TOWN OF ARBORG AND MUNICIPALITY OF BIFROST-RIVERTON

Facility Condition Assessment

Draft Report

March 2021 – 20-3472

March 12, 2021

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Attention: Mr. Brendan Salakoh, RPP, MCIP

Town of Arborg and Municipality of Bifrost-Riverton
Facility Condition Assessment – Draft Report

Please find the attached second draft of the Arborg Bifrost-Riverton Facility Condition Assessment report. The report includes condition assessment site visit, findings, recommendation for upgrades or replacement and cost estimate for budgetary purpose. The facilities included in the reports are Arborg & District Arena, Noventis Aquatic Centre, Arborg Curling Rink, Arborg-Bifrost Community Centre, Baseball Diamond, Riverton Community Hall and Curling Rink, and Riverton Memorial Arena.

If you have any questions or comments regarding this report, please contact the undersigned at dmklassen@dillon.ca.

Sincerely,

DILLON CONSULTING LIMITED

DRAFT

Dwight Klassen, P.Eng.
Associate, Structural Engineer

NR:lw

Our file: 20-3472

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Executive Summary

The Town of Arborg and Municipality of Bifrost-Riverton, upon the recommendation of the Arborg-Bifrost Parks & Recreation Commission Board, retained Landmark Planning & Design Inc. (Landmark) and Dillon Consulting Limited (Dillon) to prepare a comprehensive Recreation Plan for Arborg-Bifrost & Riverton-Bifrost recreation services. Dillon performed a condition assessment of the following facilities:

- Arborg & District Arena;
- Noventis Aquatic Centre;
- Arborg Curling Rink;
- Baseball Diamond;
- Arborg-Bifrost Community Centre;
- Riverton Community Hall & Curling Rink; and
- Riverton Memorial Arena.

Our report presents the condition of each facility and the recommendation for upgrades/repair or replacement as well as a Class "D" cost estimate for the recommended upgrades/repair or replacement.

The accuracy of evaluations, discussions and conclusions in this report are limited to the extent of the information available at the time of the investigations and evaluations. This includes background information provided, available drawings, visual observation and on-site interviews.

1.0 Purpose, Background and Study Methods

1.1 Purpose

The Arborg-Bifrost Parks and Recreation Commission together with the Riverton-Bifrost Parks and Recreation Commission recommended that a comprehensive long-range Recreation Plan both for the Town of Arborg and the Municipality of Bifrost-Riverton. One of the scopes in the development of the 20-year Recreation Plan includes an examination of the current recreation facilities to identify upgrades and maintenance needed to assist in the development of a long-term capital maintenance plan. The Town of Arborg and the Municipality of Riverton-Bifrost retained Landmark Planning & Design Inc. (Landmark) to develop the 20-year Recreation Plan. Dillon Consulting Limited (Dillon) was responsible in performing the facility condition assessment of the following facilities:

- Arborg & District Arena;
- Noventis Aquatic Centre;
- Arborg Curling Rink;
- Baseball Diamond;
- Arborg-Bifrost Community Centre;
- Riverton Community Hall & Curling Rink; and
- Riverton Memorial Arena.

1.2 Background

The Municipality of Bifrost-Riverton and the Town of Arborg are located 130 km and 120 km north of the City of Winnipeg, respectively. The 2016 Census of Population reported approximately 4,610 residents altogether in the two municipalities. Currently the two municipalities jointly own and fund the Arborg-Bifrost Parks & Recreation Commission. The Municipality of Bifrost-Riverton solely owns and funds the Riverton-Bifrost Parks & Recreation Commission. To support the growth of the two municipalities, the Arborg-Bifrost Parks & Recreation Commission Board provided a recommendation to the municipal council to pass a resolution to proceed with the review of the Recreation Delivery System for future direction for services to the residents and tourists.

One of the mandates for the Arborg-Bifrost Parks & Recreation Commission is to operate and maintain recreation facilities for the community of Arborg. These facilities include the Arborg-Bifrost Community Center, Arborg Curling Rink, Noventis Aquatic Centre, Arborg & District Arena, baseball diamonds, soccer pitches, community parks, and the Communities in Bloom program. All of these facilities allow the community to celebrate and host social events.

Riverton-Bifrost Parks & Recreation Commission is directly responsible for the Riverton Recreation Facility (Riverton Community Hall) and Riverton-Bifrost Campground which include operations and

financial administration. The Riverton Curling Rink and Riverton Memorial Arena are operated and financially administered by their respective volunteer boards.

1.3 Facility Condition Assessment Methodology

1.3.1 Document Review

The following documentation was reviewed during the site visit:

- Partial drawing set of proposed upgrade and expansion of the Arborg & District Arena;
- Operation and manual of the Noventis Aquatic Centre;
- Drawings of the Noventis Aquatic Centre;
- Partial drawing set of the Community Centre;
- Plant annual maintenance reports for the Arborg & District Arena;
- Plant assets report from Cimco for the Arborg & District Arena;
- Operation manual for the community center;
- Plant annual maintenance reports for the Arborg Curling Rink;
- Plant annual maintenance report for the Riverton-Memorial Arena; and
- Plant annual maintenance report for the Riverton Curling Rink.

Based on the information provided, the majority of the mechanical and electrical systems are original and outdated. The addition of the Arborg & District Arena is a pre-engineered streel frame structure on belled pile foundation and the Arborg-Bifrost Community Centre foundation is a pre-engineered streel frame structure on pile foundation.

1.3.2 Development of Asset Condition Rating System

To assess the condition of an asset in a consistent and repeatable manner, development of rating system is required. The condition assessment rating utilized in this report is summarized in Table 1.

Table 1: Condition Assessment Rating Tables

Grade	Condition	Civil/Building	Mechanical	Electrical
1	Very Good	• Asset is physically sound and performing as intended. • Secure weatherproof structure or building, which is well maintained. • Good access and secure safe site.	• Equipment is physically sound and performing as intended.	• No abnormalities and resembles as new.

Grade	Condition	Civil/Building	Mechanical	Electrical
2	Good	• Asset is physically sound and performing as intended. • Minor deterioration of surfaces/cladding. Some spalling but no corrosion staining. • Some maintenance needed to prevent initial stages of decay or dereliction commencing. • Needs to be re-inspected in the medium term.	• Minor signs of equipment deterioration such as increased vibration, looseness, misalignment, slight leaks. • Protective coating still evident. • Efficiency undiminished. Minor oil leaks and gland wear becoming more evident.	• Minor signs of equipment deterioration. • Requires little if any repairs, but these are generally not affecting safety and/or its ability to perform its intended function.
3	Fair	• Showing deterioration, with some components physically deficient. • Structure/Building functionally sound, but appearance affected by minor cracking, staining, peeling paintwork, minor leakage or overgrown vegetation. • Early stages of decay or dereliction are becoming evident.	• Showing signs of equipment deterioration. • All components functioning acceptably but showing significant wear and tear. • Efficiency diminished. Minor failures with increasing corrosion of metal components, bearings and or gland wear (vibration) becoming more evident.	• Showing signs of equipment deterioration. • Functionally sound, but showing some wear, tear and deterioration. • Deterioration beginning to affect the safety, efficiency and operation of the system.
4	Poor	• Major portion of asset is physically deficient. • Structure is functioning but with problems due to significant leakage, cracking, spalling, loss of stability or deformation, corrosion substantially reducing size of structural member. • Building not functioning properly due to leakage; rising damp; rotting woodwork; decayed brickwork; inadequate security.	• Significant leaks, vibration, looseness, misalignment or out of balance. • Parts and components function but require significant maintenance to remain operational.	• The condition of the equipment is impacting on performance, serviceability and affecting the process. • System is functioning, but with problems due to serious defects that require significant maintenance to remain operational.

Grade	Condition	Civil/Building	Mechanical	Electrical
5	Critical	• Physically unsound. High probability of failure. • Serious structural problems having a detrimental effect on the performance of the structure/building. • Access extremely poor or hazardous. Site safety at risk.	• Unreliable with frequent breakdowns and adverse impact on performance. • Effective life exceeded and equipment now incurring excessive maintenance costs compared to replacement costs.	• A high risk of breakdown with a serious impact on the systems safety, efficiency and operation. • Systems effective life exceeded and excessive maintenance required.

1.3.3 Field Assessment

The Dillon team consisting of an electrical designer, a mechanical engineer and a structural engineer visited the site on September 23, 2020. The team met with the following: Tom Chwaliboga, Recreation Director for the Town of Arborg; Chet Wyka, facility manager at the Arborg & District Arena; Tyanna Mytz, Recreation Director for the Municipality of Bifrost-Riverton, at the Riverton Recreation Office; and Colin Bjarnason, Chair Person of the Riverton Memorial Arena at the Riverton Memorial Arena.

Based on the interview, the following information is concluded:

- Arborg & District Arena is a pre-engineered steel frame structure and was constructed in 1985 with an expansion in 1990;
- Arborg Curling Rink is a wood frame structure which was constructed in mid-90s;
- Arborg-Bifrost Community Centre is a pre-engineered steel frame structure and was constructed in 2004;
- Riverton Community Hall and Curling Rink is a pre-engineered steel structure and was constructed in 1989;
- The roof of the hall was repaired and painted within the past five years; and
- Riverton Memorial Arena, a Quonset P model wood frame structure, was originally constructed in 1950s with an addition in 1980s. Roof screws were all replaced in the past two years.

The visual, non-destructive investigation was conducted during the site visit on September 23, 2020. The inspection did not include inaccessible areas and foundations. Assessment of the roof was carried out for the Arborg & District Arena due to safety.

1.3.3.1 Architectural

Field assessment of the architectural components include the following:

- Building envelope; and
- Building interior/finish.

1.3.3.2 Structural

Structural components such as roof deck, structural steel framing, wood framing and slab were assessed.

1.3.3.3 Mechanical

Field assessment of the mechanical components include:

- Heating, ventilation and air conditioning (HVAC) systems;
- Mechanical ice plant, if any; and
- Plumbing systems.

1.3.3.4 Electrical

Electrical panels, receptacles, light fixtures and the fire alarm system were inspected during the site visit.

1.3.3.5 Site Conditions

General site condition was also observed.

1.3.4 Evaluation

Based on the review of the information and the field inspection, conditions of each component are categorized as per Table 1. Code analysis is not in the scope of work. Recommendation on repair/ replacement of components for 25 years of service life is made. Recommendation on upgrading of the components to meet the most recent building code is not included. Building code deficiencies when discovered will be noted in the report.

2.0 Observations and Recommendations – Town of Arborg

2.1 Arborg & District Arena

2.1.1 Architectural

2.1.1.1 Current Conditions

The general condition of the arena and the addition is good. The majority of the exit door thresholds appear to be not properly sealed. The wood walkway in the arena, although in good condition, poses tripping hazard to the occupants. The exterior wall panels appear to be in a good condition. Several dents are observed on the walls. These dents reduce the aesthetic but do not post a concern to the building envelope.

Photo 1 A gap at an exit door threshold

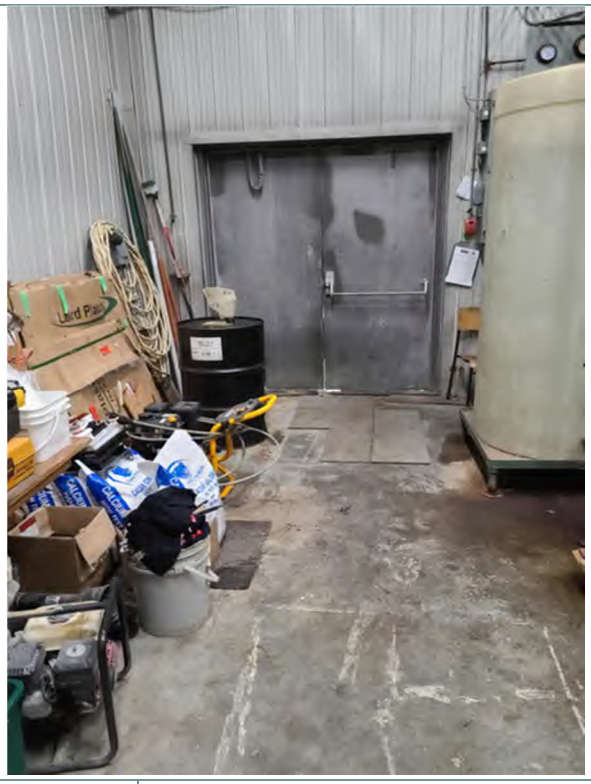

Photo 2 Gap at exterior door threshold in the ice plant

Photo 3	Exterior of an exit door

Photo 4	Wood walkway in the arena

Photo 5	Typical exterior wall panels

2.1.1.2 Recommendations

Based on the observation, it is recommended that:

- All the damage to the exit door trims and gaps at the exit door thresholds be repaired as soon as possible; and
- Locations of the uneven wood walkway should be remedied to prevent any injury to the occupants as soon as possible.

2.1.2 Electrical

2.1.2.1 Current Conditions

Electrical Rooms

Electrical Room #1 and 2 are located in the original portion of the building that was constructed in 1986. Electrical Room # 3 was installed later in the lobby area which was constructed in 1990. Electrical Room #1 houses two 42 circuit panelboards standard surface wall mounted style. Electrical Room #2 houses the Main incoming CDP for the building 120/208 volt service and it supplies Electrical Room #3, CDP and two smaller wall mounted CDP panels.

Photo 6 Electrical panel in Electrical Room

The existing CDPs in Electrical Room #1 and 3 are in good condition, with very little surface rust and blank circuit breaker spaces have a filler plate installed. The CDP's and panelboards have no visible damage such as bent cover plates or broken hinges. The end of service life for this distribution system is near and should be replaced.

CDP in Electrical Room #3 is in good condition and is somewhat newer by four to five years than Electrical Room #1 and #2's distribution system. They should be maintainable for the next five to ten years before having to be replaced.

Photo 7	Cable and conduit transit – Electrical Room # 3

Electrical Room #3 has several cable and conduit transits through the building walls these openings should be sealed with a fireproof material.

In addition all electrical rooms should not be used for storage, as accessing the CDPs and panels is difficult as storage material is stacked in front of almost all electrical enclosures within these rooms.

Public Area including Locker and Shower Rooms

Lighting within the public area locker and shower rooms consists primarily of either surface mounted or flush mounted fluorescent light fixtures. The fixtures all work and there appeared to be no damaged lenses or non-operational light fixtures at time of inspection.

