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# Brock Township Municipal Office

## BUILDING SYSTEMS ASSESSMENT

Brock Township

File 425001 | July 17, 2025

# Document Control

File:

**425001**

Date:

**July 17, 2025**

Prepared by:

**Tatham Engineering Limited**
8 Barron Drive
Bracebridge, Ontario P1L 0H3
**T** 705-645-7756
**tathameng.com**

Prepared for:

**Brock Township**
1 Cameron St E, P.O. Box 10
Cannington, Ontario L0E 1E0

| Authored by: | Reviewed by: |
|---|---|
| Mario Tata, B.A.Sc., M.A.Sc., P.Eng.<br>Senior Engineer, Project Manager (Structural) |  |
| Phil Pfaff, L.C., C.Tech., MIES<br>Senior Technician, Project Manager (Electrical) | |
| Jake Thompson, B.Eng., P.Eng.<br>Engineer, Project Manager (Mechanical) | Mario Tata, B.A.Sc., M.A.Sc., P.Eng.<br>Senior Engineer, Project Manager (Structural) |

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| Issue | Date | Description |
|---|---|---|
| 01 | June 23, 2025 | Draft Report |
| 02 | July 17, 2025 | Final Report |

# Document Contents



### Tables



### Appendices

# 1 Introduction

Tatham Engineering Limited (Tatham) was retained by Brock Township to assess the condition of the building systems for the Brock Township Municipal Office in Cannington, Ontario. The purpose of the assessment was to evaluate the condition of the structural, mechanical and electrical system and identify recommended repairs or maintenance along with the associated capital cost considerations.

On March 18, 2024, Tatham staff visited the site to visually review the current conditions and take photographs. Original Tender and Building Permit architectural, structural, mechanical and electrical drawings dated February 1995 were available for review. An overall photograph of the building has been included in Photograph 1.1 in Appendix A.

**Elements Reviewed**

- Structure: exposed structural elements at the roof, walls, floors, and foundations;
- Interior: overall review of interior spaces to note any areas of deterioration or distress;
- Exterior: roofing materials, veneer/siding, windows, exterior doors;
- Electrical: overall lighting, service entrance equipment and panel boards;
- Life Safety Systems: fire alarm system and components, exit signage and emergency lighting; and
- Mechanical: HVAC, plumbing, and above grade sanitary drainage systems.

# 2 Evaluation Criteria

The contents of this report are based on professional judgement given the information available. While the evaluation is the result of professional care and competence, there is no warranty expressed or implied, and nothing in this report should be construed as a guarantee.

No dismantling of any architectural finishes was performed. No destructive or non-destructive testing was undertaken. No calculations were completed to verify the suitability of the original design or existing conditions. The recommendations and associated opinions of probable costs are based on a visual survey of the portions of the buildings accessed during our investigation.

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The generator system operation was not reviewed as part of the scope of work and would require a separate review of the CSA B149.1 and associated TSSA adoption documentation.

Photographs from the site visit have been included in Appendix A and opinions of probable costs for recommended upgrades are provided in Appendix B.

Table 1 below was used to establish a framework for describing the condition of existing building components and providing an estimated replacement timeline.

**Table 1: Existing Equipment Condition Rating System**

| RATING | REPAIR OR REPLACEMENT TIMELINE | DESCRIPTION |
|---|---|---|
| Good | 6 - 10 Years | Well maintained, with no or very minimal physical deteriorations or defects visible; new (as-constructed conditions) or relatively new (has been in service for several years), with 70% to 90% estimated useful life remaining. No immediate action is required other than typical maintenance actions. |

| RATING | REPAIR OR REPLACEMENT TIMELINE | DESCRIPTION |
|---|---|---|
| Fair | 1 - 5 Years | In service and functioning, with medium deteriorations or defects visible; approaching later stages of service life with 50% estimated useful life remaining. These defects may trigger a "preventative maintenance" action. |
| Poor | Immediate | Imminent failure or not usable with many deteriorations and defects visible, indicating more serious underlying problems; past end of service life with less than 10% estimated useful life remaining. These defects typically require rehabilitation or replacement actions. |

The 'Estimate of Service Lives of Various System Components' table from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Handbook was used to establish reasonable baselines for useful service life of various mechanical system components including boilers, fans, pumps, and other equipment. ASHRAE defines service life as the time during which a particular system or component remains in its original service application. In addition, recommended replacement of the equipment may be for any reason including but not limited to failure, general obsolescence, reduced liability, excessive maintenance cost, and changed system requirements due to such influences as building characteristics, energy prices, or environmental considerations.

Expenditures for capital items, which are considered to be regular maintenance or operational in nature, have been excluded (note: items with an estimated replacement value of less than $500 are considered maintenance items). Cost estimates represent our opinion of probable cost and are provided for budget purposes only. Actual costs for work recommended can only be determined after the completion of a detailed investigation, preparation of repair specifications and tendering.

# 3 Existing Conditions, Observations and Deficiencies

The Brock Township Municipal Office is located at the southeast corner of Cammeron Street and Laidlaw Street, constructed in circa 1995. The two-storey complex has a building area of 4,100 square feet and a gross floor area of approximately 12,000 square feet. The building serves as the administration hub for the township housing a variety of municipal services and departments.

## 3.1 STRUCTURE & BUILDING ENVELOPE

### Structural

The structure utilizes reinforced concrete foundations, concrete foundation walls, concrete and steel columns with a slab-on-grade on the basement level. The ground floor and second floor levels are of structural steel construction, with metal composite floor decks. The main roof area and corner tower utilize structural steel and OWSJs with metal deck construction. The building is serviced by concrete block elevator core walls and two exit stairs providing a lateral load resistance in addition to diagonal steel bracing. The emergency exit stairs are of steel construction. The building main structural framing was assessed as observed and we did not note any signs of structural distress from within the building.

### Exterior

The corner entrance relies on light structural steel framing to support aluminum storefront entrance complete with an exposed 1 ½ inch steel deck painted to match over the vestibule area (Photographs 3.1.1). The front entrance is showing some minor signs of corrosion (Photograph 3.1.2 and 3.1.3). It is recommended that the steel deck over the area is power washed, assessed for sandblasting as may be required and the storefront entrance repainted for protection purposes (Photograph 3.1.4).

The façade at the corner utilizes a tower design element which is open to above, above the second-floor council chambers. The tower support structure is of structural steel construction braced for lateral loads clad in prefinished metal and a metal roof deck above (Photograph 3.1.5). The tower cladding should be pressure washed periodically (Photograph 3.1.6).

The building is clad primarily with brick construction utilizing prefinished metal cornice and reinforced fiberglass corbels. The brickwork is ornate with raised features thus relying on numerous control joints and raised brick lintels (Photograph 3.1.7). The front corner entrance

utilizes a prominent reinforced brick arch (8'-10" radius) on the north and west façade (Photograph 3.1.8). The arches are deteriorating, and they need to be repointed (Photograph 3.1.9 and 3.1.10). We observed a moderate level of brick deterioration in isolated areas (Photographs 3.1.11 and 3.1.12). Selant replacements are required at expansion joints (Photograph 3.1.13)

The parapet and tower fascia are of prefinished metal construction. Entrance doors are of pre-finished metal and aluminum storefront construction. All windows are constructed with prefinished aluminum frames with reflective thermal glazing (Photograph 3.1.14). At various locations, the aluminum window frame snap cap has slipped allowing for a gap for water infiltration (Photograph 3.1.15 and 3.1.16)

The flat roof areas utilize tapered insultation sloped to drains under an inverted roofing system. The existing roofing system was visually reviewed, and it appeared to be in good condition.

## 3.2 BUILDING MECHANICAL SYSTEMS

### 3.2.1 Heating, Ventilation and Cooling (HVAC) Systems

#### General

Originally, the building was heated, cooled, and ventilated using four rooftop units (RTUs) with packaged electric cooling and loose duct-mounted hydronic coils for heating. The hydronic coils were served by two oil-fired boilers located in the basement. An underground oil tank was used to supply the boiler with fuel. Natural gas was not available at the time of construction, and now the building has been retrofitted with natural gas, with the fuel tank being removed some time in the last 20 years. The rooftop units have since been replaced with packaged natural gas heat and electric cooling. The oil-fired boilers have also been replaced with natural gas-fired units.

#### Boilers

The Mechanical Room contains two natural gas-fired non-condensing Viessmann model Vitola 200 cast iron boilers which are replacements of the originally labeled B1 and B2 boilers on the original permit drawings (Photograph 3.2.1.1). The nameplate information on each unit indicates a heating output capacity of 249,000 BTUH. The nameplate label indicates the boilers were manufactured in 2006, suggesting they have been in service for 19 years. Cast iron boilers have a useful service life expectancy of 30-35 years. A barometric pressure relief damper is installed on the exhaust system of the boiler and a combustion air vent has also been provided. The boilers are controlled by a Tekmar 261 boiler controller which is controlling the boiler setpoints, capacity, and sequencing. The boilers are provided with a Watts OEM 170 low water cut-off.

