalt roofing products to add color and reduce ultraviolet degradation. Copper compounds added to these help make them algae resistant.

Groundwater — Water from a subsurface water source.

Grout — Mortar made of such consistency (by adding water) that it will flow into the joints and cavities of the masonry work and fill them solid.

Gusset — A flat metal, wood, plywood or similar type member used to provide a connection at the intersection of wood members. Most commonly used at joints of wood trusses. They are fastened by nails, screws, bolts, or adhesives.

Gutter — The trough that channels water from the eaves to the downspouts.

H-beam — A steel beam with a cross section resembling the letter H.



H-clip — Small metal clips formed like an H that fits at the joints of two plywood (or wafer board) sheets to stiffen the joint. Normally used on the roof sheeting.

Header — A beam placed perpendicular to joists and to which joists are attached in framing for around an opening.

Hearth — The fireproof area directly in front of a fireplace. The inner or outer floor of a fireplace, usually made of brick, tile, or stone.

Heat pump — A device that uses compression and decompression of gas to heat and/or cool a building.

Heating load — The amount of heating required to keep a building at a specified temperature during the winter, based on an outside design temperature.

Hip — The external angle formed by the meeting of two sloping sides of a roof.

Honeycombs — The appearance concrete makes when aggregate in the concrete is visible and where there are void areas in the concrete.

Hose bib — An exterior water faucet.

Hot wire — The wire that carries electrical energy to a receptacle or other device in contrast to a neutral, which carries electricity away again. Normally the black wire.

HVAC — An abbreviation for Heat, Ventilation, and Air Conditioning.

I-beam — A steel beam with a cross section resembling the letter I.

Ice damming — The buildup of ice and water at the eaves of a sloped roof. Melting snow on the roof refreezes at the roof overhang, causing the damming. Buildings with inadequate attic insulation or ventilation or with large roof projections beyond the exterior walls are more prone to ice damming.

Irrigation — Lawn sprinkler system.

Jack post — A type of structural support made of metal, which can be raised or lowered through a series of pins and a screw to meet the height required. Typically used as a replacement for an old supporting member in a building.

Joist — One of a series of parallel beams, usually two inches in thickness, used to support floor and ceiling loads, and supported in turn by larger beams, girders, or bearing walls.

Joist hanger — A metal U-shaped item used to support the end of a floor joist and attached with hardened nails to another bearing joist or beam.

Knob-and-tube wiring — A common form of electrical wiring used before the Second World War. When in good condition it may still be functional for low amperage use such as smaller light fixtures.

Lath — A building material of narrow wood, metal, gypsum, or insulating board that is fastened to the frame of a building to act as a base for plaster, shingles, or tiles.

Lattice — An open framework of crisscrossed wood or metal strips that form regular, patterned spaces.

Leader — See *Downspout*.

Ledger — The wood or metal members attached to a beam, studding, or wall used to support joist or rafter ends.

Lintel — A horizontal structural member that supports the load over an opening such as a door or window.

Load-bearing wall — A wall supporting its own weight and some other structural elements of the building such as the roof and floor structures.

Louvre — A vented opening into a room that has a series of horizontal slats and arranged to permit ventilation but to exclude rain, snow, light, insects, or other living creatures.

Mansard roof — A roof with two sloping planes of different pitch on each of its four sides. The lower plane is steeper than the upper, and may be almost vertical.

Masonry — Stone, brick, concrete, hollow-tile, concrete block, or other similar building units or materials. Normally bonded together with mortar to form a wall.

Modified bitumen roof — A roof covering that is typically composed of a factory-fabricated composite sheet consisting of a copolymer-modified bitumen, often reinforced with polyester and/or fiberglass, and installed in one or more plies. The membrane is commonly surfaced with field-applied coatings, factory-applied granules or metal foil. The roofing system may incorporate rigid insulation.

Mortise — A slot cut into a board, plank, or timber, usually edgewise, to receive the tenon (or tongue) of another board, plank, or timber to form a joint.

Mullion — A vertical divider in the frame between windows, doors, or other openings.

Neutral wire — Usually color-coded white, this wire carries electricity from a load back to the service panel.

Newel post — The large starting post to which the end of a stair guard railing or balustrade is fastened.

Nosing — The projecting edge of a molding or drip or the front edge of a stair tread.