The arena ice area lighting has recently been upgraded to HID lamps within the last two years. The emergency lighting system consists of incandescent lamps except for two new change rooms that were added to the facility two years ago.

The original locker and shower rooms and the ladies change room should have emergency lighting installed to meet current day code requirements.

Public areas including lounges, washrooms, offices and the lobby should consider converting existing fluorescent lighting to LED style fixtures.

Electrical Rooms #1 and 2 have no emergency lighting.

Outdoor Lighting

The complex has either HID or Sodium Vapour wall packs around the building exterior one at the back has a broken lens and lamp. Change existing wall pack units with new LED wall packs complete with wire guards over lens.

Mechanical Plant Room or Ice Plant

The mechanical plant room at the north end of the arena has its own incoming 600 volt 3 phase Manitoba Hydro service for the Ice making equipment. The electrical distribution within the ice plant room consists of a splitter box feeding various disconnects for the ice making equipment, the room has its own transformer and 120/208 volt rated panelboard for various control equipment, lighting and miscellaneous loads within the room. This equipment is original to the arena complex and is coming close to the end of its life cycle.

The ice plant should have two emergency lighting units in addition to the existing one as there are many obstructions and floor mounted equipment within the room and more illumination would be necessary to evacuate the area safely. The double doors leading to the outside should have an exit sign installed.

Photo 8	Ice plant electrical distributor

The Ice Plant electrical distribution equipment should be replaced at the same time as new mechanical ice making equipment is installed.

2.1.2.2 Recommendations

The following are recommended for replacement:

- Replace CDP in Electrical Room #3;
- Replace CDP and panels in Electrical Room #1 and 2;
- Seal conduit and cable transits through wall;
- Emergency lighting for locker rooms;
- Emergency lighting for Electrical Room # 1 and 2;
- Exterior lighting replacement;
- Ice Plant emergency lighting; and
- Lobby and Service Room LED lighting.

2.1.3 Mechanical

2.1.3.1 Current Conditions

Building HVAC Systems

The building is comprised of different areas, each served by their own dedicated HVAC system. The HVAC system serving the dressing rooms in the Field House are original to the space (1973). Primary ventilation and heating is provided by an air handling unit located in Electrical Room #2. The unit is a Lennox B3-95-2 cabinet fan complete with a plenum box and mixing dampers to control the amount of outdoor air. The unit was not operating during the time of the site visit but it is assumed that it is still operational. The life expectancy of this unit is 25 years. Supply air is provided to the dressing rooms through exposed duct work and grilles. The duct work and grilles are showing signs of age and corrosion in some areas.

Air is exhausted from the washroom areas by dedicated ceiling mounted exhaust fans. The fans are manually operated by wall switches. The fans were operational during the site visit but showed significant signs of age. The life expectancy of these units is 20 years.

Supplemental heat is provided by electric force flow heaters. The units are in poor condition and well beyond their expected service life of 15 years.

Photo 9	Air handling unit – Electrical Room #2

Photo 10	Age and corrosion in areas of duct work and grilles in dressing room

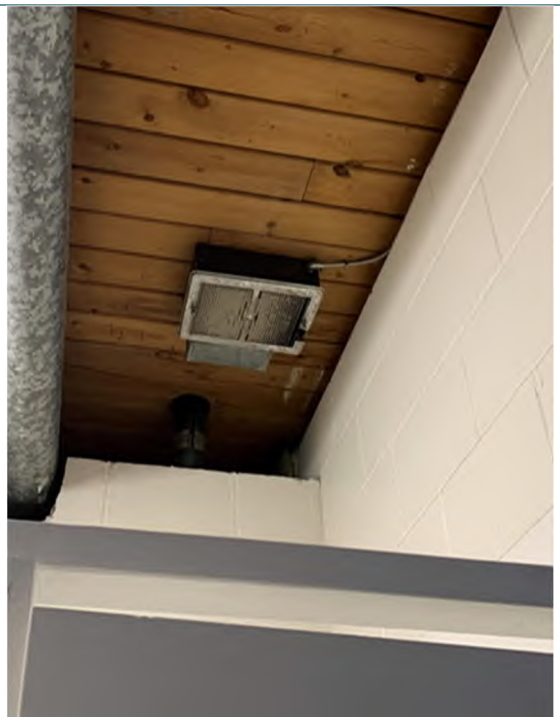

Photo 11	Electric force flow heater in washroom

Photo 12	Electric force flow heater in entrance

The Lobby and Office Area added in 1990 is served by two air handling units installed in Electrical Room #3. Primary ventilation and heating for the Lobby and Offices is provided by AH-1. AH-1 is an ICES Model BMA-E50 with 60kW SCR electric heating coil. The unit provides 2500 CFM of mixed air through ductwork concealed in the ceiling space. The unit was not operating during the site visit. The life expectancy of this unit would be 15 years.

Photo 13	Air handling unit in Electrical Room #3

The Lobby Area contains a commercial kitchen with a hood and roof mounted exhaust fan. The exhaust fan, F-1 is a Penn model FMX 12Q with a rated capacity of 1800 CFM and is operated manually with a wall switch. The hood is equipped with a fire suppression system last reviewed in 2020. Make-up air to the kitchen is provided by an AH-2. AH-2 is an ICES model BMA-E10 makeup air unit with a 50 kW electric heating coil. Its operation is interlocked with F-1. The units were not operating during the site visit. The life expectancies of the air handling unit and exhaust fan are 15 and 20 years, respectively.

Supplemental heating in the washrooms and entrance areas is provided by electric baseboard and force flow heaters. The units are in fair condition and past their expected service life of 10 to 15 years.

Photo 14 Kitchen air handling unit

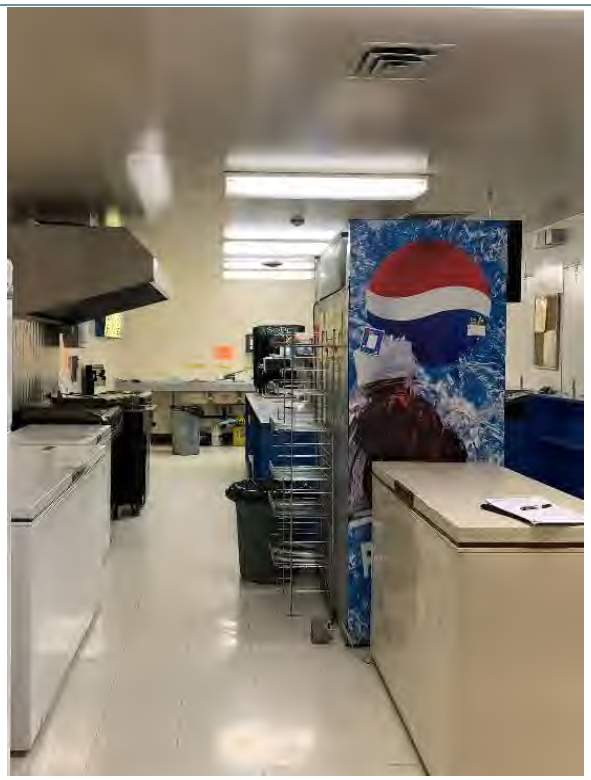

Photo 15 Kitchen exhaust fan

Photo 16	Bathroom baseboard heater

The new Dressing Rooms completed in 2017 are served by a natural gas furnace installed in the Service Room. The unit a KeepRite ICP Model N9MSE and has an expected service life of 18 years. Supply air is provided to the dressing rooms through exposed duct work and grilles.

Photo 17	Dressing room furnace

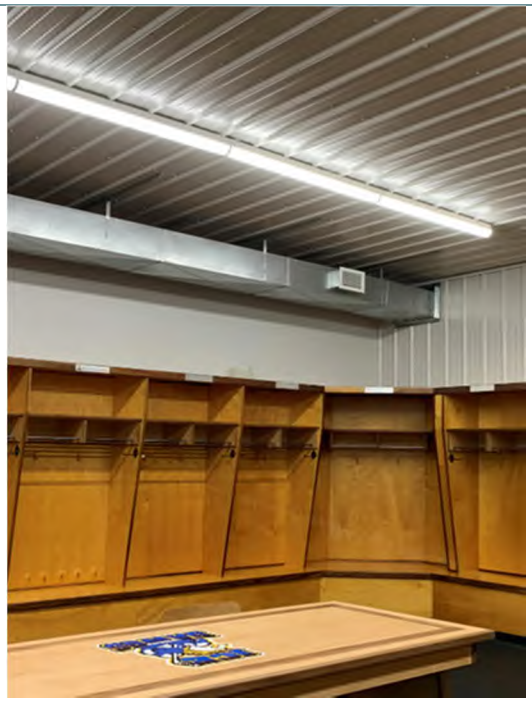

Photo 18	Dressing room duct work and grilles

Mechanical Ice Plant

Ventilation for the Ice Rink is provided by wall mounted exhaust fans and intake dampers. The units appear to be original and assumed to be operational. The rink is also equipped with two (2) Seresco dehumidifiers installed in 2014 and have an expected service life of 20 years.

Photo 19	Ice Rink exhaust fan

Photo 20	Ice Rink intake damper

Photo 21	

Photo 22	

Photo 23	

Photo 24	

Photo 25

Photo 26

The arena has a 35.9 ton indirect mechanical cooling plant that contains two (2) N6WA Cimco Mycom ammonia compressors, two (2) 50 hp GEC motors, Cimco MK15 chiller, 2 hp brine pump, brine tank, evaporative condenser and supporting electrical and controls equipment. The equipment was installed in 1986 and has required no major upgrades beyond routine annual maintenance. The rink piping was not visible during the site review but no concerns or leaks were noted. The plant room is equipped with gas detection and ventilation. The gas detection system is assumed to be only a couple years old and was operating during the time of the site visit. The mechanical cooling plant is well beyond its expected service life of 25 years.

Plumbing Systems

The dressing rooms in the Field House have two domestic hot water tanks, an expansion tank and circulator pump. The tanks and pump were installed in 2010. The hot water tanks and pump are reaching the end of their expected service life of 11 and 10 years, respectively. Plumbing fixtures in the Field House dressing rooms appear to be original. The general condition is poor and signs of corrosion were visible but there was no damage noted. With the exception of the piping at the domestic hot water tanks, the domestic hot and cold water piping in this area of the building is assumed to be original. The piping is painted in some area and appears to be in fair condition. Other areas where piping is exposed are in poor condition. The piping insulation is in poor condition.

Photo 27 Field house hot water tank

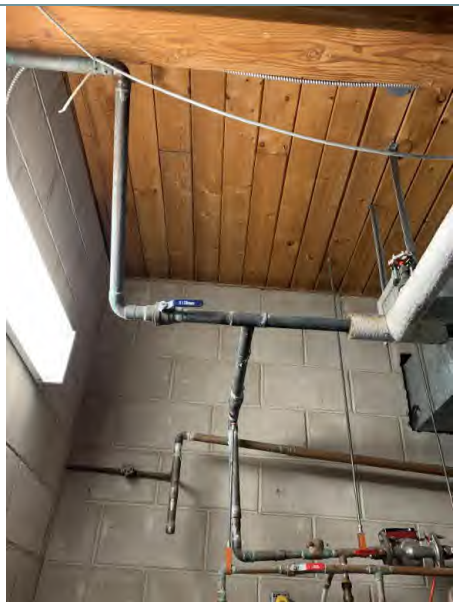

Photo 28 Field House piping

The Lobby and Kitchen Area are served by a dedicated hot water tank installed in the Mechanical/ Electrical Room. The tank is a 4.5 kW 284 L electric hot water, model GSW (6G80SDE1). Based on the serial number it is assumed the tank was replaced in 2007. It is past its expected service life of 11 years. The plumbing fixtures are assumed to be original to the expansion (1990) and are in fair condition. The main sanitary drainage and domestic water piping was concealed by interior finishes. The drainage piping connected where visible was mostly PVC and the domestic water was copper. The piping is expected to last beyond 25 years, assuming no external damage occurs.

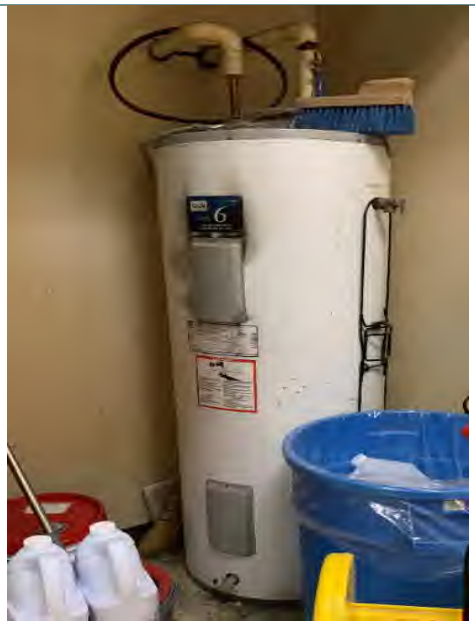

Photo 29 Lobby/Kitchen hot water tank

Photo 30 Kitchen plumbing fixtures

Domestic hot water for the new 2017 dressing rooms is provided by two instantaneous natural gas fired hot water installed in the service room. Domestic cold water is provided from the original building and piped through the arena area. The plumbing in this area is new and in good condition.

Storm drainage for the building is collected on the roof in gutters and discharged to grade. Natural gas for the building is limited to the new dressing room area and ice plant. The piping where visible is in good to fair condition.

2.1.3.2 Recommendations

Building HVAC Systems

- Replacement of the Field House air handling unit and exhaust fans can be expected within the next year or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.
- Replacement of the Lobby/Kitchen air handling units can be expected within the next year or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.
- Replacement of the Kitchen exhaust fan can be expected within the next year or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.
- Replacement of the electric heating units in the Lobby and Field House can be expected within the next year or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.

Mechanical Ice Plant

- The mechanical cooling plant equipment has reached the end of its service life and replacement should be considered within one to two years when feasible. A cost estimate for the replacement of the plant equipment has been provided. The cost estimate does not include repairs to the rink piping or replacement of the gas detection system. Continue on-going maintenance/servicing of the equipment until replacement.

Plumbing Systems

- The hot water tanks and recirculating pump serving the Field House can be expected to be replaced within the next year or when maintenance/servicing frequency increases. A cost allowance for the replacement has been provided.
- The hot water tank serving the Lobby and Kitchen area can be expected to be replaced within the next year or when maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.
- The plumbing fixtures in the Field House should be replaced when architectural or structural upgrades are done.

- Minor repairs/replacements to the domestic water system and insulation throughout the Field House, Arena and lobby have been provided in the cost estimate.