Each boiler is equipped with a small boiler pump for moving water from the boiler system to the building's heating loop piping system. Both circulators appear relatively new and in good condition. The typical life expectancy of the circulators is 10 years.

The expansion tank is a model HTX 90 from Flexcon and appears to be in fair condition and was manufactured in 2009. Expansion tanks have a typical lifespan of 5 to 10 years, and it should be replaced.

The boiler's heating circuit piping includes a chemical pot feeder and filter. The pot feeder shows signs of wear, indicating possible leaks in the gaskets. This unit was likely installed during the original construction and is now 30 years old. It is recommended to replace a chemical pot feeder if it displays cracked caps, worn gaskets, or clogged filters, or if it is over 15 years old (Photograph 3.2.1.2).

There is a combustion air intake louvre that is not on a motorized damper and is always allowing outdoor air into the building. An energy conservative consideration would be to add a motorized damper to that is interlocked to the operation of the boiler and when there is a call for the boiler and end switch proves the damper is open before the boiler begins operation.

In general, the boiler piping insulation is in good condition, however, components such as balancing valves are exposed and lack insulation. To minimize heat loss and increase efficiency of the system, insulation should be added to the exposed locations.

There is corrosion on the maid-o-mist air eliminator and the pressure relief valve at the boiler, and they should be replaced.

A cable was seen to be resting on the exhaust duct of the boilers, which is a potential fire hazard. The electrical wire should be relocated and properly supported (Photograph 3.2.1.3).

Based on feedback from the client, the boilers are now used only for supplemental heat during extremely cold weather.

#### Building Heating Loop Pumps

The heated water from the boilers circulates through the building's heating loop piping to the duct-mounted hydronic heating coils using two 1.5 horsepower Armstrong model 1080 3D hydronic pumps labeled HP1 and HP2 on the as-built drawings. These pumps appear to have been installed during the construction in 1995 and are 30 years old. The pumps have exceeded their typical useful service life of 20-25 years (Photograph 3.2.1.4).

#### Hot Water Heating Coils

The four hydronic heating coils (HC-1, 2, 3, 4) in the supply air ductwork are now only used for supplemental heat during extremely cold weather because the current rooftop units are

equipped with natural gas heat. Hydronic coils typically have a service life of 20 years. Although the hydronic heating coils have reached the end of their service life, there may be an opportunity to optimize the system by considering the following:

- completely remove them and determine if the rooftop units have enough heating capacity on their own.
- replace the existing coils with smaller ones to continue supplementing heat from the rooftop units.

In both considerations, building heat loss calculations would need to be completed to determine the heating requirements.

**Local Air Conditioning Unit**

A 1-ton (12,000 BTUH) split air conditioning system (AC Unit) cools the IT room and is controlled by a thermostat located in the IT room. The system includes a wall-mounted indoor evaporator unit, and an outdoor condensing unit located behind the building in the fenced-off generator area. The age of the equipment appears to be from 2018 based on the serial number and appears to be in good condition. (Photograph 3.2.1.5 and 3.2.1.6). The typical useful life of the equipment is 15 years.

There is a transfer air opening in the IT room intended to return air to the rooftop unit via the ceiling return air plenum. However, since there is no air supply to this room, the transfer opening is unnecessary. The transfer opening reduces the efficiency of the air conditioning system because the AC unit will draw air out of the ceiling plenum through the transfer opening, increasing the volume of air that the air conditioner must condition. The transfer air opening should be sealed off.

The air conditioner is equipped with a wall mounted condensate pump to lift condensate up to a drain location at a higher elevation as gravity drainage was not used. The condensate pump appears to be in good condition. A condensate pump typically lasts 10 years.

**Humidifiers**

There are three wall mounted electric duct steam humidifiers in the storage room on the second floor. Building staff informed me they have already been scheduled for replacement. Typical life expectancy is 10 years.

**Rooftop Units (RTUs)**

There are four Carrier Weathermaker single packaged rooftop gas heat/electric cooling units installed on the roof, labeled AC-1 through AC-4 on the as-built drawings. Originally, these units were air conditioning only and have since been replaced with natural gas heated/electric cooled

units. Each unit has a heating capacity of 148,000 BTUH and a cooling capacity of 89,000 BTUH (7.5 tons). The serial numbers indicate that they were manufactured in late 2015, making them approximately 9 years old (Photograph 3.2.1.7). Typically, rooftop units have a lifespan of 15-20 years.

The existing rooftop units appear to have an option for "high heat" output capacity although the installed units are provided with "medium heat" output capacity.

The rooftop units are provided with a temperature economizer for reducing energy consumption as well as a barometric relief to relieve excessive positive air pressure inside the building.

Rooftop units AC-1,2,3 operate on a variable volume and temperature (VVT) system and deliver tempered air to the various HVAC zones. HVAC zones are generally comprised of groups of comparable rooms, or individual rooms. Thermostats are provided to control the VVT dampers for each HVAC zone. This is an outdated system and replacement control systems are generally hard to find. VVT systems use bypass dampers to control airflow, which can waste energy by sending heated or cooled air back into the system, opposed to reducing the volume of air moved by the rooftop unit.

Rooftop unit AC-4 serves the council and upper lobby. This system doesn't operate on a VVT system, and a single thermostat controls the rooftop unit.

The current rooftop units are sized with medium gas heating, and there is an option in the same model line that has high gas heating.

#### Ventilation

Ventilation is provided by outdoor air intakes or economizers on all rooftop units. The capacity and demand of ventilation air system was not reviewed as part of the building condition assessment.

#### Elevator Room Exhaust Fan

The elevator room is ventilated with a ceiling-mounted exhaust fan labeled EF-1 on the original mechanical drawings. It is controlled by a cooling thermostat. The fan appears to be from the original construction and is 30 years old. Fans typically have a useful service life of 20-25 years. However, due to the infrequent use of this fan, it is believed to have more years of life left in it.

#### Washroom/Janitor Exhaust Fan

The buildings washrooms are ventilated by a centrifugal downblast roof exhaust fan labeled EF-2 on the as-built drawings. The nameplate data label on the fan was worn out and the model and age of the fan are unknown. However, the fan appears to have been replaced sometime in

the last 20 years. Centrifugal fans typically have a useful service life of 25 years (Photograph 3.2.1.8). The fan is controlled by a 7-day programmable electronic time switch that should be programmed in accordance with the building's typical occupied and unoccupied schedule.

#### Electric Force Flow Heaters

Refer to the electrical section 3.3.4 for information.

### 3.2.2 Plumbing Systems

#### General

Plumbing fixtures throughout the building were in good condition and appeared to be operating correctly.

#### Hot Water Heater

In the Janitor Room, there is an AO Smith electric hot water heater, model number 6G50SD1, with a capacity of 184 liters and a power rating of 3000 kW. The heater is equipped with an expansion tank and a tempered water mixing valve, meeting the requirements of the Ontario Building Code (OBC-2024) (Photograph 3.2.2.1). The serial number indicates that the unit was manufactured in December 2012, making it approximately 12 years old and should be replaced. The typical useful service lifespan of an electric hot water heater is 12-15 years, but this can vary based on factors like water quality, maintenance, and installation quality. The unit appears to be functioning correctly and shows no signs of leakage. It is advised to check with the insurance company as there may be limits to coverage in the event of a leak based on the age of the tank.

The expansion tank appears to have been manufactured in 2020 and has a useful life of 5-10 years.

#### Sump Pump

The original mechanical drawings for the Basement Storage Room show the presence of a sump pump labeled SP1. However, during the inspection, the sump pump was not visible as it is enclosed in a basin with a bolted cover. It could not be confirmed if the sump pump was operational or its age and it was assumed to be the original pump from the initial construction and should be replaced. The basin seems to be part of the original construction and may be approximately 30 years old. Typically, a sump pump has a lifespan of 7 to 10 years.

#### Backflow Preventer

The double check valve backflow preventer for the building's domestic water supply shows surface corrosion, and the inspection tag indicates it was last inspected in 2013 (Photograph

3.2.2.2). This backflow preventer needs to be inspected yearly in accordance with Canadian Standards Association (CSA) B64.1 "Selection and installation of backflow preventers/ maintenance and field testing of backflow preventers". The typical lifespan of a backflow preventer is 10 years, and this backflow preventer has exceeded its life expectancy and should be replaced.

The backflow preventer for the boilers was replaced in 2024 and is inspected annually (Photograph 3.2.2.3).

#### Drains

There is a drain in the mechanical room from a metal conduit that appears to be coming from the exterior of the building. Further review would be required to understand why this drain line is still required (Photograph 3.2.2.4).