On center — The measurement of spacing for studs, rafters, and joists in a building from the center of one member to the center of the next.

Open valley — Method of valley construction in which shingles on both sides of the valley are trimmed along a chalk line snapped on each side of the valley. Shingles do not extend across the valley. Valley flashing is exposed.

Open web steel joist — One of a series of parallel beams, used to support floor and roof loads, and supported in turn by larger beams, girders or bearing walls. Consists of horizontal top and bottom chords, with diagonal and/or vertical web members connecting the chords together.

Oriented Strand Board or osb — A manufactured 4-foot-by-8-foot wood panel made out of one- to two-inch wood chips and glue. Often used as a substitute for plywood.



P-trap — Curved, U-section of drain pipe that holds a water seal to prevent sewer gasses from entering a building through a fixtures' drain pipe.

Parapet — The portion of an exterior wall that extends above the edge of a roof.

Parging — A thin layer of cement placed over masonry units.

Partition — A wall that subdivides spaces within any story of a building or room.

Paver — Materials (commonly masonry) laid down to make a firm, even surface on the exterior.

Performance bond — An amount of money (usually 10 percent of the total price of a job) that a contractor must put on deposit with a governmental agency as an insurance policy that guarantees the contractors' proper and timely completion of a project or job.

Perimeter drain — Typically 4-inch perforated plastic pipe around the perimeter (either inside or outside) of a foundation wall (before backfill) that collects and diverts ground water away from the foundation.

Pilot light — A small, continuous flame (in a boiler, or furnace) that ignites gas or oil burners when needed.

Pitch — (1) The degree of roof incline expressed as the ratio of the rise, in feet, to the span, in feet. (2) A thick, oily substance commonly obtained from tar, used to seal out water at joints and seams. Pitch is produced from distilling coal tar, wood tar, or petroleum.

Pitch pocket — A container, usually formed of sheet metal, around supporting connections with roof-mounted equipment. Filling the container with pitch, or better yet, plastic roof cement, helps seal out water even when vibration is present. A pitch pocket is *not* the preferred method of flashing a roof penetration.

Plan view — Drawing of a structure with the view from overhead, looking down.

Plate — Normally a horizontal member within a framed structure, such as: (1) sill plate — a horizontal member anchored to a concrete or masonry wall; (2) Sole plate — bottom horizontal member of a frame wall; or (3) top plate — top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.

Plenum — The main supply air or return air duct leading from a heating or cooling unit.

Plumbing stack — A plumbing vent pipe that penetrates the roof.

Ply — A term to denote the number of layers of roofing felt, veneer in plywood, or layers in built-up materials, in any finished piece of such material.

Point load — A point where a bearing/structural weight is concentrated and transferred to another structural member or component.

Portland cement — Cement made by heating clay and crushed limestone into a brick and then grinding to a pulverized powder state.

Post — a vertical framing member usually designed to carry a beam.

Post-and-beam — A basic building method that uses just a few hefty posts and beams to support an entire structure. Contrasts with stud framing.

Power vent — A vent that includes a fan to speed up air flow.

Pressure relief valve — A safety device mounted on a water heater or boiler. The relief valve is designed to release any high pressure in the vessel and thus prevent tank explosions.

Pressure-treated wood — Lumber that has been saturated with a preservative to resist rot.

Pvc or CPVC — (Polyvinyl chloride) A type of white or light gray plastic pipe sometimes used for water supply lines and waste pipe.

Quarry tile — A man-made or machine-made clay tile used to finish a floor or wall. Generally 6 inches by 6 inches by 1/4-inch thick .

R value — A measure of insulation's resistance to heat flow. The higher the R value the more effective the insulation.

Rafter — (1) The framing member that directly supports the roof sheathing. A rafter usually follows the angle of the roof, and may be a part of a roof truss. (2) The supporting framing member immediately beneath the deck, sloping from the ridge to the wall plate.

Rafter, hip — A rafter that forms the intersection of an external roof angle.

Rafter, valley — A rafter that forms the intersection of an internal roof angle.

Rake edge — The overhang of an inclined roof plane beyond the vertical wall below it.

Rebar — Reinforcing bar. Ribbed steel bars installed in concrete structures designed to strengthen concrete. Comes in various thicknesses and strength grades. May be epoxy coated to enhance rust resistance.