2.1.4 Structural

2.1.4.1 Current Conditions

The general conditions of the structural components are in a very good conditions. No signs of rust or deterioration in any exposed structural components.

Photo 31 Pre-engineered steel framing in the Arena

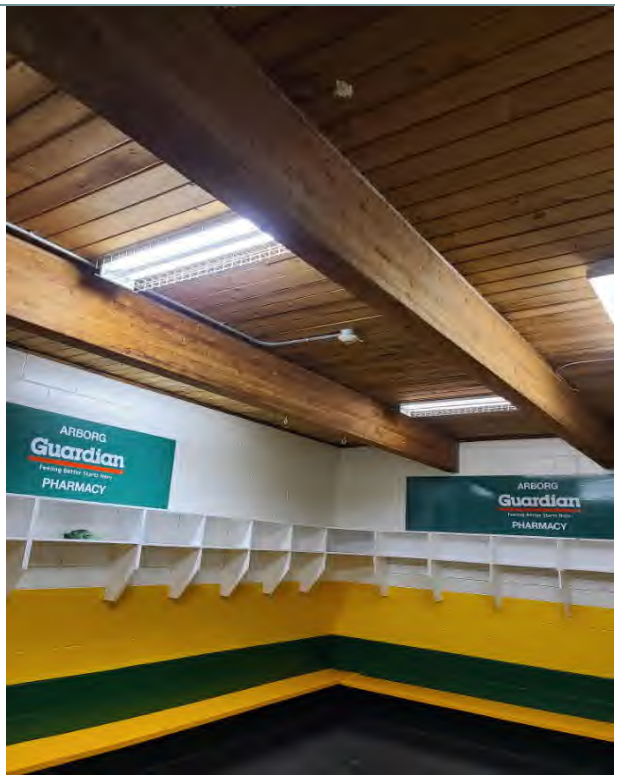

Photo 32 Glulam wood beam and ceiling in the **locker room addition to the Arena**

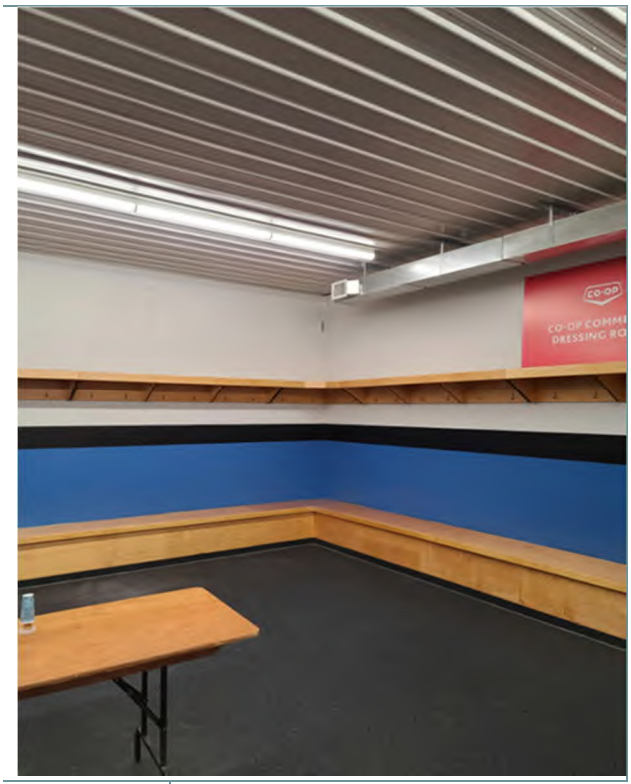

Photo 33	Pre-cast concrete wall panels and steel panel ceiling of the Co-op **Community Dressing room addition to** the Arena

The construction of a co-op community dressing room addition in 2017 appears to be violating the integrity of the arena's structure. This is noted as one of the structural bracings was cut for the opening to the dressing room. Bracing is a system in a pre-engineered steel building designed to transfer lateral load from wind. At a minimum, bracings are provided on three sides of the building and at roof level. There may be one or more bracing locations on one side. When one bracing is cut, the load will transfer to the remaining bracings. If the remaining bracings are designed to their capacity, the additional load will exceed their capacity and can cause failure to the structure. It should be noted that the wind pressure used in the design, according to the National Building Code of Canada, is based on a one-in-fifty-year value. It is, however, assumed that the engineer who designed the addition has taken this into consideration. Note that the addition was constructed with pre-cast concrete panel walls. If the connections are properly designed, the lateral forces will be transferred to the walls of the addition. As there is no documentation on this addition and that the scope of work does not include analysis of the structure, only an observation is reported herein.

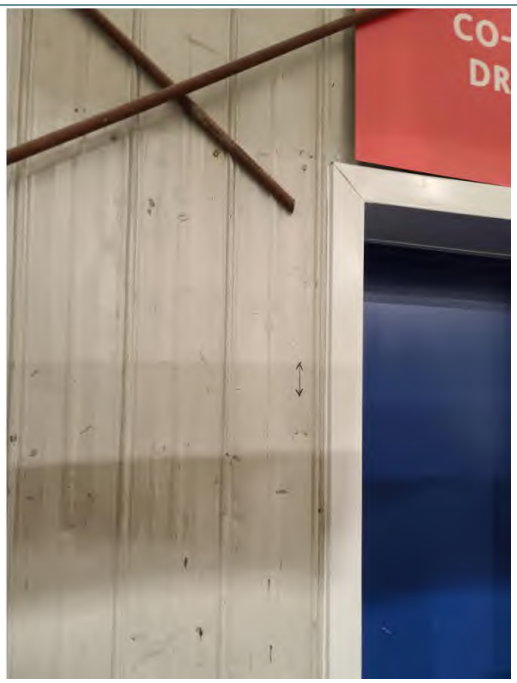

Photo 34	One of the cross bracing was cut for an opening to Co-op dressing room.

According to the interview, there are three locations where water leakage occurs in the Co-op dressing room and hall way. Investigation was carried out on the roof of the building and it is observed that there were damp spots along the caulking between the arena building and the addition.

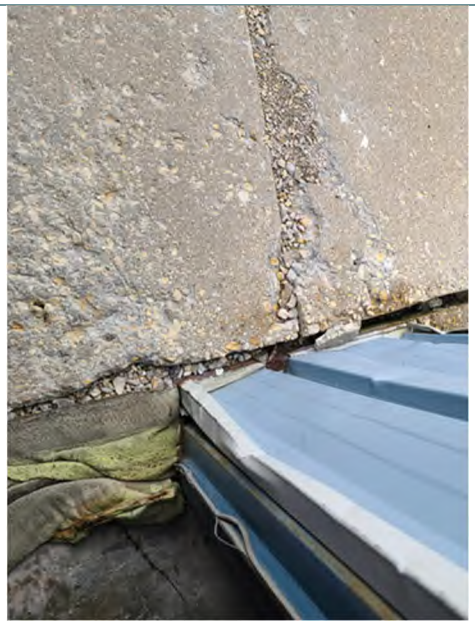

Photo 35	**Roof connection between the arena and the addition**	Photo 36	The exterior door threshold

It is observed that the concrete at the exterior door threshold in Olympia room is in a poor condition. According to the facility manager, this door threshold will be repaired within a few weeks.

The roof of the arena and the additions appear to be in a good condition.

Photo 37	**General condition of the** arena and the **addition roofs**

2.1.4.2 Recommendations

Although the inspection was conducted on the roof, only part of the roofs were accessed. According to the interview, there are a few leakage locations occurring occasionally in the arena rink area. It is recommended that a roofing company inspect the whole arena roof and that any leakage causes be repaired to prevent further damages as soon as possible.

2.2 Noventis Aquatic Centre

2.2.1 Electrical

2.2.1.1 Observations

Wall mounted panelboards are approximately 11 years old, as are the other electrical components within the pool pump house. There is corrosion on the edges and corners of some the electrical enclosures. Wall mounted pump controllers appear to have corrosion on the enclosure.

Photo 38 **Aquatic Centre panelboards**

A qualified electrician should inspect the electrical panels and starters for corrosion on current carrying components.

Lighting is open trougher style fluorescent two lamp fixtures. They should have wire mesh installed on the bottom of the trougher to prevent accidental shattering of the lamps, and potentially having broken glass in the area where people may be walking barefoot.

2.2.1.2 Recommendations

The followings are the recommendations for electrical components:

- Wire Guards on Existing Light Fixtures.
- Inspection for Corrosion.

2.2.2 Structural

2.2.2.1 Observations

There are two wood structures at the aquatic centre. They are both appear to be in good condition. The photo below shows the condition of one of the stairs to the slider. At one of the connections of the slider segments, the bolts appear to be missing.

Photo 39 A stair framing to the slider

Photo 40 Two bolts are missing at one of the **connections of the slider**

2.2.2.2 Recommendations

It is recommended that the missing bolts be installed to prevent any damage from overstressing of the flanges as soon as possible.

2.3 Arborg Curling Rink

2.3.1 Architectural

2.3.1.1 Observations

A portion of the fascia cover is missing. The function of the cover is to prevent water from penetrating the fascia board. Leaving the fascia board exposed to water will cause damage to the board and may cause a mould issue. Near the entrance to the building, cracks in masonry joints were observed. This masonry layer serves as an exterior face brick to the mechanical room and is not a structural component. However, the crack will allow water to penetrate into the air space behind this wall and could cause mould issues.

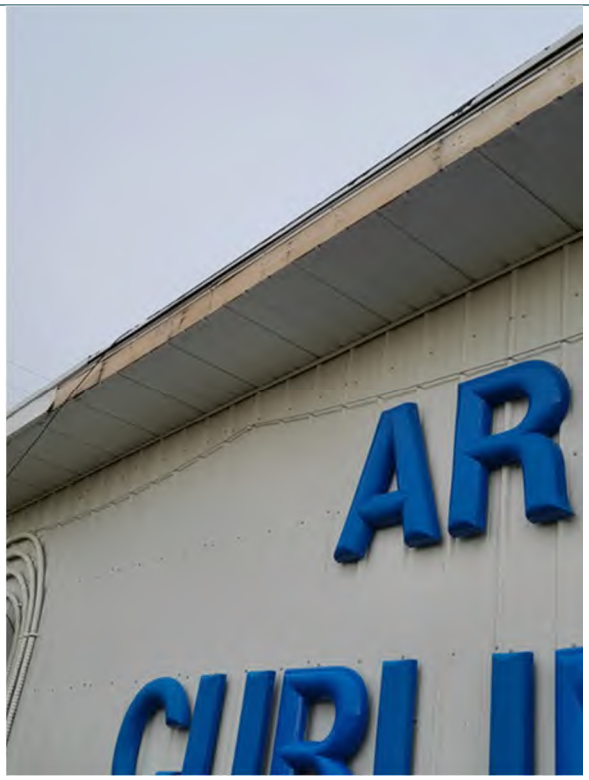

Photo 41 | Missing fascia cover at the Curling Rink

Photo 42 | Cracks in masonry joints

Minor rust was observed at the base of the exterior wall panels. They are not of concern as the rust does not appear to be penetrating through yet. The photo below shows one location at the end of the building where flashing is falling off. Flashings are used to help divert water away from the building. The gutter in the back of the building was observed to be damaged.

Photo 43	Rust observed at the base of the exterior wall panels

Photo 44	Loose flashing

Photo 45	**A damaged gutter**

General observation of the downspout showed that water is draining directly onto the ground. There are some locations where splash pads are provided. Where splash pads are provided, they do not appear to be sloped off the building.

There are holes in the walls in the men washroom. These holes are mostly likely left from the replacement of fixtures. The ceiling tiles in the viewing area appear to be loose in some locations.

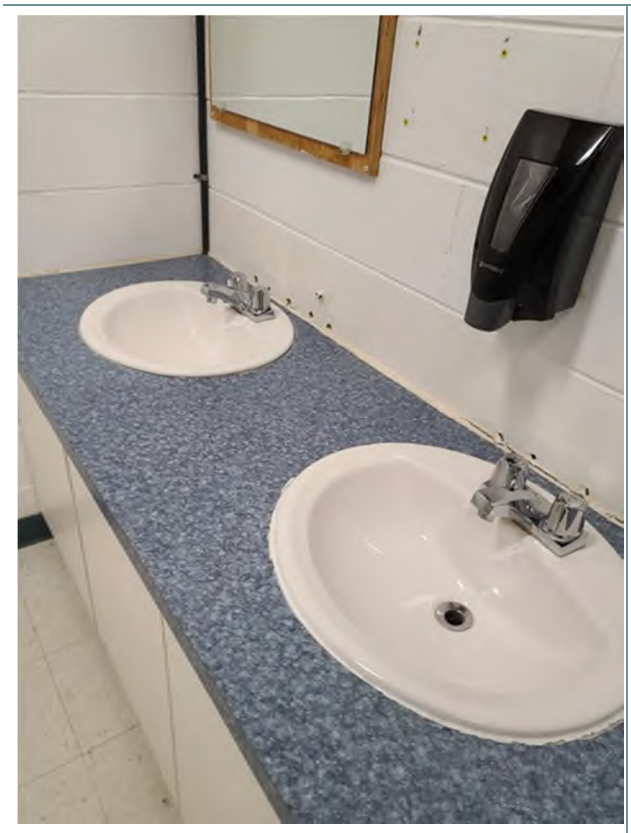

Photo 46 | Holes on walls in men washroom

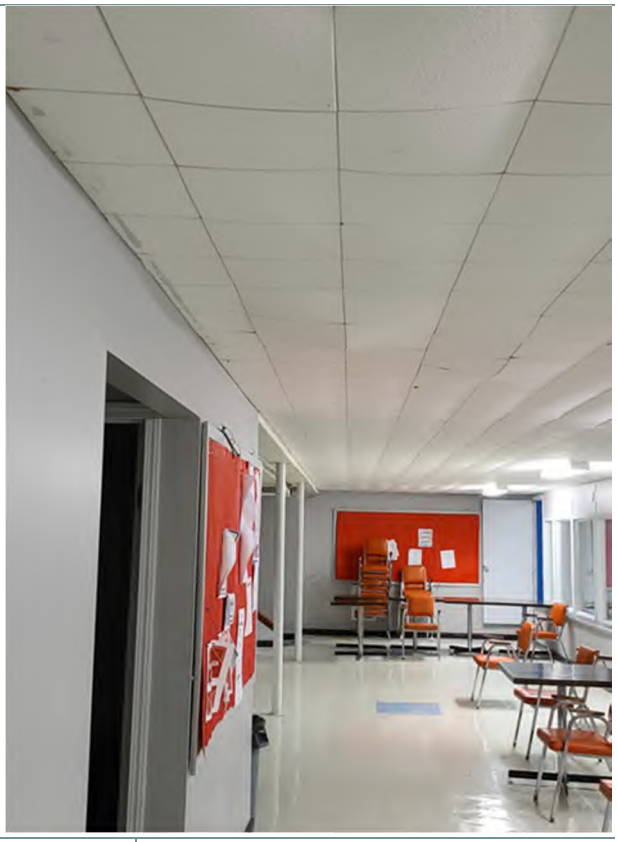

Photo 47 | **Ceiling tiles in the viewing area**

2.3.1.2 Recommendations

Based on the observations, it is recommended that:

- The fascia cover be replaced as soon as possible;
- The masonry wall joints be grouted within five years;
- The panels be cleaned off rust and painted within five years;
- The gutter be fixed as soon as possible;
- Concrete splash pads be provided in all downspout locations as soon as possible;
- The men washroom wall be patched and painted within five years; and
- The ceiling tiles in the viewing area be secured as soon as possible.