A funnel floor drain should be provided for indirect equipment drains to floor drains. It looks like there has been water spillage around the floor drain due to one of the floor drains not being directed into the drain or from overflow resulting from the flow not being properly directed to drain (Photograph 3.2.2.5).

#### Reverse Osmosis

A reverse osmosis system has been installed under the kitchen counter to serve the filtered water tap on the sink. The age of the system is unknown. With proper maintenance like replacement of filters and members, these systems can last 10-15 years.

#### Water Softening

There is a water softening system installed in the building. A water softener should last 10 to 15 years although higher demand or very hard incoming water can reduce the life expectancy. Regular maintenance of replacing the resin beads and salt levels can significantly impact the lifespan of the water softener.

### 3.2.3 Generator

The generator appears to be a Generac Industrial Power generator (Photograph 3.2.3.1). The model number was not visible to review, and the generator was not on when the building condition assessment was conducted. In discussion with facility management, it was noted that the generator requires between 7 to 11 in w.c. to operate and is currently being provided with 7 in w.c.

If there are issues with the operation of the generator the incoming natural gas pressure should be reviewed with the manufacturer's installation guidelines. Natural gas engine generators can

be sensitive to natural gas pressure fluctuations, especially during highly fluctuating demand. The incoming pressure for the generator is likely not high enough to allow for pressure fluctuations and operation of the generator may be affected.

### 3.2.4 Fire Separation Protection Systems

There are several fire dampers on the drawings that are shown at fire separations. Fire dampers are required to be inspected and maintained every 4 years.

## 3.3 BUILDING ELECTRICAL SYSTEMS

### 3.3.1 Power Distribution

The main electrical distribution consists of a service entrance switchboard located in the basement electrical room. The rating of the switchboard is 600 Amp (80% rated), 120/208 Volt, 3-Phase, 4-Wire, 15 kAIC serial number Federal Pioneer S76025S-A. The typical lifespan of switchgear is 30-40 years depending on availability of replacement parts. The unit appears to be in fair condition and functioning correctly.

An ASCO automatic transfer switch has been installed for connection to a stand-by generator located outside. There was no visible nameplate data available.

A sub-panel is located in the electrical room. The rating of the panel is 100 Amp, 240 Volt, 3-Phase, 4-Wire Serial number Federal Pioneer Y45B012012-10. The typical lifespan of a panel is 30-40 years depending on availability of replacement parts. The unit appears to be in good condition and functioning correctly. The panel directory is empty and should updated with circuit allocations.

A sub-panel (Panel "B") is located on the first-floor flush mounted in corridor. The rating of the panel is 225 Amp, 240 Volt, 3-Phase, 4-Wire manufactured by Federal Pioneer model NBLP-CC. The typical lifespan of a panel is 30-40 years depending on availability of replacement parts. The unit appears to be in good condition and functioning correctly.

A sub-panel (Panel "C") is located on the second-floor flush mounted in corridor. The rating of the panel is 225 Amp, 240 Volt, 3-Phase, 4-Wire manufactured by Federal Pioneer model NBLP-cc. The typical lifespan of a panel is 20-30 years depending on availability of replacement parts. The unit appears to be in good condition and functioning correctly.

We were told the permanent generator was 40 kW and manufactured by Total Power. There was no visible nameplate data available, and the building was on normal power when the site review was conducted.

### 3.3.2 Life Safety Equipment

Emergency and exit lighting consisted of battery units, exit signs and remote emergency heads throughout the building.

It was observed that the parts of the emergency and exit lighting located in the basement, first floor, and second floor do not comply with current applicable code requirements for visibility and illumination levels within public corridors and open office areas. It is recommended that a licensed professional engineer be retained to conduct a comprehensive assessment of the existing emergency egress lighting layout and to prepare sealed (stamped) drawings to upgrade the existing system to meet current applicable codes and to the satisfaction of the Authority Having Jurisdiction (AHJ).

It was noted that some exit signs were not illuminated. It is recommended a licenced electrician do a complete review of the emergency exit lighting, battery units and remote heads to ensure they are functioning correctly.

The Fire Alarm System has been upgraded recently to a Mircom System. Both the main panel and annunciator panel appear to be in good working condition.

It was noted that the location of fire alarm detection devices in some areas does not meet the minimum spacing requirements and there are rooms with no detection observed. It is recommended to have a professional engineer review the existing layout and prepare sealed (stamped) drawings to upgrade the existing system to meet current applicable codes and to the satisfaction of the AHJ.

### 3.3.3 Lighting

It appears that the interior lighting system has been upgraded to modern LED technology, which not only enhances energy efficiency and reduces maintenance requirements but also seems to be fully operational and in good working condition."

### 3.3.4 Electric Heating

Electric force flow heaters were observed throughout the building in exit vestibules. Where possible they were tested and are in good working condition.

# 4 Recommendations

## 4.1 BUILDING STRUCTURAL SYSTEMS

**Table 1: Exterior**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| N/A | Front Entrance | Fair | Clean, sand, surface preparation and repaint front entrance storefront to prevent further deterioration. Perform within 1 to 5 years |
| N/A | Prefinished Metal Tower Cladding | Fair | No immediate action is required other than typical maintenance. Recommend power wash and cleaning. Perform within 1 to 5 years |
| N/A | Paint Exterior Lintels | Fair | Paint exterior metal lintels. Perform within 1 to 5 years |
| N/A | Arches and General Brick Repairs | Poor | Front entrance arch brick repairs are required to protect public safety. Perform brick repointing at all affected areas including sealant repairs to adequately protect building envelope. Perform within the next year. |
| N/A | Window Cap Repairs | Poor | Repair/reposition or replace window caps as required to protect building envelope and to sustain window performance. Perform within the next year. |

## 4.2 BUILDING MECHANICAL SYSTEMS

**Table 1: Heating, Ventilation and Cooling (HVAC) Systems Recommendations**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| B1 | Boiler | Good | No immediate action is required other than typical maintenance. |
| B2 | Boiler | Good | No immediate action is required other than typical maintenance. |
| N/A | Boiler Pumps | Good | No immediate action is required other than typical maintenance. |
| N/A | Hydronic Expansion Tank | Fair | Replace as a preventative measure within the next year. |

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| N/A | Motorized Damper on Boiler Combustion Air Intake with Boiler Interlock | N/A | Not currently installed, recommended for energy efficiency by reducing outdoor air infiltration. |
| HP-1 | Building Heating Loop Pump | Fair | Replace within the next 1-5 years. |
| HP-2 | Building Heating Loop Pump | Fair | Replace within the next 1-5 years. |
| HC-1,2,3,4 | Heating Coils | Fair | Replace within the next 1-5 years. |
| N/A | Local Air Conditioner | Good | No immediate action is required other than typical maintenance. |
| N/A | Three Steam Humidifiers | Poor | Replacement is being performed by building management this year. |
| AC-1 | Rooftop Unit | Good | No immediate action is required other than typical maintenance. |
| AC-2 | Rooftop Unit | Good | No immediate action is required other than typical maintenance. |
| AC-3 | Rooftop Unit | Good | No immediate action is required other than typical maintenance. |
| AC-4 | Rooftop Unit | Good | No immediate action is required other than typical maintenance. |
| N/A | VVT Rooftop Unit Controls | Fair | Replace controls with an updated controls system when rooftop units are replaced or when there are issues with the controls. |
| EF-1 | Elevator Exhaust Fan | Fair | Replace within the next 1-5 years. |
| EF-2 | Bathroom Exhaust Fan | Fair | Replace within the next 1-5 years. |

**Table 2: Plumbing Systems Recommendations**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| HWT-1 | Electric Hot Water tank | Fair | Replace within the next 1-5 years. |
| N/A | Sump Pump | Fair | Replace within the next 1-5 years. |
| N/A | Domestic Cold Water Backflow Prevention Device | Poor | Replace / inspect withing the next year. |
| N/A | Boiler Water Backflow Prevention Device | Good | No immediate action is required other than typical maintenance. |
| N/A | Domestic Hot Water Expansion Tank | Good | No immediate action is required. |
| N/A | Reverse Osmosis | Good | No immediate action is required other than typical maintenance. |
| N/A | Water Softening System | Good | No immediate action is required other than typical maintenance. |

**Table 3: Generator Recommendations**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| N/A | Generator Natural Gas Engine | N/A | Monitor operation of generator, if there is inconsistent operation, review the manufacturer's installation guidelines for natural gas pressure. |

**Table 4: Fire Separation Protection Recommendations**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| FD | Fire Damper | N/A | Inspect and maintain every 4 years. |

## 4.3 BUILDING ELECTRICAL SYSTEMS

**Table 1: Power Distribution**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| N/A | Service Entrance Equipment | Good | Recommend infrared (IR) thermal imaging report to identify any potential problems (hot spots). |
| N/A | Panelboards | Good | Recommend infrared (IR) thermal imaging report to identify any potential problems (hot spots). |

**Table 2: Life Safety Systems**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| N/A | Fire Alarm System | Good | No immediate action is required other than typical maintenance. |
| N/A | Fire Alarm Components | Fair | It is recommended to have a qualified engineer review the fire alarm detection equipment locations and make recommendations for upgrades/additions to meet current applicable codes and to the satisfaction of the AHJ.. |
| N/A | Emergency Lighting & Exit Signage | Fair | It is recommended to have a qualified engineer review the existing exit and emergency lighting and make recommendations for upgrades/ additions to meet current applicable codes and to the satisfaction of the AHJ.<br>Typical maintenance and logs for all battery units shall be updated. |
| N/A | Electric Heaters | Good | No immediate action is required other than typical maintenance. |

**Table 3: Building Lighting**

| TAG | DESCRIPTION | RATING | RECOMMENDATION |
|---|---|---|---|
| N/A | Interior overall lighting | Good | No immediate action is required other than typical maintenance. |

The scope of work recommended in this report must be confirmed with a more detailed site investigation prior to implementation and require subsequent detailed engineering design.