Refrigerant — A substance that remains a gas at low temperatures and pressure and can be used to transfer heat. Freon is an example.

Register — A grille placed over a supply air or return air duct.

Reglaze — To replace a broken window.

Reinforcing — Steel rods or metal fabric placed in concrete slabs, beams, or columns to increase their strength.

Relief valve — A device designed to open if it detects excess temperature or pressure. Commonly found on water heating or steam producing systems.

Resilient flooring — A durable floor cover that has the ability to resume its original shape.

Retaining wall — A structure that holds back a slope or elevation of land and prevents erosion.

Ridge — The horizontal line at the junction of the top edges of two sloping roof surfaces.

Riser — A vertical member between two stair treads.

Roll roofing — Asphalt roofing products manufactured in roll form.



Romex — A name brand of non-metallic sheathed electrical cable that is used for indoor wiring.

Roof deck — The surface, installed over the supporting framing members, to which the roofing is applied.

Roof sheathing — The wood panels or sheet material fastened to the roof rafters or trusses on which the shingle or other roof covering is laid.

Roof valley — The “V” created where two sloping roofs meet.

Roofing membrane — The layer or layers of waterproofing products that cover the roof deck.

Run, stair — The horizontal distance of a stair tread from the nosing to the riser.

Saddle — Two sloping surfaces meeting in a horizontal ridge, used between the back side of a chimney, or other vertical surface, and a sloping roof. Used to divert water around the chimney or vertical surface.

Sanitary sewer — A sewer system designed for the collection of waste water from the bathroom, kitchen and laundry drains, and is usually not designed to handle storm water.

Sash — The frame that holds the glass in a window, often the movable part of the window.

Saturated felt — A felt that is impregnated with tar or asphalt.

Scratch coat — The first coat of plaster, which is scratched to form a bond for a second coat.

Scupper — (1) An opening for drainage in a wall, curb or parapet. (2) The drain above a downspout or in a flat roof, usually connected to the downspout.

Sealer — A finishing material, either clear or pigmented, that is usually applied directly over raw wood or concrete for the purpose of sealing the wood or concrete surface.

Seasoning — Drying and removing moisture from green wood in order to improve its usability.

Service equipment — Main control gear at the electrical service entrance, such as circuit breakers, switches, and fuses.

Service lateral — Underground power supply line.

Shake — A wood roofing material, normally cedar or redwood. Produced by splitting a block of the wood along the grain line. Modern shakes are sometimes machine sawn on one side.

Sheathing — (1) Sheets or panels used as roof deck material. (2) Panels that lie between the studs and the siding of a structure.

Short circuit — A situation that occurs when hot and neutral wires come in contact with each other. Fuses and circuit breakers protect against fire that could result from a short.

Sill — (1) The two-by-four or two-by-six wood plate framing member that lays flat against and bolted to the foundation wall (with anchor bolts) and upon which the floor joists are installed. (2) The member forming the lower side of an opening, as a door sill or window sill.

Skylight — A more or less horizontal window located on the roof of a building.

Slab-on-grade — A type of foundation with a concrete floor which is placed directly on the soil. In warm climates, the edge of the slab is usually thicker and acts as the footing for the walls. In cold climates, the slab is independent of the perimeter foundation walls.

Sleeper — Usually, a wood member that serves to support equipment.

Soffit — (1) The finished underside of the eaves. (2) A small ceiling-like space, often out of doors, such as the underside of a roof overhang.

Solid waste pump — A pump used to ‘lift’ waste water to a gravity sanitary sewer line. Usually used in basements and other locations which are situated below the level of the city sewer.

Spalling — The cracking and breaking away of the surface of a material.

Span — The clear distance that a framing member carries a load without support (between structural supports).

Splash block — A pad placed under the lower end of a downspout to divert the water from the downspout away from the building. Usually made out of concrete or fiberglass.

Stair stringer — Supporting member for stair treads. Can be a notched plank or a steel member.

Starter strip — Asphalt roofing applied at the eaves that provides protection by filling in the spaces under the cut outs and joints of the first course of shingles.

Step flashing — Flashing application method used where a vertical surface meets a sloping roof plane.

Storey — The part of a building between any adjacent floor levels or between the top floor and the roof.

Storm collar — A metal flashing used to seal around a penetration in a roof.

Storm sewer — A sewer system designed to collect storm water, separate from the waste water system.