2.3.2 Electrical

2.3.2.1 Observations

Electrical Distribution

The Arborg Curling Rink was constructed in the mid 90's and the electrical panels and enclosure reflect that style of distribution panels and circuit breakers. The panelboards show no visible signs of rusting and are in good condition. Some enclosures are missing cover plate fasteners. Due to the age of the distribution panelboards, it is recommended that they be replaced with new equipment as they are approaching the end of their expected life span.

Photo 48 | Curling Rink panelboards

Lighting

The entry way and lobby appear to have several non-functional pot lights as well as surface mounted two tube fluorescent light fixtures. There are surface mounted fluorescent light fixtures with missing lenses.

The ice rink has strip twin tube enclosed fluorescent light fixtures, which appear to be relatively new and in a good condition. Exterior lighting consists of wall mounted HID or Sodium Vapour wall packs. Existing exterior lighting should be replaced with new LED wall pack units complete with wire guards over the lenses. At the time of the inspection, a broken outdoor HID wall pack has lens was observed.

Heating

Several baseboard heaters were observed to be damaged, missing cover over the heating fins and fin covers that were bent.

Life Safety

Lounge areas appear to have no ceiling mounted heat detectors.

2.3.2.2 Recommendations

The following electrical upgrades are recommended:

- Replace existing panelboards;
- Repair/replace damaged baseboards;
- Replace HID wall pack with LED; and
- Install additional lobby heat detectors.

2.3.3 Mechanical

2.3.3.1 Observations

Building HVAC Systems

The washrooms in the front entrance are provided with dedicated exhaust fans. The fans are operational but in poor condition. Air is transferred to the washroom through large openings in the doors. It is assumed that door grilles were installed at one time and have since been removed. Electric heat is provided throughout the facility in the lounges and entrance areas. The upstairs lounge was recently renovated and new electric baseboard units were installed. The remaining heating units are older and in poor condition. There is no other ventilation system for the facility.

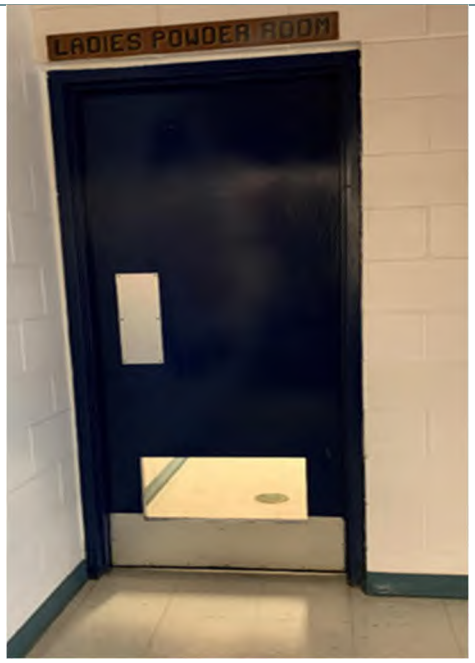

Photo 49 | Curling Rink washroom entrance

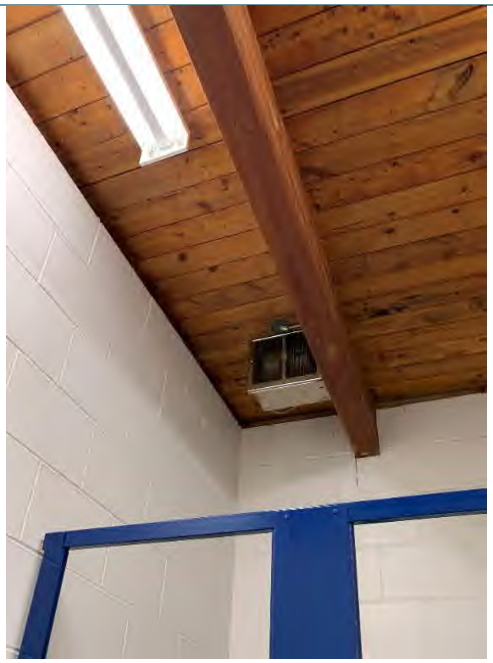

Photo 50 | Curling Rink washroom fan

Photo 51	New electric baseboard heaters

Photo 52	Old electric baseboard heaters

Photo 53	Curling Rink entrance electric heater

Mechanical Ice Plant

Heating for the Ice Rink is provided by ceiling mounted electric unit heaters. The units were not operating during the site visit.

The ice rink has an indirect mechanical cooling plant that contains an R-22 Fleming Pedlar system with two compressors, brine pump and tank and roof top air cooled condenser. The exact age of the system is not known but it is assumed to be over 25 years old. The brine pump was replaced in 2019 and one of the compressors was recently overhauled. The expected service life of the plant equipment is 20 years. The R-22 is currently being phased out in North America and as of 2020 the refrigerant will no longer be in production. Replacements of systems currently using R-22 are not required but the cost and availability of the refrigerant may increase over the coming years. The plant room does not contain a ventilation system.

Photo 54

Photo 55

Photo 56

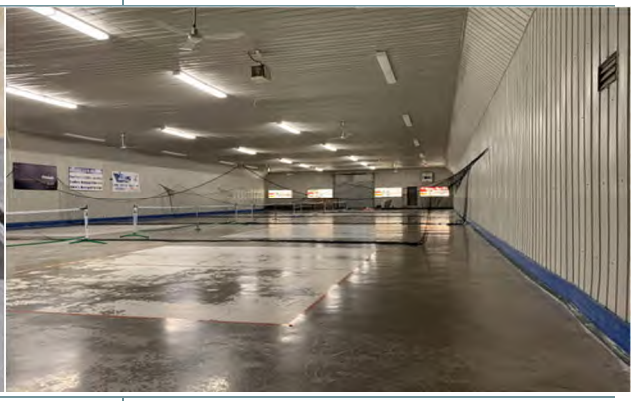

Photo 57

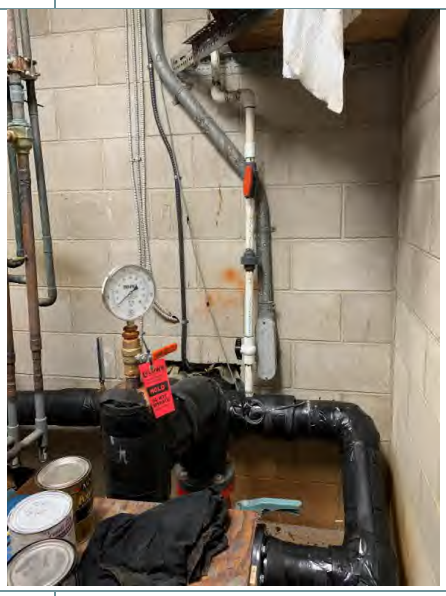

Photo 58

Plumbing Systems

Domestic hot water is provided by a 4.5 kW 184 L GSW electric hot water tank installed in the Service Room downstairs. The unit was installed in 2005 based on its serial number and past its expected service life of 11 years. The plumbing fixtures in the main washrooms are in fair condition with some signs of corrosion. The main sanitary drainage and domestic water piping was concealed by interior finishes. There is storm pipe located in the Mechanical Plant Room that is connected to a roof drain above and in poor condition. The roof over the rink area is provided with gutters and downspouts.

Photo 59 | Curling Rink hot water tank

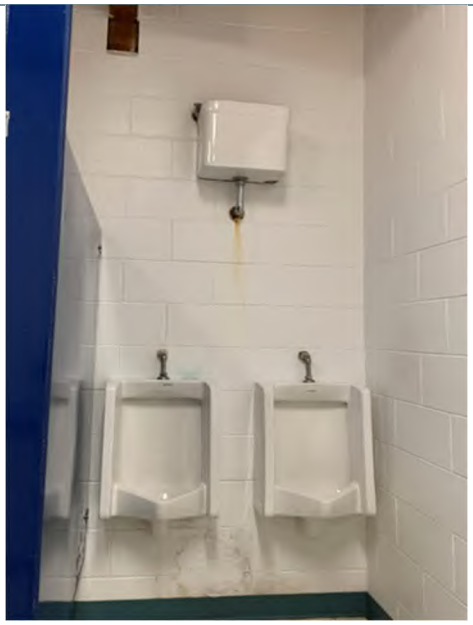

Photo 60 | Main washroom plumbing fixtures

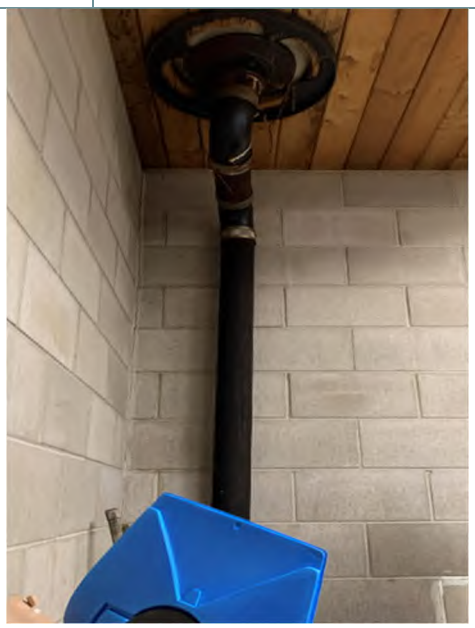

Photo 61 | Mechanical room storm pipe

2.3.3.2 Recommendations

Building HVAC Systems

- Replacement of the washroom exhaust fans. A cost allowance for this replacement has been provided.
- Provide new door grilles on the washrooms. A cost allowance for this replacement has been provided.
- Replacement of electric heating units in entrance, washrooms and downstairs waiting area. A cost allowance for this replacement has been provided.
- Provide minimum ventilation to the public areas of the facility with an ERV with electric heating coil. A cost allowance for this system has been provided.

Mechanical Ice Plant

- The mechanical cooling plant equipment with the exception of the brine pump has reached the end of its service life and replacement should be considered within one to two years once maintenance and service frequency increases or once refrigeration issues arise. A cost estimate for the replacement of the plant equipment has been provided. Continue on-going maintenance/servicing of the equipment until replacement.
- Mechanical ventilation for the plant room should be provided in accordance with B-52 for the quantity of type A-1 refrigerant within the space.

Plumbing Systems

- The hot water tank serving can be expected to be replaced within the next year or when maintenance/servicing frequency increases. A recirculation pump should be included to ensure timely delivery of hot water to fixtures. A cost allowance for this replacement has been provided.
- The plumbing fixtures in the washrooms and service room should be replaced when architectural or structural upgrades are done.

2.3.4 Structural

2.3.4.1 Observations

Structural framing of the Curling Rink is enclosed. Therefore, no observation can be made. No leakage is reported. Cracks are visible in the concrete slab in the rink. No sign of differential settlement of the slab is observed. Cracks in slab are common as long as there is no large differential settlement.

The roof of the Curling Rink was observed from the Arena's roof and from the exterior stairs to the slider. The roof appears to be in a good condition except for the roof over the entrance, where there are signs of water ponding. Typically small water ponding is not a structural concern. The snow weight on the roof is generally higher than the weight from water ponding. However, if the water ponding does not dry off, damage can occur to the roofing material.

Photo 62 **General condition of the Curling Rink**'s roof

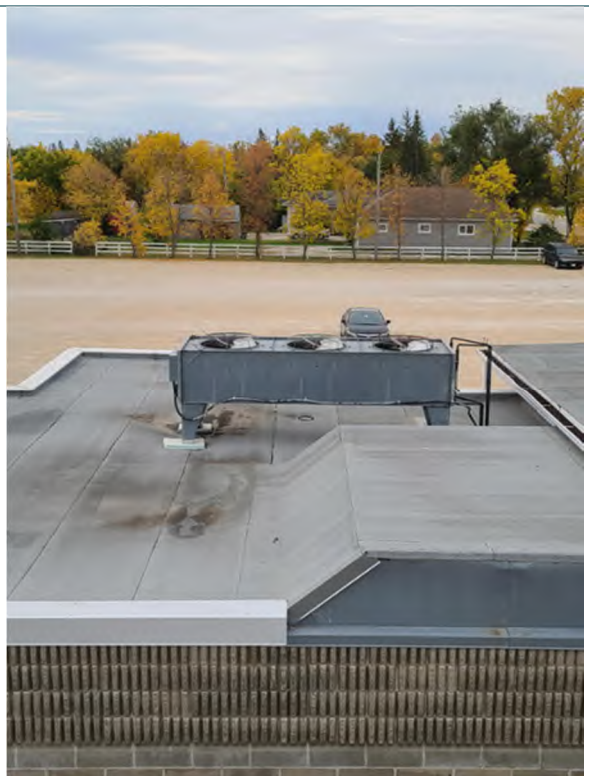

Photo 63 Sign of water ponding on the **fl**at room

2.3.4.2 Recommendations

No recommendations for the structural components. Water ponding on the flat roof should be monitored.

2.4 Arborg Bifrost Community Centre

2.4.1 Architectural

2.4.1.1 Observations

The building appears to be designed for accessibility. There was a small step observed between the concrete apron and the asphalt as well as between the concrete apron and the concrete path. The step at the path was previously repaired but due to the movement of the soil, this repair no longer provides safe access.