As a result, this report may be used as a tool for making capital planning decisions. It should not be used as a detailed engineering design or the basis to proceed to installation. While this report is the product of professional care and competence, there is no warranty expressed or implied, and nothing in this report should be construed as a guarantee.

# 5 Summary

The building main structural framing was assessed as observed and we did not note any signs of structural distress from within the building structure. The exterior envelope mainly consists of brick cladding complete with fiberglass corbels and metal accent cornices. The front entrance and corner tower utilize prefinished metal cladding elements. Aluminum storefronts, metal doors and prefinished aluminum window frames make-up the remainder of the envelope. Brick and window repairs are required in order to sustain the envelope integrity. Envelope maintenance is also recommended limited to washing and painting. The flat roof areas utilize tapered insultation sloped to drains under an inverted roofing system. The existing roofing system was visually reviewed, and it appeared to be in good condition.

The boiler system and duct mounted heating coils are only operational during extremely cold weather events. Properly designed rooftop unit systems don't need supplementary heating coils. The duct mounted heating coils add to pressure drop across the fans and increase fan power consumption leading to increased operational cost. Removing the boiler system would reduce operational and capital expenses. Reviewing the building heating demand as well as the capacity of current/future rooftop units is recommended. Reviewing the operation of the VVT damper system and associated controls is also recommended as this is an outdated system.

There are limitations on the energy efficiency of the heating system as the boilers are not the condensing type and making an upgrade may not be practical given the limited operating window of the boilers, as they are only used during extreme weather events. A condensing boiler with outdoor temperature reset for improved efficiency with properly sized boilers should be considered after a more in-depth review of the rooftop units is completed. Heat loss calculations should be conducted to determine if loose duct heating coils are necessary. If new coils are needed, they would be much smaller as the original coils were sized for the full heating capacity and would limit short cycling of the boiler.

Further review and discussion with facility management on the capabilities of the generator would benefit the facility during times when backup power is required. It is unknown if there is sufficient natural gas pressure to the generator and pressure fluctuations may impact the operation of the generator.

The electrical service entrance and distribution equipment are observed to be in good operational condition, with no immediate deficiencies noted. However, given the age of the installation, it is recommended that a comprehensive infrared (IR) thermographic survey be conducted on the main service and distribution components. This assessment should focus on identifying thermal anomalies or elevated temperatures at critical connection points, which may indicate loose

connections, phase imbalances, or deteriorating components that could compromise system reliability or safety.

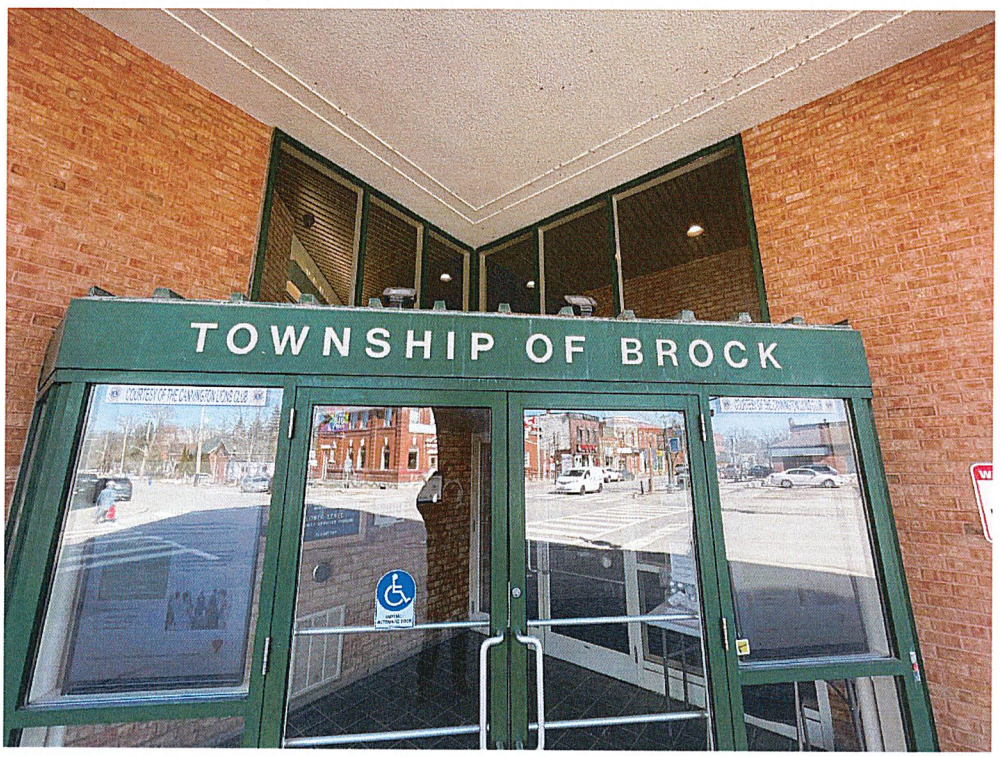
The life safety systems, including emergency and exit lighting, require a detailed assessment by a qualified professional to evaluate current system coverage and functionality. A review should be conducted to identify any deficiencies and to implement necessary upgrades or additions to ensure full compliance with current codes and to the satisfaction of the AHJ.

The fire alarm system and its components are in good condition and appear to be well-maintained, with regular inspections and verifications conducted in accordance with code requirements. As noted in the report, it is recommended that a comprehensive review of all system components be carried out to ensure continued compliance with current codes and to the satisfaction of the AHJ.

The interior lighting systems appear to be in good working condition and have been upgraded to energy-efficient LED technology. To further optimize energy performance, it is recommended that the current layout and functionality of occupancy sensors be reviewed, and that the integration of daylight harvesting controls be considered where feasible. These measures could contribute to additional reductions in energy consumption and improved lighting control.