Storm window — An extra window usually placed outside of an existing one, as additional protection against cold weather, or damage.

Stucco — An outside plaster finish made with Portland cement as its base.

Stud — One of a series of slender wood or metal vertical structural members placed as supporting elements in walls and partitions.

Stud framing — A building method that distributes structural loads to each of a series of relatively lightweight studs. Contrasts with post-and-beam.

Sump — Pit or large plastic bucket/barrel inside a basement, designed to collect ground water (storm water) from a perimeter drain system.

Sump pump — A submersible pump in a sump pit that pumps any excess ground water to the storm sewer.

Suspended ceiling — A ceiling system supported by hanging it from the overhead structural framing.



Tempered — Strengthened. Tempered glass will not shatter nor create shards, but will “pelletize” like an automobile window. Required in tub and shower enclosures, for example.

Termites — Insects that superficially resemble ants in size, general appearance, and habit of living in colonies; hence, they are frequently called “white ants.” Subterranean termites establish themselves in buildings not by being carried in with lumber, but by entering from ground nests after the building has been constructed. If unmolested, they eat out the woodwork, leaving a shell of sound wood to conceal their activities, and damage may proceed so far as to cause collapse of parts of a structure before discovery.

Terra cotta — A ceramic material molded into masonry units.

Threshold — The bottom metal, concrete, or wood plate of an exterior door frame. They may be adjustable to keep a tight fit with the door slab.

Toenailing — To drive a nail in at a slant. Method used to secure floor joists to the plate. Not acceptable for securing joists flush to a header or beam.

Tongue-and-groove — A joint made by a tongue (a rib on one edge of a board) that fits into a corresponding groove in the edge of another board to make a tight flush joint. Typically, the subfloor plywood is tongue-and-groove.

Top chord — The upper or top member of a truss or open web steel joist.

Trap — A plumbing fitting that holds water to prevent air, gas, and vermin from entering into a building.

Tread — The walking surface board in a stairway on which the foot is placed.

Treated lumber — A wood product which has been impregnated with chemicals to reduce damage from wood rot or insects. Often used for the portions of a structure which is likely to be in ongoing contact with soil and water. Wood may also be treated with a fire retardant.

Truss — An engineered and manufactured roof support member with “zig-zag” framing members. Does the same job as a rafter but is designed to have a longer span than a rafter.

UFFI — Urea Formaldehyde Foam Insulation, a foam insulation blown into existing walls. (Pronounced “you-fee”)

Ultraviolet degradation — A reduction in certain performance limits caused by exposure to ultraviolet light.

Underlayment — (1) A one-quarter-inch material placed over the subfloor plywood sheathing and under finish coverings, such as vinyl flooring, to provide a smooth, even surface. (2) A secondary roofing layer that is waterproof or water-resistant, installed on the roof deck and beneath shingles or other roof-finishing layer.

Uv rays — Ultraviolet rays from the sun.

Valley — The inward angle formed by two intersecting, sloping roof planes. Since it naturally becomes a water channel, additional attention to waterproofing a valley is desirable.

Vapour barrier — A building product installed on exterior walls and ceilings under the drywall and on the warm side of the insulation. It is used to retard the movement of water vapour into walls and prevent condensation within them. Normally, polyethylene plastic sheeting is used.

Vent — A pipe or duct allowing the flow of air and gases to the outside. In a plumbing system, the vent is necessary to allow sewer gases to escape to the exterior

Vermiculite — A mineral closely related to mica, with the faculty of expanding on heating to form lightweight material with insulation quality. Used as bulk insulation and also as aggregate in insulating and acoustical plaster and in insulating concrete floors.

Water closet — A toilet.

Weather stripping — Narrow sections of thin metal or other material installed to prevent the infiltration of air and moisture around windows and doors.

Weep holes — Small holes in exterior wall cladding systems that allow moisture to escape and air pressure equalization in the cavity space drained by the weep hole.

Wythe — (rhymes with “tithe” or “scythe”) A vertical layer of masonry that is one masonry unit thick.

Zone — The section of a building that is served by one heating or cooling loop because it has noticeably distinct heating or cooling needs. Also, the section of property that will be watered from a lawn sprinkler system.

Zone valve — A device, usually placed near the heater or cooler, which controls the flow of water or steam to parts of the building; it is controlled by a zone thermostat.