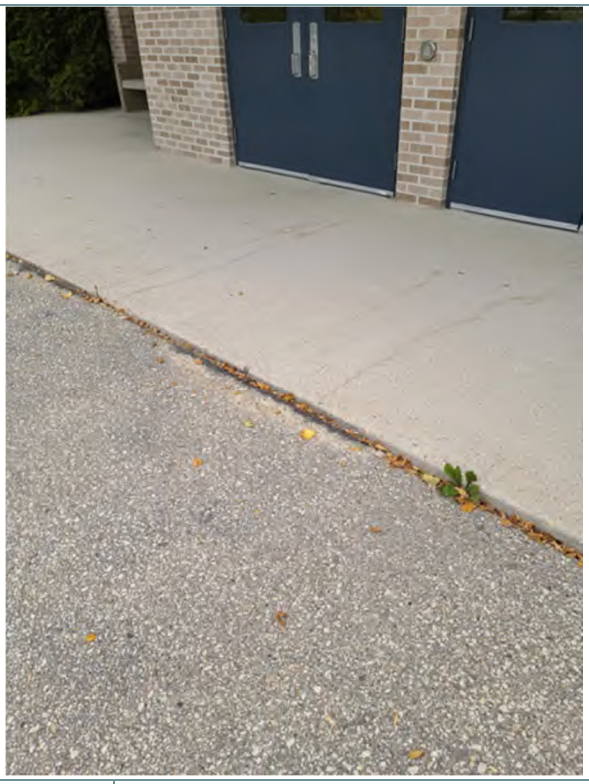

Photo 64 A small step between concrete apron and asphalt

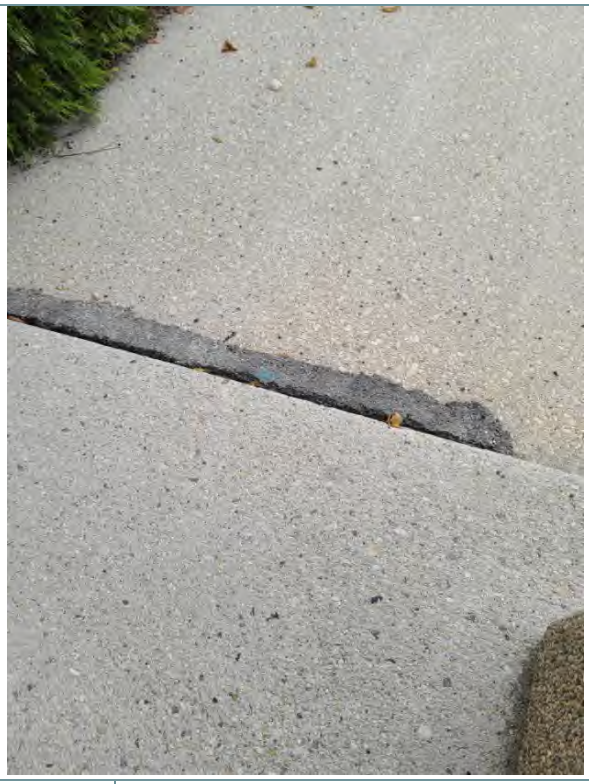

Photo 65 A step at the edge of concrete apron and concrete path

Similar to the Memorial Arena, the exterior wall panels suffer from being hit. However, these dents are not structural concerns and can be repaired if needed. The interior of the building appears to be in a good condition. There was a minor cut in the wall covering observed. No sign or report of any water issues. No reports of drafts at any openings.

Photo 66 Exterior wall panels

Photo 67 Minor cut on the wall

2.4.1.2 Recommendations

As the exterior ground will move annually, it is recommended that repairs be performed annually at the joint between the building's concrete apron and the exterior concrete path and the exterior asphalt pavement using an asphalt infill.

One method to permanently resolve the issue is to provide rigid insulation under the exterior concrete pad or under the exterior asphalt pavement.

2.4.2 Electrical

2.4.2.1 Observations

Electrical Distribution

The existing main disconnect switch, panelboards, Ice Plant and sub disconnect feeder switches are approximately 16 years old and were observed to be in good condition, with no rust, damage or missing circuit breaker filler plates.

With the electrical distribution equipment circuit breakers and disconnect switches being relatively new, consideration should be taken to replace them within 10 to 15 years as they reach the end of their expected life.

The floor mounted dry type transformer should have storage material removed from the vicinity of the enclosure to enable proper air flow through the enclosure vents.

Lighting

- The majority of the interior lighting consist of lay-in two or four lamp fluorescent fixtures;
- The main hall area has ceiling mounted flush four lamp fluorescent light fixtures. It appears that every second light fixture has a different fluorescent lamp color temperature;
- Fluorescent light fixtures in the lobby, hall, associated washrooms and kitchen should be replaced with new LED light fixtures on systematically base on room or area over the next five to six years;
- Existing H.I.D. exterior wall pack lighting should be upgraded to new LED wall packs complete with wire guards over the lenses;
- Estimated cost of change over for a period of six years is $25,000.00; and
- One light fixture at the back of the building has a broken lens and possibly a broken lamp.

Photo 68	A light fixture at the back of the building has a broken lens and possibly broken lamp

2.4.2.2 Recommendations

The following is recommended:

- The existing CDP and panelboards be replaced.
- The hall fluorescent be replaced with dimmable LED.
- The HID wall pack be replaced with LED.

2.4.3 Mechanical

2.4.3.1 Observations

Building HVAC Systems

The building was completed in 2004 and the HVAC units are original to the building. Primary heating, cooling and ventilation for the building is provided by packaged air handling units installed at grade outside of the building. The east side of the building is served by AHU-1, a Lennox Model LGC180S2BH2J. The unit contains a natural gas heating section and DX coil and has a nominal volume of 6,000 CFM. The west side of the building is served by AHU-2, an Engineered Air FWB313/DJ 100/0. This unit also has a natural gas heating section and a DX coil and has a nominal volume of 12,000 CFM. The life expectancy of the air handling units is 15 years.

The building has a commercial kitchen with a hood and exhaust fan. The exhaust fan is operated manually with a wall switch. The exhaust fan, EF-1 is a Loren Cook Model #165 VH7B with a rated capacity of 2,250 CFM. The hood is equipped with a fire suppression system last reviewed in 2020. Make-up air to the kitchen is provided by MUA-1. MUA-1 is Engineered Air Model FWA-62/HE-27-0 makeup air unit with a gas heating section and a rated capacity of 2250 CFM. The life expectancies of the air handling unit and exhaust fan is 15 and 20 years, respectively.

Additional smaller exhaust fans are located in the facility and serve the washrooms, electrical rooms and storage rooms. They were not visible but no operational issues were noted.

Supplemental heat in entrances and washrooms is provided by electric baseboard and forceflow heaters. The units appear to be in good condition but are past their expected service life of 10 to 15 years.

Photo 69 East side HVAC unit

Photo 70 West side HVAC unit

Photo 71	

Photo 72	Kitchen hood and exhaust fan

Photo 73	

Photo 74	Baseboard heater

Plumbing Systems

Hot water for the facility is provided by a natural gas fired domestic hot water tank installed in the service room. The tank is assumed to be original and has an expected service life of 15 years. The plumbing fixtures are assumed to be original to the building and are in good condition. The main sanitary drainage and domestic water piping was concealed by interior finishes. The drainage piping connected where visible was mostly PVC and the domestic water was copper. The piping is expected to last beyond 25 years assuming no external damage occurs. Natural gas piping is located at the facility to serve the air handling equipment and commercial kitchen equipment. The piping is expected to last beyond 25 years assuming no external damage occurs.

Photo 75	Hot water tank

Photo 76	Drainage piping

Photo 77	Plumbing fixtures

2.4.3.2 Recommendations

Building HVAC Systems

- Replacement of the Air Handling units can be expected within one to five years or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided. Continue on-going maintenance/servicing of the equipment until replacement.

- Replacement of the electric heating units can be expected within one to five years or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.

Plumbing Systems

- The hot water tank serving the lobby and kitchen area can be expected to be replaced within the next one to two years or when maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.

2.4.4 Structural

2.4.4.1 Observations

As previously discussed, the building is a pre-engineered steel frame structure on piles with very little openings. The main structure is wrapped in the architectural walls as seen in the photo below. Since the main structure is inaccessible, no assessment could be conducted.

The assessment of the roof was carried out from the Arborg & District Arena roof. Only part of the roof could be seen. Photos are reviewed. In general, the roof looks to be in good condition.

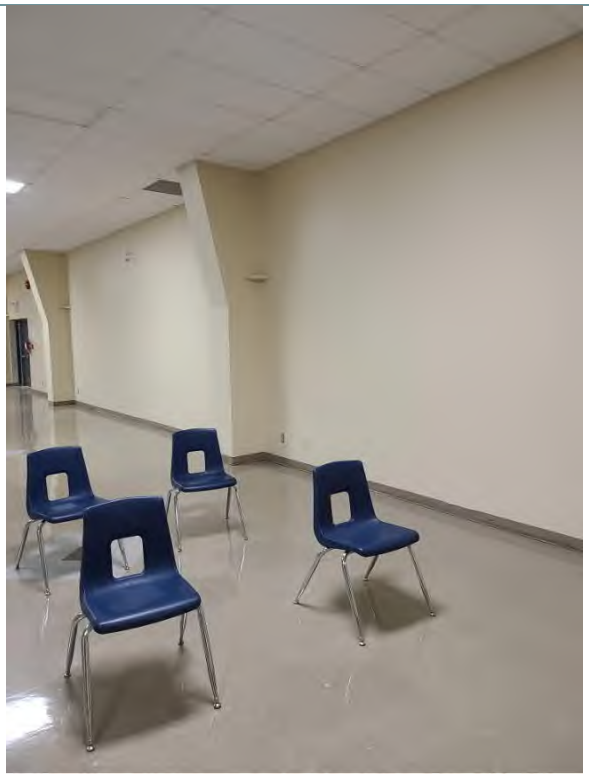

Photo 78 Structural framing behind the wall

Photo 79 Roof of the Community Center

2.4.4.2 Recommendations

There are no recommendations for structural upgrades at this time.

2.5 Baseball Diamonds

2.5.1 Observations

The baseball diamonds are in reasonably good condition. The diamond area and field are moderately well grassed with some bare spots. The pitcher's mound is built up with fine limestone gravel. The home plate and catcher's box area is built up with a type of pea gravel. Backstops are in good condition.

2.5.2 Recommendations

It is recommended that:

- A sprinkler system be installed;
- The three pitchers mounds should be landscaped; and
- The home plate should be landscaped. Gravel to be replaced with sand.

2.6 General Site

2.6.1 Observations

General condition of the site is fair to good. Cracks on the pavement and uneven pavement were observed. No deep pot holes were observed. The ramp to the Arena is in a fair condition. There are some deteriorations on the concrete surface.

2.6.2 Recommendations

It is recommended that the concrete ramp be repaired as soon as possible. This can be done by removing the concrete surface and place topping on top.

3.0 Observations and Recommendations – Municipality of Bifrost-Riverton

3.1 Community Hall and Curling Rink

3.1.1 Architectural

3.1.1.1 Observations

It is observed that the stucco in front of the building is in critical condition. Some has spalled off exposing reinforcement. According to the interview, this is on the repair list by the Province. Along the back of the Community Hall, the board insulation has been pushed up by frost. This causes damage to flashing on top of the insulation. It is not know why there are insulation boards along the north and west of the community hall and not anywhere else. The damaged flashing can cause water entering back into the building from the underside of the wall. The condition of the interior building appears to be in a good condition. This includes the Curling Rink.

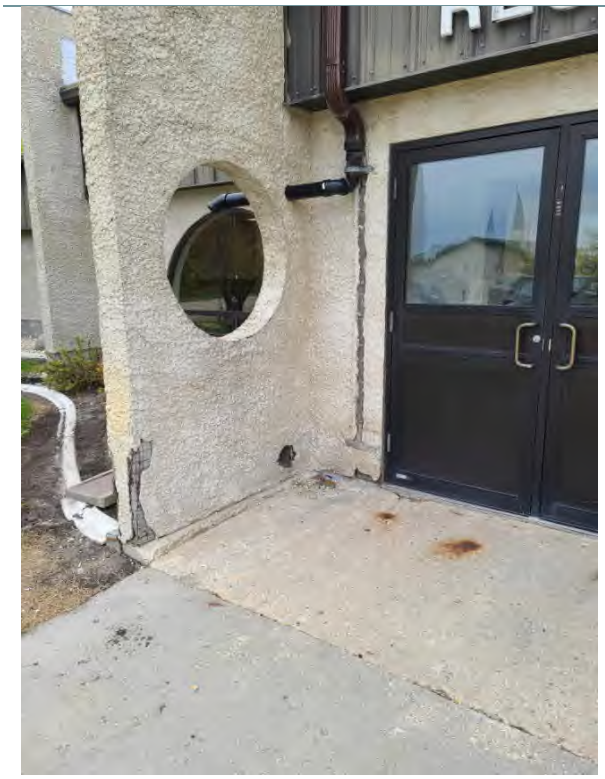

Photo 80 Main entrance of the Community Hall

Photo 81 **Heaving of board insulation pushing up flashing** at the base of the walls

3.1.1.2 Recommendations

It is recommended that the flashing along the north and west of the building be repaired within five years.

3.1.2 Electrical

3.1.2.1 Observations

Electrical Distribution

The electrical distribution was installed 1989 to 1990 with new sub-distribution panels and transformer and panels installed later in the lobby area.

The original distribution system components that are still being used for distribution should be replaced with new CDPs, splitters, panels and disconnect switches as they have reached their expected lifetime limit.

Photo 82 Electrical panelboard

Lighting

The community hall area lighting is lay-in ceiling four lamp fluorescent light fixtures. These should be upgraded to dimmable LED light fixtures for better control of lighting levels in the community hall area. The curling hall lighting is new and operational.

The fire alarm system is new and was being tested at the time of inspection.

The existing bar sinks that are located adjacent to the kitchen in the main hall have standard duplex receptacles located just above the sinks, these should be replaced with GFCI style receptacles.

The kitchen area receptacles should be changed to GFCI type receptacle if they are located within the code required distance from sinks.

The stair lighting to the lounge and viewing area is insufficient.

3.1.2.2 Recommendations

The following recommendations are made:

- The panelboard be replaced;
- The fluorescent lighting to be replaced with LED lights;
- The receptacles to be replaced by GFCI receptacles; and
- Provide better lighting to the stairs.