# Appendix A:
# Appendix A Photographs

Photograph 1.1: Building Overall

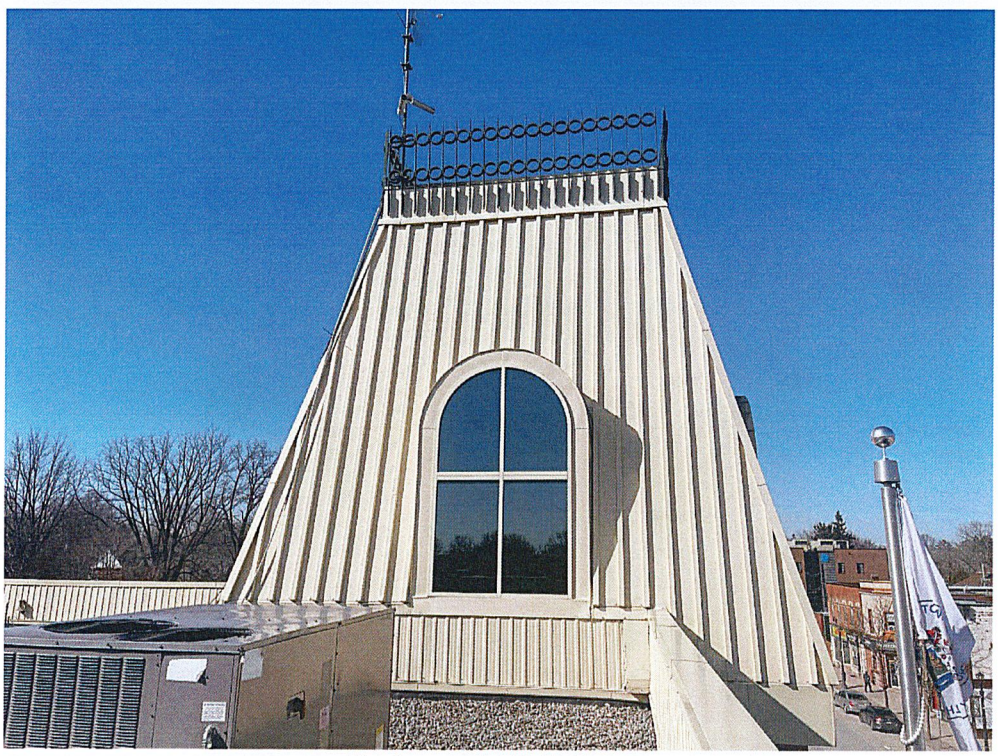



Photograph 3.1.1: Front Entrance

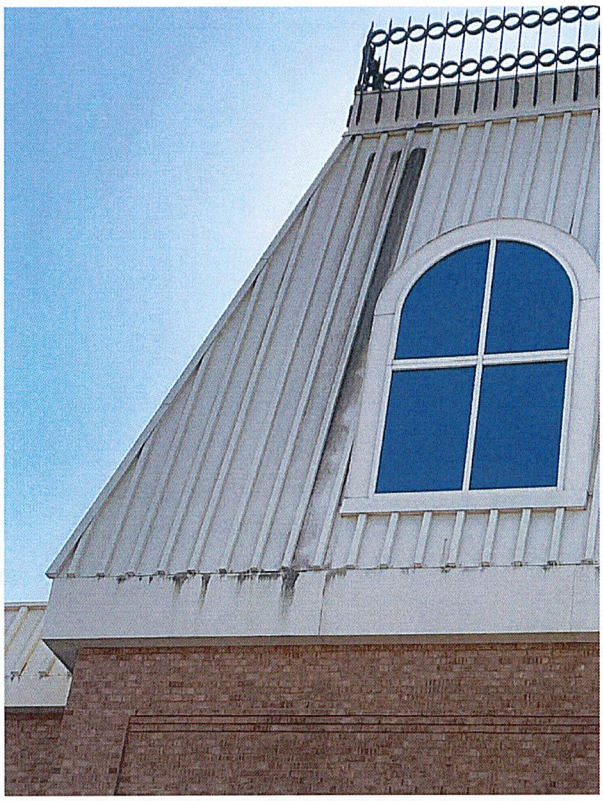

Photograph 3.1.2: Minor Corrosion

Photograph 3.1.3: Storefront Base

Photograph 3.1.4: Front Entrance Deck



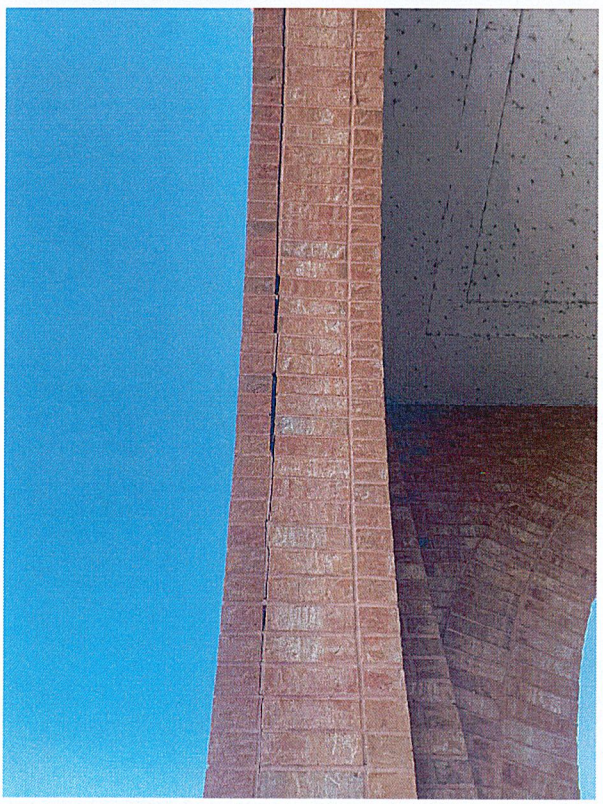
Photograph 3.1.5: Tower



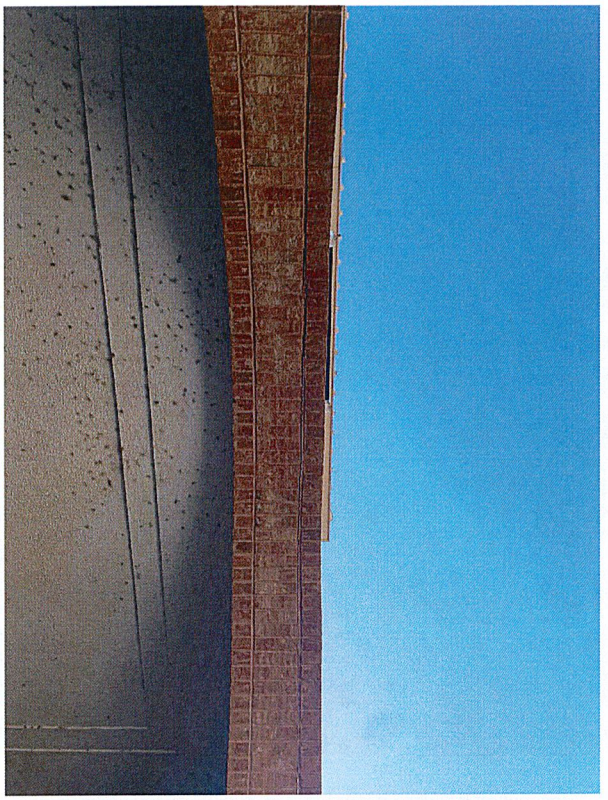
Photograph 3.1.6: Tower Cleaning

Photograph 3.1.7: Exterior Lintels

Photograph 3.1.8: Front Brick Arches



Photograph 3.1.9: Arch Deterioration - West



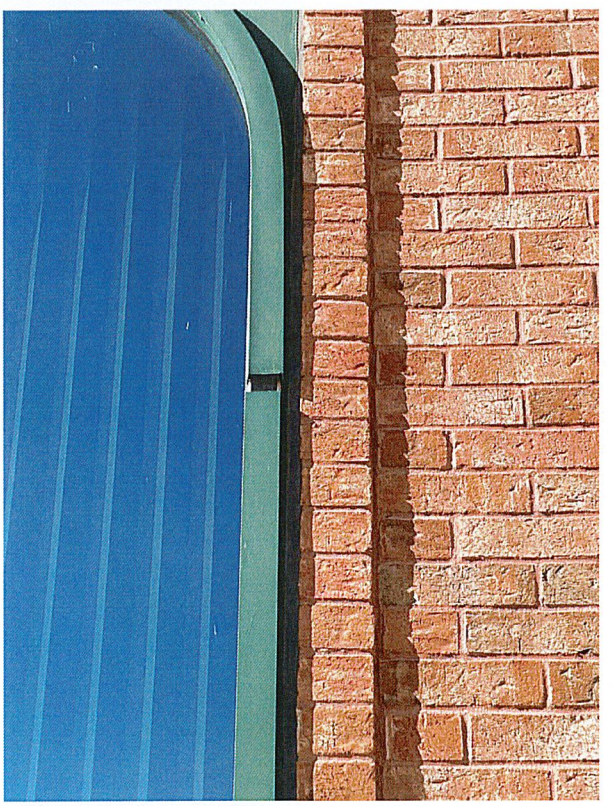
Photograph 3.1.10: Arch Deterioration - North

Photograph 3.1.11: Brick Repairs

Photograph 3.1.12: Efflorescence

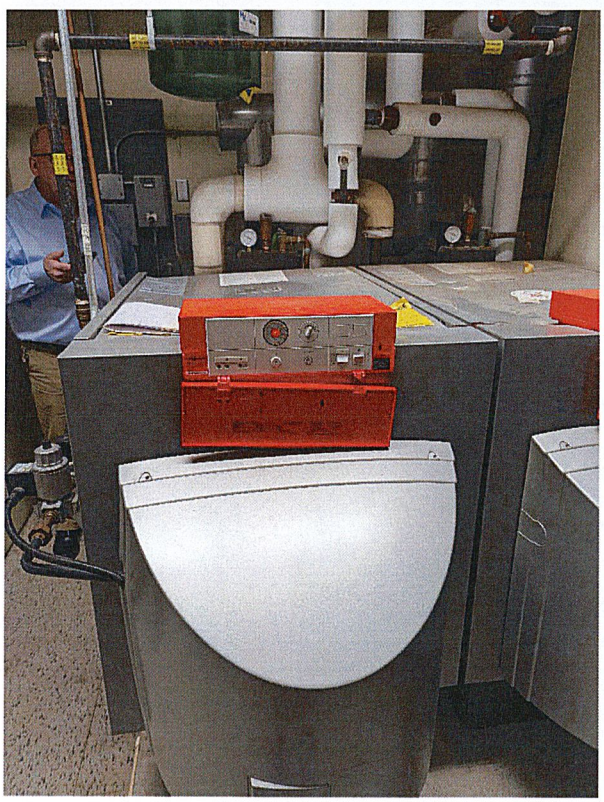
Photograph 3.1.13: Expansion Joint Seal


Photograph 3.1.14: Typical Window

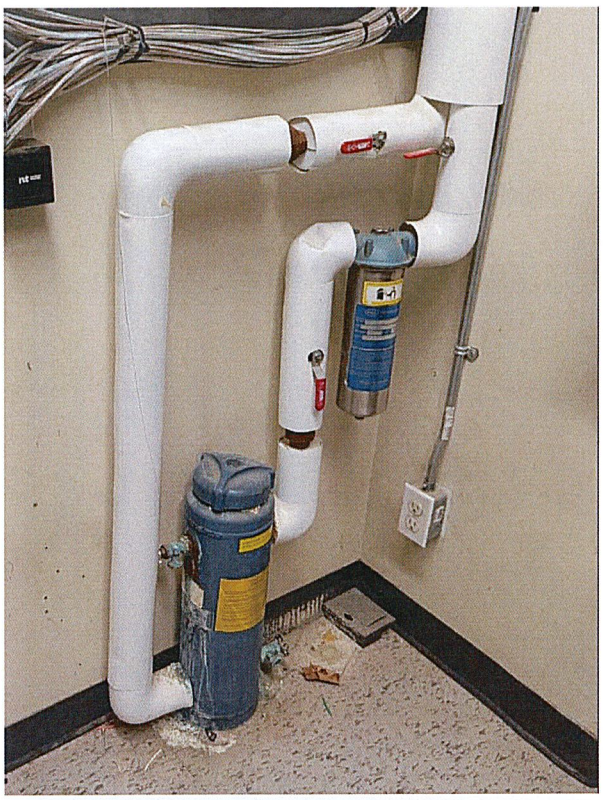


Photograph 3.1.15: Window Cap Gap

Photograph 3.1.16: Window Cap Sill Gap



Photograph 3.2.1.1: Boiler B-1



Photograph 3.2.1.2: Hydronic System Chemical Pot Feeder

Photograph 3.2.1.3: Cable on Exhaust Duct

Photograph 3.2.1.4: Building Heating Loop Circulator


Photograph 3.2.1.5: Air Conditioner- Indoor Unit

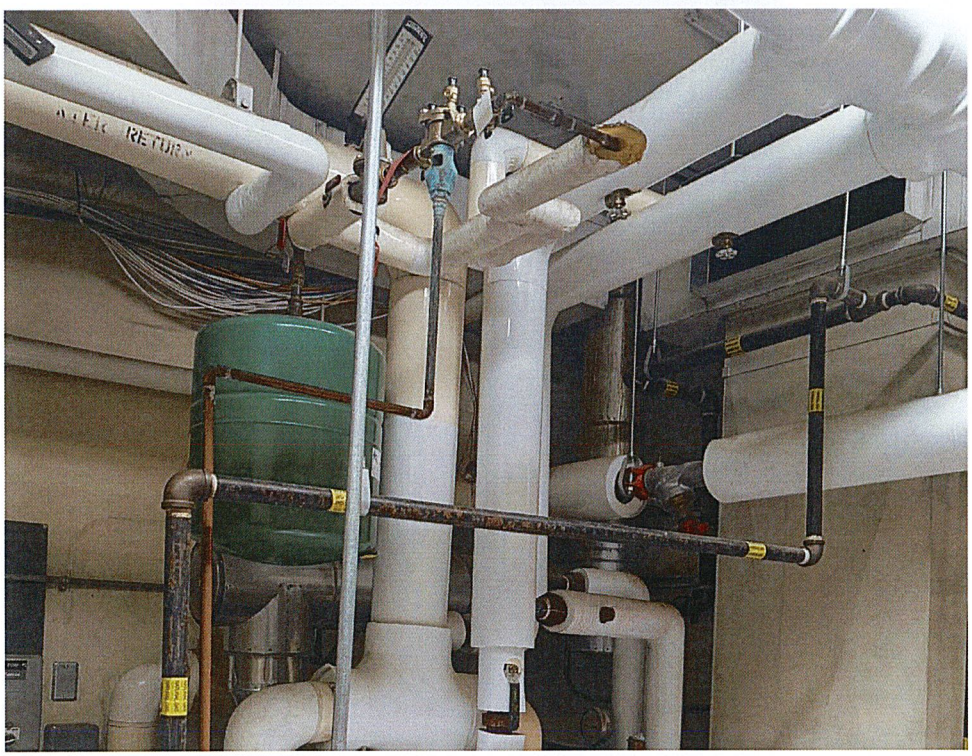

Photograph 3.2.1.6: Air Conditioner- Outdoor Unit


Photograph 3.2.1.7: Rooftop Unit (Typical of 4)

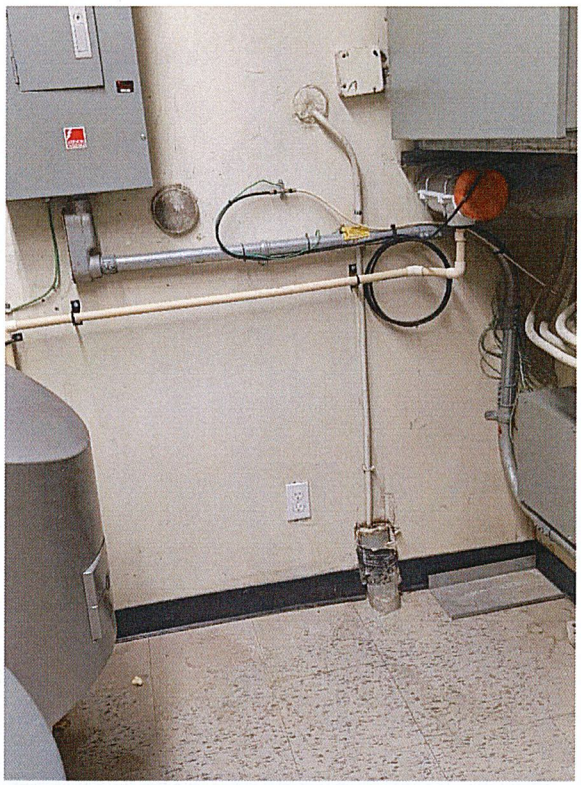

Photograph 3.2.1.8 – Washroom Exhaust Fan


Photograph 3.2.2.1: Hot Water Tank and Mixing Valve

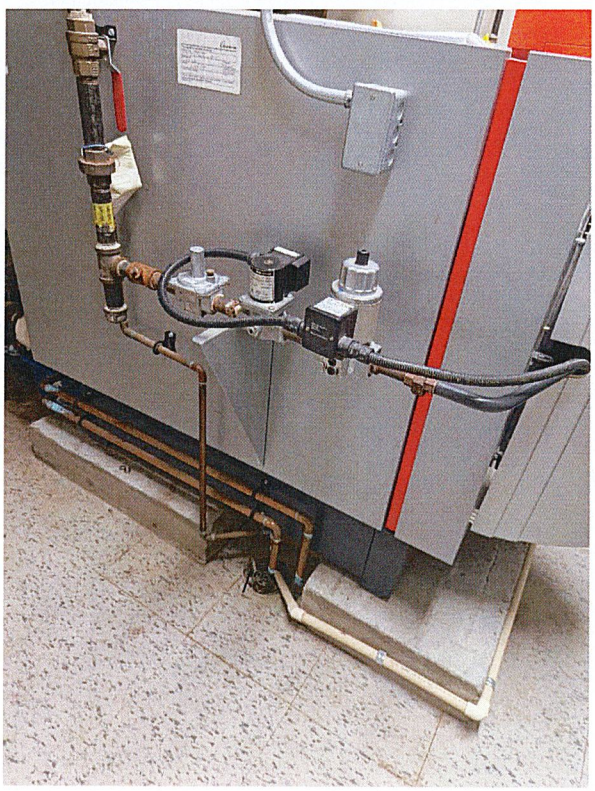
Photograph 3.2.2.2: Building Backflow Preventer