3.1.3 Mechanical

3.1.3.1 Observations

Community Centre

Building HVAC Systems
Primary heating, cooling and ventilation for the building is provided by two packaged air handling units installed outside of the building on raised piles. The units are manufactured by Carrier and were installed in 2000 (based on unit serial number). Name plate data, including the size and age of the unit, was only accessible on one unit, but they are assumed to be similar in size and installed at the same time. The air handling units are mixed air, constant volume and contain a DX cooling section with R22 refrigerant and a 300 MBH natural gas heating section. Supply air is ducted into the main areas through the ceiling space and returned at lower level. There are filters installed on the return air ductwork inside the building.

The building contained two older floor mounted fan units installed in the storage room in the northwest corner of the building. It is assumed these units are no longer in operation.

Supplemental heating is provided by electric baseboards and force flow heaters. The units are in fair condition and past their expected service life of 10 to 15 years.

Photo 83

Photo 84

Photo 85

Photo 86

Photo 87

Photo 88

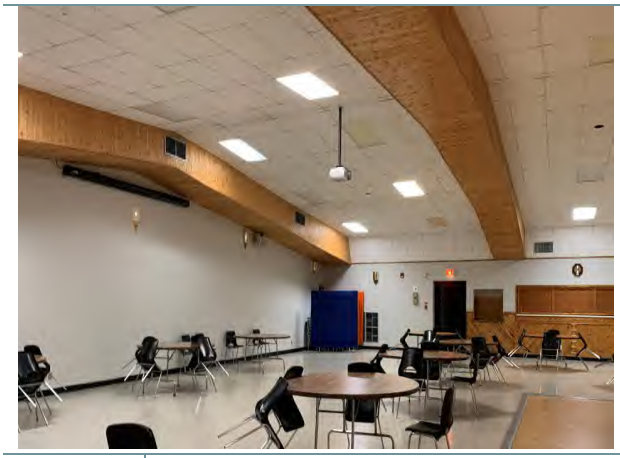

Photo 89

Photo 90

Plumbing Systems

Domestic hot water is provided by Richmond electric hot water tank installed in the service room. The unit was installed in 2014 and has an expected service life of 11 years. The plumbing fixtures in the main washrooms were recently upgraded and are in good condition. The remaining fixtures appear to be older and in fair condition with some corrosion noted. The main sanitary drainage and domestic water piping was concealed by interior finishes.

Photo 91 Hot water tank

Photo 92 Washroom plumbing fixtures

Curling Rink

Building HVAC Systems

The facility contains two separate HVAC systems for the lounge and waiting areas. The downstairs lounge is served by a Broan electric furnace installed in a service room. The name plate data for the unit was accessible but the age of the unit could not be determined. The expected service life of the unit is 13 years. The second floor lounge is served by a heat pump that uses waste heat from the mechanical ice plant during its operation. The heat pump is installed in a service room behind the bar. The unit was not operating during the time of the site visit and the name plate data that was accessible was not

sufficient to determine the unit's age and capacity. The unit uses R-22 and as such is assumed to be at least 12 years old, but is likely older and installed around the same time as the system pumps in the mechanical plant room (2000). The service room contained additional ductwork from the lower level that is likely redundant but could not be verified from a visual inspection of the accessible areas. The expected service life for a water-to air heat pump is 19 years.

The facility contains a commercial kitchen on the main level with a range hood and roof mounted exhaust fan. The welded duct from the hood where visible shows significant signs of corrosion and build up. The fan was not accessible during the site visit but it was noted to be recently replaced. The expected service life of the fan is 20 years.

Supplemental heat is provided by electric force flow and baseboard heaters. The units are in fair condition and have an expected service life of 15 and 10 years.

Photo 93

Photo 94

Photo 95

Photo 96

Photo 97

Mechanical Ice Plant

The ice rink has an indirect mechanical cooling plant that contains two Bitzer reciprocating compressors, Cimco chiller, brine pump and tank and air cooled condenser. The exact age of the system is not known but most of the equipment is assumed to be around 20 years old. The air cooled condenser was installed in 2008. The compressors were overhauled in 2015. The plant uses waste heat to provide space heat to the curling room lounge. Pumps for this system are located in the plant room and were installed in 2000. The expected service life of the plant equipment is 20 years. R-22 is currently being phased out in North America and as of 2020 the refrigerant will no longer be in production. Replacements of systems currently using R-22 are not required but the cost and availability of the refrigerant may increase over the coming years. The plant room does not contain a ventilation system.

Photo 98

Photo 99

Photo 100

Photo 101

Photo 102

Photo 103

Photo 104

Plumbing Systems

Domestic hot water is provided by an electric hot water tank installed in the Service Room. The age of the unit could not be determined and its expected service life is 11 years. The plumbing fixtures in the main washrooms were recently upgraded and are in good condition. The remaining plumbing fixtures are in fair condition with some signs of corrosion. The main sanitary drainage and domestic water piping was concealed by interior finishes.

Photo 105

3.1.3.2 Recommendations

Community Centre

Building HVAC Systems

- Replacement of the air handling units can be expected to be replaced within the next year or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.
- Replacement of the electric heating units can be expected within the next year. A cost allowance for this replacement has been provided.
- Removal of the redundant equipment and ductwork. A cost allowance for this replacement has been provided.

Plumbing Systems

- Continue on-going maintenance of systems. Review options for replacement as end of service life approaches or maintenance frequency increases.

Curling Rink

Building HVAC Systems

- The heat pump serving the Second Floor lounge is likely reaching the end of its expected service life and replacement should be considered once maintenance and service frequency increases or once refrigeration issues arise. The phasing out of R-22 may require replacement earlier than considered otherwise due to supply issues with R-22 and availability of replacement parts. A cost allowance for this replacement has been provided.
- Replacement of kitchen exhaust system. New installation to follow the requirements of NFPA 96 including slopes on ductwork and cleanouts at base of ductwork. A cost allowance for this replacement has been provided.
- Replacement of electric heating units in entrance, washrooms and downstairs waiting area. A cost allowance for this replacement has been provided.

Mechanical Ice Plant

- The mechanical cooling plant equipment with the exception of the condenser is reaching the end of its service life and replacement should be considered within one to five years once maintenance and service frequency increases or once refrigeration issues arise. Continue on-going maintenance/ servicing of the equipment until replacement.
- Mechanical ventilation for the plant room should be provided in accordance with B-52 for the quantity of type A-1 refrigerant within the space.

Plumbing Systems

- The hot water tank serving can be expected to be replaced within the next year or when maintenance/servicing frequency increases. A recirculation pump should be included to ensure timely delivery of hot water to fixtures. A cost allowance for this replacement has been provided.

3.1.4 Structural

3.1.4.1 Observations

The buildings are pre-engineered steel framing. The framing of the Community Hall is covered by the architectural cladding all around. Therefore, the structural components cannot be assessed. The framing of the Curling Rink is exposed and is in a good condition. Based on the interview, there is no sign of water leakage or any concerns.

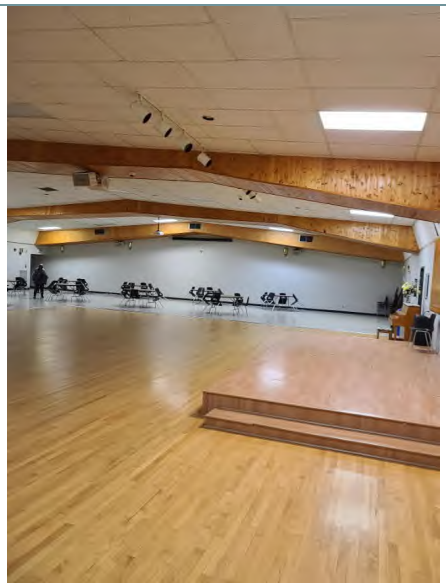		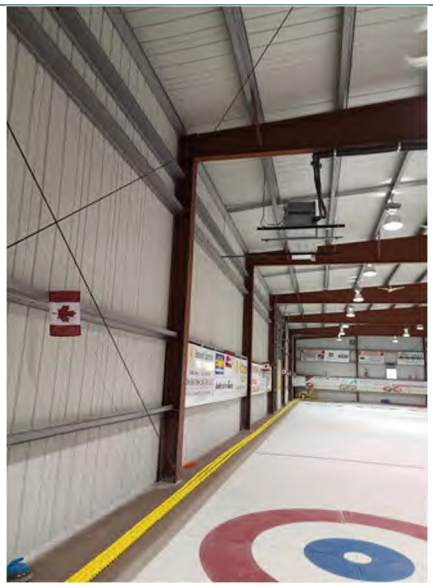	
Photo 106	Structural steel framing in the Community Hall is covered	Photo 107	Structural steel framing of the Curing Rink

3.1.4.2 Recommendations

There are no recommended upgrades for the buildings at this time.

3.1.5 Site

3.1.5.1 Observations

General site condition is good. There are no splash pad provided at the downspout. This causes water ponding where the water drains.

3.1.5.2 Recommendations

It is recommended that splash pads be installed, or extend the downspout to drain at a distance away from the building as soon as possible.

3.2 Memorial Arena

3.2.1 Architectural

3.2.1.1 Observations

The concrete ramp is in a fair condition. Cracks and differential movement can pose a tripping hazard to users. There are a few locations where the concrete stair nose broke off. This can also pose a hazard to the users. A couple spots of damage were observed on the exterior wall. The damage exposed rigid insulation core. These damages are not of concern to the integrity of the panel as they are not big areas.

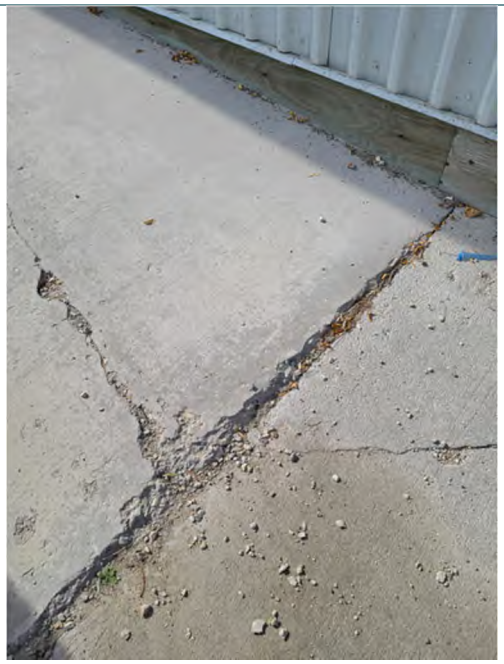

Photo 108	Ramp to the Arena

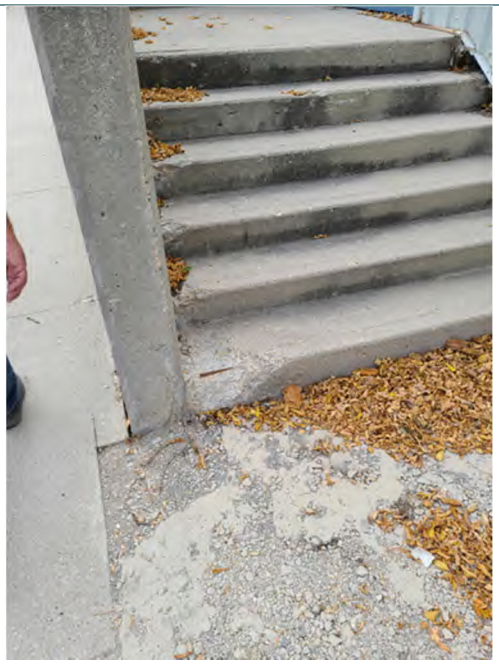

Photo 109	Damaged stair nosing

Photo 110	Damage to insulated panel

The general condition of the interior is fair to good. The Arena is uninsulated and there are gaps under the exterior walls. According to the interview, there will be snow piling against the wall during winter which helps prevent cold draft entering into the Arena. It should be noted that this is generally acceptable. However, regular monitoring should be made to prevent water penetrating into the building. It is understood that the water penetrating into the building had occurred in the past causing the main structural frame to rot. At these locations, new steel shoes were installed as seen in the photo.

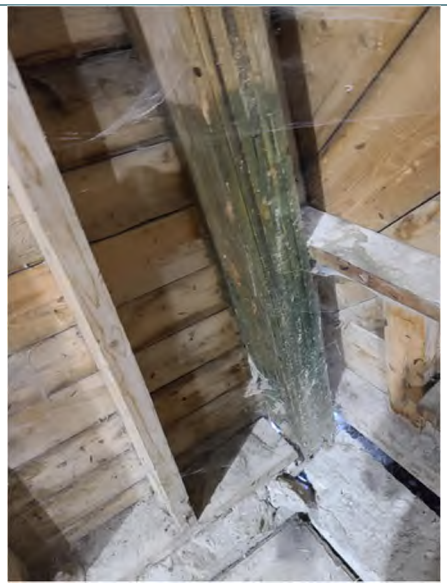			
Photo 111	Gaps underside of the exterior wall allowing air flowing into the building	Photo 112	New shoes to the structural frame

3.2.1.2 Recommendations

It is recommended that:

- The surface of the concrete ramp be repaired as soon as possible;
- Patch concrete stair noses as soon as possible; and
- Provide regular monitoring of the structural frame legs.

3.2.2 Electrical

3.2.2.1 Observations

The original rink structure was built in the 1950s and the lobby at the front of the arena was added in the 1980s.Most of the original electrical system was replaced in the 1980s with some equipment such as controls and the fire alarm were upgraded quite recently. The arena high bay lighting was replaced with new LED light fixtures last year (2019).

Electrical Distribution

The original distribution was replaced with new equipment in the 1980s for the new lobby and arena ice plant. Since then, upgrades have been made electrically in certain areas but there is still equipment from the 1980s still in use such as panelboards, disconnect switches and splitter boxes which have been operational. They are exceeding the expected life span of the equipment.

The ice making facility's electrical distribution has reached its' expected life span and should be replaced.

Ice Plant

The ice plant distribution has reached its expected life cycle and should be replaced with new equipment.

Photo 113 **Ice plant electrical distribution**

Lighting

The lobby has mostly fluorescent light fixtures installed, which are fairly new as they appear to be of a modern style. The Arena ice lighting was installed last year. Service rooms and washrooms also have modern fluorescent lighting installed.

Life Safety

The fire alarm system installed appears to be new with strobe/buzzer alarm heat detectors that are located throughout the lobby area and associated service rooms.

3.2.2.2 Recommendations

The following are recommended:

- Replace panelboard;
- Replace fluorescent light with LED light; and
- Replace ice making electrical equipment.