Photograph 3.2.2.3: Hydronic Backflow Preventer

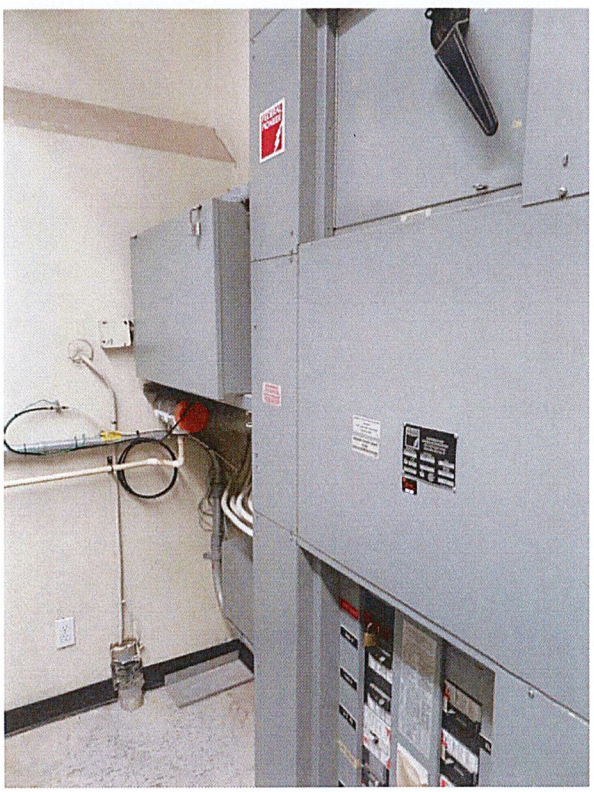


Photograph 3.2.2.4: Drain Line



Photograph 3.2.2.5: Floor Drain

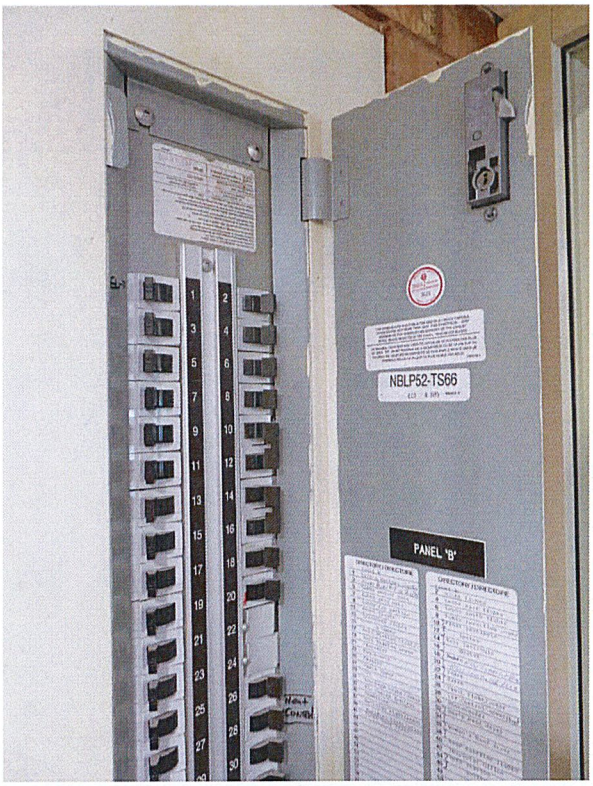
Photograph 3.2.3.1 Generator



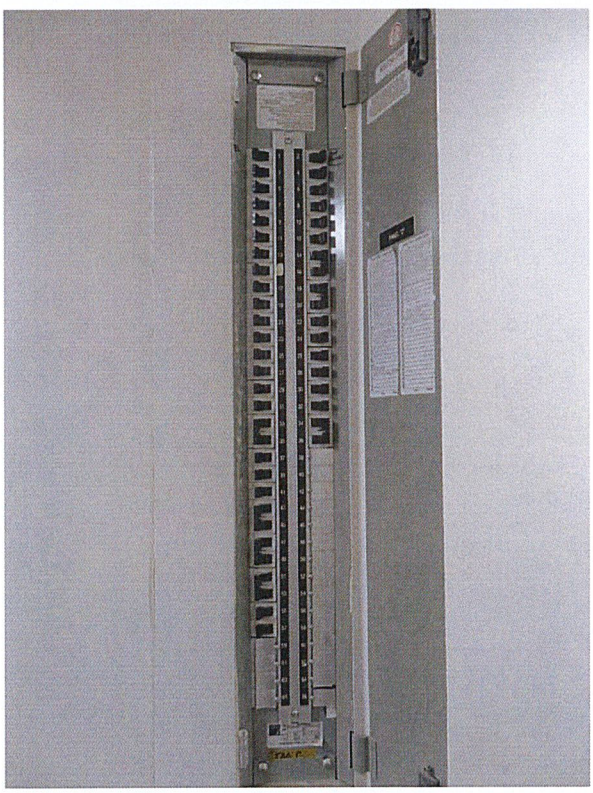
Photograph 3.3.1.1: Service Entrance Switchboard

Photograph 3.3.1.2: Transfer Switch

Photograph 3.3.1.3: Distribution Panel Basement



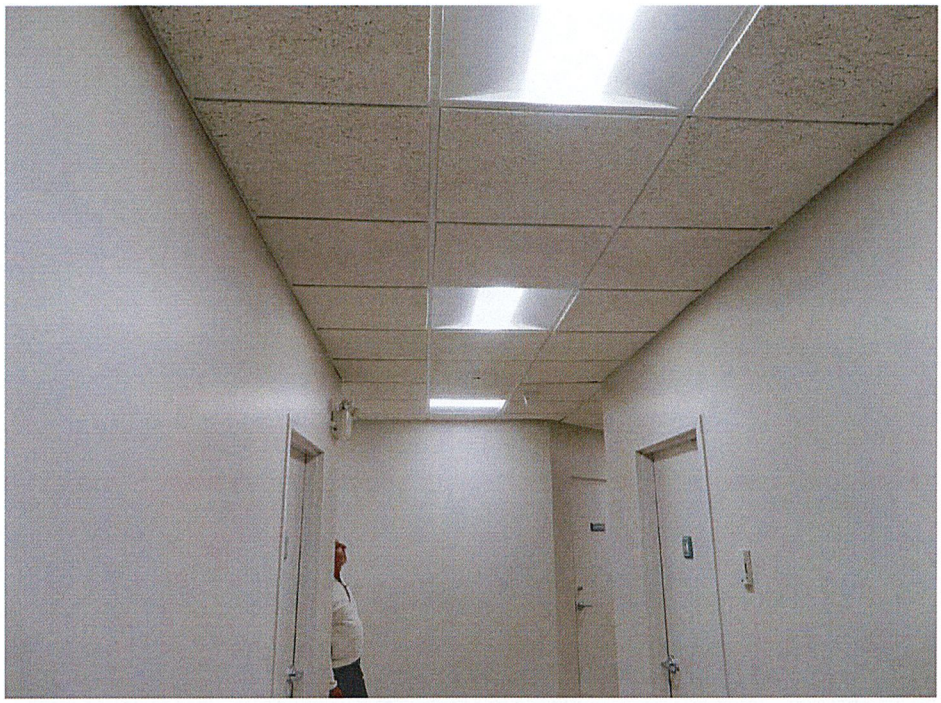

Photograph 3.3.1.4: Distribution Panel First Floor



Photograph 3.3.1.5: Distribution Panel Second Floor


Photograph 3.3.2.1: Emergency & Exit Lighting

Photograph 3.3.2.2: Fire Alarm Panel



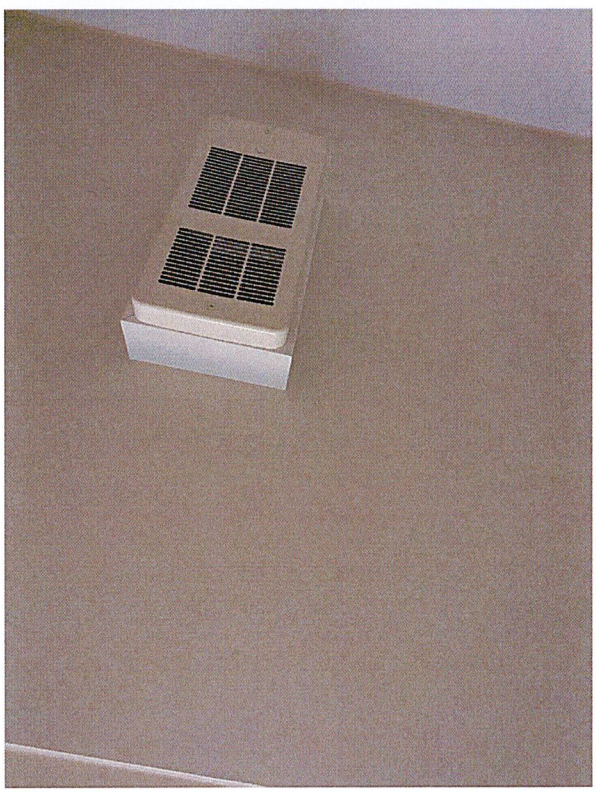
Photograph 3.3.2.3: Fire Detectors

Photograph 3.3.3.1: Interior Lighting

Photograph 3.3.3.2: Interior Lighting

Photograph 3.3.3.3: Interior Lighting

Photograph 3.3.4.1: Electric Heating



Photograph 3.3.4.2: Electric Heating

Photograph 3.3.4.3: Electric Heating

# Appendix B:
# Opinion of Cost

TATHAM ENGINEERING

# Municipal Building

PROBABLE COST - SUMMARY

## Building Systems Assessment

Jul 17, 2025

**Brock Township**

| Item | Description | | Item Price |
|---|---|---|---|
| **1** | **Immediate** | | |
| 1.01 | Mechanical | $ | 34,500 |
| 1.02 | Electrical | $ | 22,000 |
| 1.03 | Exterior | $ | 75,000 |
| | **Total Immediate** | **$** | **131,500** |
| **2** | **Short Term (1 to 5 Years)** | | |
| 2.01 | Mechanical | $ | 168,000 |
| 2.01 | Electrical | $ | - |
| 2.03 | Exterior | $ | 21,000 |
| | **Total Short Term (1 to 5 Years)** | **$** | **189,000** |
| **3** | **Long Term (6 to 10 Years)** | | |
| 3.01 | Mechanical | $ | 217,500 |
| 3.02 | Electrical | $ | 6,500 |
| 3.03 | Exterior | $ | - |
| | **Total Long Term (6 to 10 Years)** | **$** | **224,000** |

| Item | Description | | Item Price |
|---|---|---|---|
| | **Subtotal** | **$** | **544,500** |
| 2.04 | Engineering Design and Construction Support (10% of Subtotal) | $ | 55,000 |
| 2.05 | Contingency (20% of Subtotal) | $ | 109,000 |
| **Total** | | **$** | **708,500** |

*Construction support includes shop drawing review, issuing site instructions and change orders as required, and completion of a mid-construction and final site reivew w/ sign-off for each discipline.

TATHAM ENGINEERING

# Municipal Building

## Building Condition Assessment

**Brock Township**

**PROBABLE COST - EXTERIOR**

Jul 17, 2025

| Item | Description | Unit | Qty | Unit Price | Item Price |
|---|---|---|---|---|---|
| **1** | **Immediate** | | | | |
| 1.01 | Replace, repoint and repair general brick repairs including sealant repairs and two main front arches at corner front entrance | LS | 1 | $ 65,000 | $ 65,000 |
| 1.02 | Window cap repairs | LS | 1 | $ 10,000 | $ 10,000 |
| | **Subtotal Immediate** | | | | **$ 75,000** |
| **2** | **Short Term (1 to 5 Years)** | | | | |
| 2.01 | Clean and repaint front entrance store front | LS | 1 | $ 8,000 | $ 8,000 |
| 2.02 | Presure wash prefinished metal tower façade | LS | 1 | $ 5,000 | $ 5,000 |
| 2.03 | Paint exposed window lintel | LS | 1 | $ 8,000 | $ 8,000 |
| | **Subtotal Short Term (1 to 5 Years)** | | | | **$ 21,000** |
| **3** | **Long Term (6 to 10 Years)** | | | | |
| 3.01 | | LS | 1 | | $ - |
| | **Subtotal Long Term (6 to 10 Years)** | | | | **$ -** |
| **Total Exterior** | | | | | **$ 96,000** |

TATHAM ENGINEERING

# Municipal Building

## Building Condition Assessment

**Brock Township**

**PROBABLE COST - MECHANICAL**

Jul 17, 2025

| Item | Description | Unit | Qty | Unit Price | Item Price |
|---|---|---|---|---|---|
| **1** | **Immediate** | | | | |
| | **HVAC Upgrades** | | | | |
| 1.01 | Steam Humidifier | LS | 3 | $ 10,000 | $ 30,000 |
| | **Plumbing Upgrades** | | | | |
| 1.02 | Domestic Cold Water Backflow Prevention Device | LS | 1 | $ 4,500 | $ 4,500 |
| | **Subtotal Immediate** | | | | **$ 34,500** |
| **2** | **Short Term (1 to 5 Years)** | | | | |
| 2.01 | Coordination, mobilization, inspections etc. | LS | 1 | $ 2,500 | $ 2,500 |
| | **HVAC Upgrades** | | | | |
| 2.02 | Hydronic Expansion Tank | LS | 1 | $ 2,500 | $ 2,500 |
| 2.03 | HP-1 Building Heating Loop Pump | LS | 1 | $ 6,500 | $ 6,500 |
| 2.04 | HP-2 Building Heating Loop Pump | LS | 1 | $ 6,500 | $ 6,500 |
| 2.05 | HC-1,2,3,4 Heating Coils | LS | 4 | $ 15,500 | $ 62,000 |
| 2.06 | VVT Rooftop Unit Controls | LS | 3 | $ 24,500 | $ 73,500 |
| 2.07 | EF-1 Elevator Exhaust Fan | LS | 1 | $ 2,500 | $ 2,500 |
| 2.08 | EF-2 Bathroom Exhaust Fan | LS | 1 | $ 6,500 | $ 6,500 |
| 2.09 | Engineered Design | LS | | | TBD based on services needed |
| | **Plumbing Upgrades** | | | | |

| Item | Description | Unit | Qty | Unit Price | Item Price |
|---|---|---|---|---|---|
| 2.10 | HWT-1 Electric Hot Water Tank | LS | 1 | $ 3,000 | $ 3,000 |
| 2.11 | Sump Pump | LS | 1 | $ 2,500 | $ 2,500 |
| | **Subtotal Short Term (1 to 5 Years)** | | | | **$ 168,000** |
| **3** | **Long Term (6 to 10 Years)** | | | | |
| 3.01 | Coordination, mobilization, inspections etc. | LS | 1 | | TBD based on services needed |
| | **HVAC Upgrades** | | | | |
| 3.02 | B1 - Boiler | LS | 1 | $ 31,500 | $ 31,500 |
| 3.03 | B2 - Boiler | LS | 1 | $ 31,500 | $ 31,500 |
| 3.04 | Boiler Pumps | LS | 2 | $ 2,500 | $ 5,000 |
| 3.05 | Motorized Damper on Intake with Boiler Interlock | LS | 1 | $ 4,500 | $ 4,500 |
| 3.06 | Local Air Conditioner | LS | 1 | $ 8,500 | $ 8,500 |
| 3.07 | AC-1 Rooftop Unit | LS | 1 | $ 31,500 | $ 31,500 |
| 3.08 | AC-2 Rooftop Unit | LS | 1 | $ 31,500 | $ 31,500 |
| 3.09 | AC-3 Rooftop Unit | LS | 1 | $ 31,500 | $ 31,500 |
| 3.10 | AC-4 Rooftop Unit | LS | 1 | $ 31,500 | $ 31,500 |
| | **Plumbing Upgrades** | | | | |
| 3.11 | Boiler Water Backflow Prevention Device | LS | 1 | $ 4,500 | $ 4,500 |
| 3.12 | Domestic Hot Water Expansion Tank | LS | 1 | $ 2,000 | $ 2,000 |
| 3.13 | Reverse Osmosis Undercounter System | LS | 1 | $ 1,500 | $ 1,500 |
| 3.14 | Water Softening System | LS | 1 | $ 2,500 | $ 2,500 |
| | **Subtotal Long Term (6 to 10 Years)** | | | | **$ 217,500** |
| **Total Mechanical** | | | | | **$ 420,000** |

TATHAM ENGINEERING

# Municipal Building

## Building Condition Assessment

**Brock Township**

**PROBABLE COST - ELECTRICAL**

Jul 17, 2025

| Item | Description | Unit | Qty | Unit Price | Item Price |
|---|---|---|---|---|---|
| **1** | **Immediate** | | | | |
| 1.01 | Upgrade emergency and exit lighting to meet the requirements with current codes and to the satisfaction of local Authority Having Jurisdiction (AHJ). | LS | 1 | $ 10,000 | $ 10,000 |
| 1.02 | Upgrade fire alarm components to meet the requirements current codes and to the satisfaction of local Authority Having Jurisdiction (AHJ). | LS | 1 | $ 12,000 | $ 12,000 |
| | **Subtotal Immediate** | | | | **$ 22,000** |
| **2** | **Short Term (1 to 5 Years)** | | | | |
| 2.01 | | LS | | | $ - |
| | **Subtotal Short Term (1 to 5 Years)** | | | | **$ -** |
| **3** | **Long Term (6 to 10 Years)** | | | | |
| 3.01 | Service entrance equipment and panelboard infrared (IR) thermal imaging report to identify any potential problems (hot spots). | LS | 1 | $ 6,500 | $ 6,500 |
| | **Subtotal Long Term (6 to 10 Years)** | | | | **$ 6,500** |
| **Total Electrical** | | | | | **$ 28,500** |