3.2.3 Mechanical

3.2.3.1 Observations

Building HVAC Systems

The lobby area of the arena is approximately 30 years old and the ice house and plant room are older, but the exact age is unknown. Generally the mechanical equipment (HVAC and plumbing) appear to be original with some noted upgrades. There were no operational issues noted from the Building Operator.

There is no dedicated exhaust or supply for the dressing rooms and washroom. Grilles are provided above the doors to allow passive airflow and the rooms are provided with electric heaters. The units are in poor condition and well beyond their expected service life of 15 years.

The lobby area contains a commercial kitchen with a hood and roof mounted exhaust fan. The exhaust fan is operated manually with a wall switch. Ventilation and heating for the main lobby area is provided by a 2,000 CFM makeup air unit that includes an electric duct heater. The unit is a BMA Model 3MAE with a rated capacity of 2,000 CFM. The unit was not operating at the time of the site visit and it is assumed that it original to the lobby area. It is well beyond its expected service life of 15 years.

Photo 114

Photo 115

Photo 116

Mechanical Ice Plant

The arena has a 49.5 ton indirect mechanical cooling plant that contains two Cimco Mycom ammonia compressors, chiller, brine pump, brine tank, air-cooled condenser, and supporting electrical and controls equipment. The exact age of the plant is not known but assumed to be over 30 years. The plant is maintained annually and recent upgrades in 2019 include a new air cooled condenser and updated DDC controls. The rink piping was not visible during the site review but no concerns or leaks were noted. The header piping is getting brittle and will require repairs/replacements within the next five years. The gas detection system does not work and the plant room does not have a ventilation system. The mechanical cooling plant is well beyond its expected service life of 25 years.

Photo 117

Photo 118

Photo 119

Photo 120

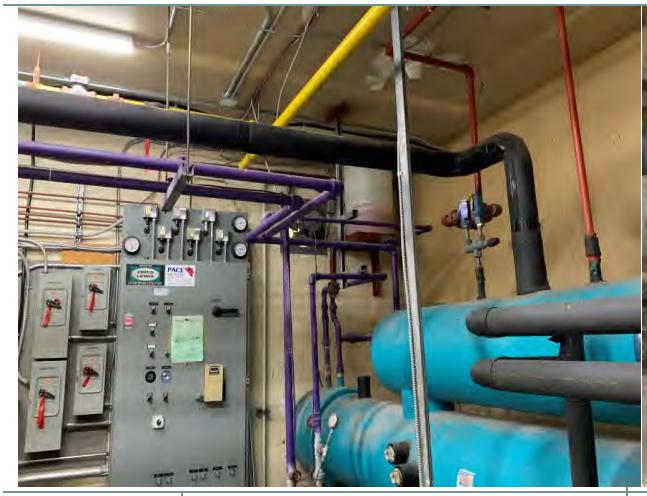

Photo 121

Photo 122

Photo 123

Photo 124

Heating for the benches in the Ice House is provided by a small electric boiler. The system includes a small circ pump, expansion tank and associated piping. The system was installed in the last couple of years and is in good condition. The life expectancy of this system is 15 years.

Plumbing Systems

The building contained a number domestic hot water tanks. A 270 L Rheem electric hot water tank is installed in the janitor's room and is assumed to provide hot water to the lobby kitchen area. Based on the serial number, the tank was installed around 2006 and is past its expected service life of 11 years. Two hot water tanks were installed in a separate room next to the mechanical ice plant. Access to the tanks was not possible so the exact age and size of the domestic hot water tanks could not be

determined, but it is assumed they were replaced within the last five years. It is assumed that these tanks provide hot water to the dressing rooms.

Plumbing fixtures are generally in poor condition. The main sanitary drainage and domestic water piping was concealed by interior finishes. Piping where visible is in fair condition with some corrosion noted.

Photo 125

Photo 126

Photo 127

Photo 128

Two natural gas fired AO Smith hot water tanks are installed in the Maintenance Room. These tanks provide hot water for the rink flooding and maintenance and were recently installed. The system is equipped with a recirculation pump and expansion tank.

Photo 130

Photo 131

3.2.3.2 Recommendations

Building HVAC Systems

- Replacement of dressing room air handling unit can be expected within the next year or once maintenance/servicing frequency increases. A cost allowance for this replacement has been provided;
- Provide dedicated exhaust for the washrooms within the dressing rooms. A cost allowance for this replacement has been provided; and
- Replacement of the electric heating units throughout the lobby area and dressing rooms. A cost allowance for this replacement has been provided.

Mechanical Ice Plant

- A ventilation system complete with gas detection should be installed in the plant room within the next year; and
- The mechanical cooling plant equipment has reached the end of its service life and replacement should be considered. A cost estimate for the replacement of the plant equipment has been provided. The cost estimate does not include replacement of recently upgraded components (condenser and controls) or repairs to the rink piping. Continue on-going maintenance/servicing of the equipment until replacement.

Plumbing Systems

- The hot water tank serving the Lobby Area can be expected to be replaced within the next year or when maintenance/servicing frequency increases. A cost allowance for this replacement has been provided.
- A recirculation pump should be provided to the domestic water system serving the Dressing Rooms to ensure sufficient hot water delivery and align with current codes and standards. This can be done when architectural or major plumbing upgrades are done.
- The plumbing fixtures in the Dressing Rooms should be replaced when architectural upgrades are done.

3.2.4 Structural

3.2.4.1 Observations

The general condition of the structural components are fair to good. There are several locations where concrete grade beams and pilasters have spalled off. The grade beams are designed to provide a connection between the pilasters, receiving the dead load of the walls and contain the interior slab. The pilasters are the supports for the superstructure framing and are designed to transfer the loading from the framing to the foundation.

Photo 132 **General condition of the structural framing of the Arena**

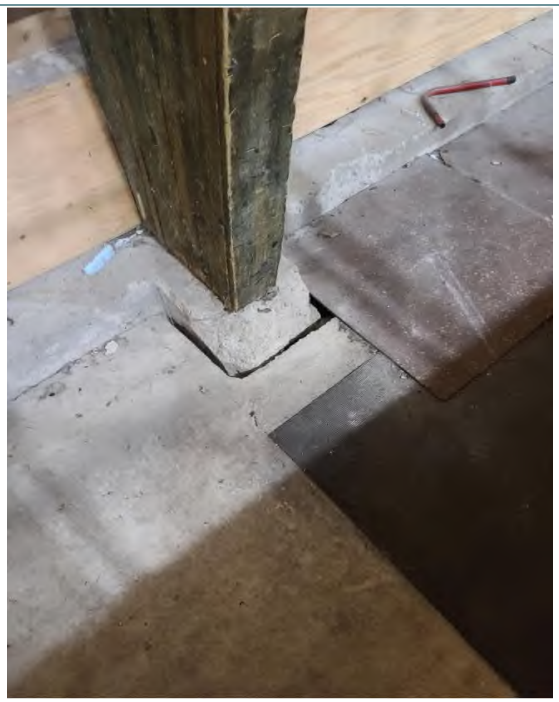

Photo 133 Damages of the concrete grade beam and the pilaster

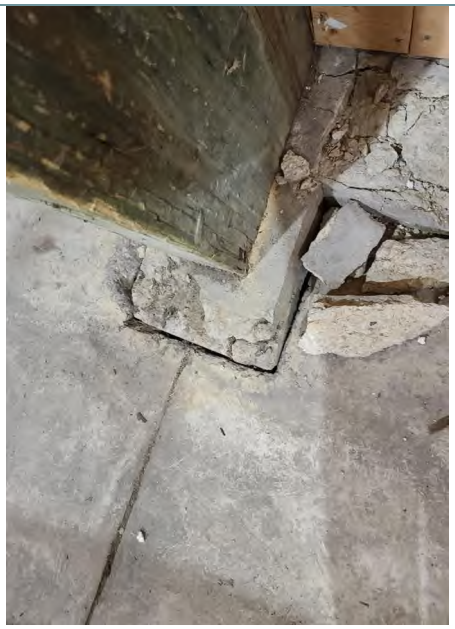			
Photo 134	Spalling of the concrete grade beam and pilaster	Photo 135	Spalling of the concrete pilaster

The photo below shows a steel plate embedded into the concrete pilaster which is designed to transfer the kick out force from the wood framing to the foundation. This steel plate is fastened to behind the wood frame. However, at the new steel shoe locations, the shoe was placed in front of the steel plate without connection to the shoe. With time, the frame starts to move out from kick out force causing the plate to bend outward.

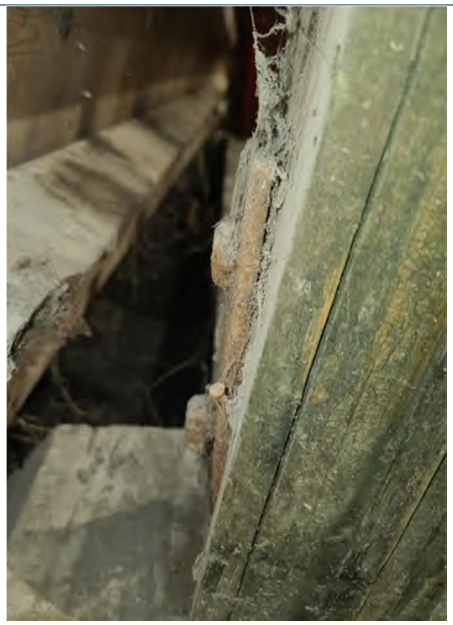		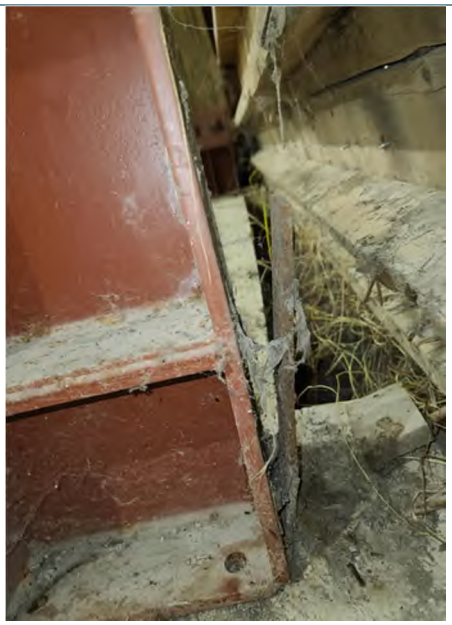	
Photo 136	A steel plate behind wood framing column	Photo 137	Steel plate behind the steel shoe

3.2.4.2 Recommendations

It is recommended that:

- The concrete grade beams and pilasters be repaired as soon as possible. The repair procedure includes removing the deteriorating concrete, shaping the surface to provide straight faces with no edge feathering, scarifying the concrete surfaces to provide better bonding to the new concrete, saturating the surface, applying bonding agent and placing new concrete.
- Anchor bolts should be provided to steel shoes as soon as possible. Note that there are already existing holes in the base plate of the steel shoes. The anchor bolts should be at minimum 350 mm long and be drilled and inserted into the concrete pilaster using Hilti Hit HY 200 adhesive. The embedment of the anchor bolts to the pilaster should be at a minimum of 250 mm. At a minimum, four anchor bolts should be provided for each shoe.

3.3 Site

3.3.1 Observations

It was observed that the grading on the west of the arena slopes towards the building. The grading on the south-west side of the building could not be observed as it was covered with vegetation at the time of the inspection. According to the interview, a swale was installed along the north of the building. The site observation showed that this swale, as seen in the in the photo below, does not connect to the location where the grade slopes down away from the building.

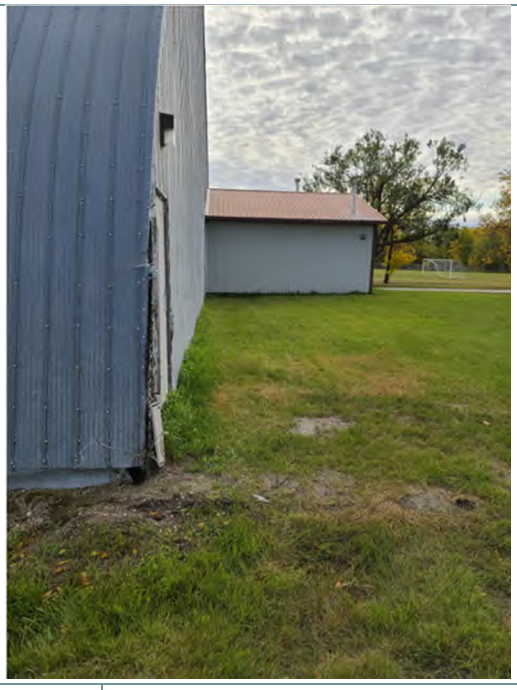

Photo 138	Grading along the west of the building (rear of the building)

3.3.1.1 Recommendations

It is recommended that the grading behind the Arena be corrected as soon as possible. This can be done by providing a swale along the building wall and connect this to the lower point in the back of the building. As well, if the grade along the south side is higher than the building base, it is also recommended that a swale be provided to drain the water to the low point away from the building to prevent water entering into the building.

4.0 Summary of Recommendations and Cost Estimates

Table 2: Town of Arborg Cost Estimate, Sorted by System

Building		Recommended Time Frame	Cost Estimate
1.0 – Arborg & District Arena			
Architectural			
	Repair thresholds, door trims, door sweep	0-1 year	$1,000.00
	Repair/replace wood walkway	0-1 year	$750.00
	Repair concrete ramp	1-2 years	$3,000.00
Electrical			
	Replace CDP Room No 3	10 years	$120,000.00
	Replace CDP and Panels Room 1 and 2	1-5 years	$150,000.00
	Seal conduits and cable transits through wall	0-1 year	$500.00
	Locker room emergency lighting	0-1 year	$2,000.00
	Electrical room 1 and 2 emergency lighting	0-1 year	$1,500.00
	Exterior lighting replacement	2-5 years	$4,000.00
	Ice plant emergency lighting	0-1 year	$1,200.00
	Lobby and service room LED lighting	2-5 years	$10,000.00
Mechanical			
	Replacement of Field House Air Handling Unit	0-2 years	$9,600.00
	Replacement of Field House Exhaust Fans (2)	0-2 years	$2,700.00
	Replacement of Field House Electric Heating Units	0-2 years	$2,300.00
	Replacement of Lobby Air Handling Unit (AH-1)	0-2 years	$11,100.00
	Replacement of Kitchen Makeup Air Unit (AH-2)	0-2 years	$9,400.00
	Replacement of Kitchen Exhaust Fan (F-1)	0-2 years	$2,000.00
	Replacement of Lobby Electric Heating Units	0-2 years	$2,000.00
	Replacement of Plant Equipment (includes controls, electrical)	0-2 years	$465,000.00
	Replacement of Field House Hot Water Tanks (2), Recirculation Pump	0-2 years	$10,000.00
	Replacement of Lobby Hot Water Tank	0-2 years	$3,600.00
	Minor Repairs/Replacements to Piping and Insulation	0-2 years	$5,000.00
Structural			
	Inspect roof	0-1 year	$2,500.00
2.0 – Noventis Aquatic Centre			
Electrical			
	Wire guards for existing fluorescent trougher lighting	1 year	$300.00
	Inspection for corrosion	1 year	$1,000.00
Structural			
	Install two missing bolts to the slider	0-1 year	$20.00
3.0 – Arborg Curling Rink			
Architectural			
	Replace fascia cover	0-1 year	$500.00
	Grout masonry joint	2-5 years	$750.00

Building		Recommended Time Frame	Cost Estimate
	Clean rust off exterior panels and paint	2-5 years	$1,000.00
	Repair gutter	0-1 year	$1,000.00
	Install splash pad or extend downspout to drain away from building	0-1 year	$1,500.00
	Patch and paint men's washroom wall	2-5 years	$750.00
	Secure ceiling tiles	0-1 year	$1,250.00
Electrical			
	Replace panelboard	2-5 years	$15,000.00
	Replace HID wall pack with LED	2-5 years	$2,500.00
	Repair/replace damaged baseboards	0-1 year	$1,000.00
	Install additional lobby heat detectors	1-2 years	$1,500.00
Mechanical			
	Replacement of Washroom Exhaust Fans (2)	0-2 years	$2,700.00
	Install new door grilles on washroom doors	0-1 year	$500.00
	Replacement of Electric Heating Units	0-2 years	$2,300.00
	New ERV c/w Electric Heating Coil	0-2 years	$8,800.00
	Replacement of Plant Equipment (includes controls, electrical)	0-5 years	$175,000.00
	Ventilation for Plant Room	0-2 years	$4,100.00
	Replacement of Hot Water Tank c/w recirculation pump	0-2 years	$6,000.00
4.0 – Arborg Bifrost Community Centre			
Architectural			
	Repair exterior grade difference	Annually	$1,250.00
Electrical			
	Replace existing CDP and panelboard	5-10 years	$50,000.00
	Replace hall fluorescent with dimmable LED	2-5 years	$15,000.00
	Replace HID wall pack with LED	2-5 years	$2,500.00
Mechanical			
	Replacement of Air Handling Unit AHU-1	0-5 years	$24,000.00
	Replacement of Air Handling Unit AHU-2	0-5 years	$52,900.00
	Replacement of Air Handling Unit MUA-1	0-5 years	$24,000.00
	Replacement of Lobby Electric Heating Units	0-5 years	$1,800.00
	Replacement of Hot Water Tank c/w recirculation pump	0-2 years	$7,200.00
5.0 – Baseball Diamonds			
Architectural			
	Landscape pitcher's mound	1-2 years	$1,500.00
	Landscape home plate	1-2 years	$3,000.00
Mechanical			
	Install a sprinkler system	1-5 years	$15,000.00
6.0 – Riverton Community Hall and Curling Rink			
Architectural			
	Repair flashing along the north and west of the building	1-5 years	$3,000.00
	Provide splash pads	1-2 years	$1,000.00
Electrical			
	Replace panelboard	3-5 years	$12,000.00
	Replace fluorescent light with LED	3-5 years	$15,000.00

Building		Recommended Time Frame	Cost Estimate
	Replace receptacles with GFCI type receptacles	1-2 years	$500.00
	Improve stair lighting	1-2 years	$3,000.00
Mechanical			
	Replacement of Air Handling Unit AHU-1	0-5 years	$38,500.00
	Replacement of Air Handling Unit AHU-2	0-5 years	$38,500.00
	Replacement of Lobby Electric Heating Units	0-5 years	$1,800.00
	Removal of Redundant HVAC Equipment	0-2 years	$1,100.00
	Replacement of Lounge Heat Pump Unit	0-2 years	$5,500.00
	Replacement of Electric Heating Units	0-2 years	$1,800.00
	Replacement of Kitchen Exhaust Ductwork	Immediate	$7,200.00
	Replacement of Plant Equipment (includes controls, electrical)	0-5 years	$175,000.00
	Ventilation for Plant Room	0-2 years	$4,100.00
	Replacement of Hot Water Tank c/w recirculation pump	0-2 years	$3,600.00
7.0 – Memorial Arena			
Architectural			
	Repair concrete ramp surface	0-1 year	$3,000.00
	Repair concrete stairs	0-1 year	$1,500.00
Electrical			
	Replace panelboard	1-3 years	$12,000.00
	Replace fluorescent lighting to LED	5-10 years	$10,000.00
	Replace ice making electrical equipment	1-5 years	$35,000.00
Mechanical			
	Replacement of Field House Air Handling Unit	0-2 years	$9,600.00
	New exhaust fans for the Dressing Rooms/Washrooms	0-2 years	$4,000.00
	Replacement of Lobby Electric Heating Units	0-2 years	$1,800.00
	Replacement of Plant Equipment including controls and electrical (does not include condensing unit)	0-5 years	$480,000.00
	Ventilation System Installation for Mechanical Plant Room	Immediate	$18,000.00
	Replacement of Lobby Hot Water Tank	0-2 years	$3,600.00
Structural			
	Repair concrete grade beams/pilaster	0-1 year	$5,000.00
	Install anchor bolts	0-1 year	$2,500.00
Site			
	Improve grading/provide swales	1-2 years	$15,000.00

Notes:

For mechanical equipment, the upgrade/replace can be performed when the existing no longer functions.

Table 3: Town of Arborg Cost Estimate, Sorted by Recommended Time Frame

Buildings	Recommended Time Frame	Cost Estimates
1.0 – Arborg & District Arena		
Recommended Work Activities to be Completed within 1 Year		
Repair thresholds, door trims, door sweep	0-1 year	$1,000.00
Repair/replace wood walkway	0-1 year	$750.00
Seal conduits and cable transits through wall	0-1 year	$500.00
Locker room emergency lighting	0-1 year	$2,000.00
Electrical room 1 and 2 emergency lighting	0-1 year	$1,500.00
Ice plant emergency lighting	0-1 year	$1,200.00
Inspect roof	0-1 year	$2,500.00
	Total	$9,450.00
Recommended Work Activities to be Completed within 2 Years		
Repair concrete ramp	1-2 years	$3,000.00
Replacement of Field House Air Handling Unit	0-2 years	$9,600.00
Replacement of Field House Exhaust Fans (2)	0-2 years	$2,700.00
Replacement of Field House Electric Heating Units	0-2 years	$2,300.00
Replacement of Lobby Air Handling Unit (AH-1)	0-2 years	$11,100.00
Replacement of Kitchen Makeup Air Unit (AH-2)	0-2 years	$9,400.00
Replacement of Kitchen Exhaust Fan (F-1)	0-2 years	$2,000.00
Replacement of Lobby Electric Heating Units	0-2 years	$2,000.00
Replacement of Plant Equipment (includes controls, electrical)	0-2 years	$465,000.00
Replacement of Field House Hot Water Tanks (2), Recirculation Pump	0-2 years	$10,000.00
Replacement of Lobby Hot Water Tank	0-2 years	$3,600.00
Minor Repairs/Replacements to Piping and Insulation	0-2 years	$5,000.00
	Total	$525,700.00
Recommended Work Activities to be Completed within 5 Years		
Replace CDP and Panels Room 1 and 2	1-5 years	$150,000.00
Exterior lighting replacement	2-5 years	$4,000.00
Lobby and service room LED lighting	2-5 years	$10,000.00
	Total	$164,000.00
Recommended Work Activities to be Completed within 10 Years		
Replace CDP Room No 3	10 years	$120,000.00
	Total	$120,000.00
2.0 – Noventis Aquatic Centre		
Recommended Work Activities to be Completed within 1 Year		
Install two missing bolts to the slider	0-1 year	$20.00
Wire guards for existing fluorescent trougher lighting	1 year	$300.00
Inspection for corrosion	1 year	$1,000.00
	Total	$1,320.00
3.0 – Arborg Curling Rink		
Recommended Work Activities to be Completed within 1 Year		
Replace fascia cover	0-1 year	$500.00
Repair gutter	0-1 year	$1,000.00
Install splash pad or extend downspout to drain away from building	0-1 year	$1,500.00
Secure ceiling tiles	0-1 year	$1,250.00
Repair/replace damaged baseboards	0-1 year	$1,000.00
Install new door grilles on washroom doors	0-1 year	$500.00
	Total	$5,750.00
Recommended Work Activities to be Completed within 2 Years		
Replacement of Washroom Exhaust Fans (2)	0-2 years	$2,700.00

Buildings		Recommended Time Frame	Cost Estimates
	Replacement of Electric Heating Units	0-2 years	$2,300.00
	New ERV c/w Electric Heating Coil	0-2 years	$8,800.00
	Ventilation for Plant Room	0-2 years	$4,100.00
	Replacement of Hot Water Tank c/w recirculation pump	0-2 years	$6,000.00
	Install additional lobby heat detectors	1-2 years	$1,500.00
		Total	$25,400.00
Recommended Work Activities to be Completed within 5 Years			
	Replacement of Plant Equipment (includes controls, electrical)	0-5 years	$175,000.00
	Grout masonry joint	2-5 years	$750.00
	Clean rust off exterior panels and paint	2-5 years	$1,000.00
	Patch and paint men's washroom wall	2-5 years	$750.00
	Replace panelboard	2-5 years	$15,000.00
	Replace HID wall pack with LED	2-5 years	$2,500.00
		Total	$195,000.00
4.0 – Arborg Bifrost Community Centre			
Recommended Work Activities to be Completed Annually			
	Repair exterior grade difference	Annually	$1,250.00
		Total	$1,250.00
Recommended Work Activities to be Completed within 2 Years			
	Replacement of Hot Water Tank c/w recirculation pump	0-2 years	$7,200.00
		Total	$7,200.00
Recommended Work Activities to be Completed within 5 Years			
	Replacement of Air Handling Unit AHU-1	0-5 years	$24,000.00
	Replacement of Air Handling Unit AHU-2	0-5 years	$52,900.00
	Replacement of Air Handling Unit MUA-1	0-5 years	$24,000.00
	Replacement of Lobby Electric Heating Units	0-5 years	$1,800.00
	Replace hall fluorescent with dimmable LED	2-5 years	$15,000.00
	Replace HID wall pack with LED	2-5 years	$2,500.00
		Total	$120,200.00
Recommended Work Activities to be Completed within 10 Years			
	Replace existing CDP and panelboard	5-10 years	$50,000.00
		Total	$50,000.00
5.0 – Baseball Diamonds			
Recommended Work Activities to be Completed within 2 Years			
	Landscape pitcher's mound	1-2 years	$1,500.00
	Landscape home plate	1-2 years	$3,000.00
		Total	$4,500.00
Recommended Work Activities to be Completed within 5 Years			
	Install a sprinkler system	1-5 years	$15,000.00
		Total	$15,000.00
6.0 – Riverton Community Hall and Curling Rink			
Recommended Work Activities to be Completed Immediately			
	Replacement of Kitchen Exhaust Ductwork	Immediate	$7,200.00
		Total	$7,200.00
Recommended Work Activities to be Completed within 2 Years			
	Removal of Redundant HVAC Equipment	0-2 years	$1,100.00
	Replacement of Lounge Heat Pump Unit	0-2 years	$5,500.00
	Replacement of Electric Heating Units	0-2 years	$1,800.00
	Ventilation for Plant Room	0-2 years	$4,100.00
	Replacement of Hot Water Tank c/w recirculation pump	0-2 years	$3,600.00

Buildings		Recommended Time Frame	Cost Estimates
	Replace receptacles with GFCI type receptacles	1-2 years	$500.00
	Improve stair lighting	1-2 years	$3,000.00
	Provide splash pads	1-2 years	$1,000.00
		Total	$20,600.00
Recommended Work Activities to be Completed within 5 Years			
	Replacement of Air Handling Unit AHU-1	0-5 years	$38,500.00
	Replacement of Air Handling Unit AHU-2	0-5 years	$38,500.00
	Replacement of Lobby Electric Heating Units	0-5 years	$1,800.00
	Replacement of Plant Equipment (includes controls, electrical)	0-5 years	$175,000.00
	Repair flashing along the north and west of the building	1-5 years	$3,000.00
	Replace panelboard	3-5 years	$12,000.00
	Replace fluorescent light with LED	3-5 years	$15,000.00
		Total	$283,800.00
7.0 – Memorial Arena			
Recommended Work Activities to be Completed Immediately			
	Ventilation System Installation for Mechanical Plant Room	Immediate	$18,000.00
		Total	$18,000.00
Recommended Work Activities to be Completed within 1 Year			
	Repair concrete ramp surface	0-1 year	$3,000.00
	Repair concrete stairs	0-1 year	$1,500.00
	Repair concrete grade beams/pilaster	0-1 year	$5,000.00
	Install anchor bolts	0-1 year	$2,500.00
		Total	$12,000.00
Recommended Work Activities to be Completed within 2 Years			
	Replacement of Field House Air Handling Unit	0-2 years	$9,600.00
	New exhaust fans for the Dressing Rooms/Washrooms	0-2 years	$4,000.00
	Replacement of Lobby Electric Heating Units	0-2 years	$1,800.00
	Replacement of Lobby Hot Water Tank	0-2 years	$3,600.00
	Improve grading/provide swales	1-2 years	$15,000.00
		Total	$34,000.00
Recommended Work Activities to be Completed within 5 Years			
	Replacement of Plant Equipment including controls and electrical (does not include condensing unit)	0-5 years	$480,000.00
	Replace panelboard	1-3 years	$12,000.00
	Replace ice making electrical equipment	1-5 years	$35,000.00
		Total	$527,000.00
Recommended Work Activities to be Completed within 10 Years			
	Replace fluorescent lighting to LED	5-10 years	$10,000.00
		Total	$10,000.00

Notes:

For mechanical equipment, the upgrade/replace can be performed when the existing no longer functions.

5.0 Closure

The report was prepared by Dillon for the sole benefit of the Town of Arborg and the Municipality of Bifrost-Riverton. The material in it reflects Dillon's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decision made or actions based on this report.

We trust that this report is sufficient for your requirements at this time; however, please do not hesitate to contact us for any questions or clarifications regarding this report.

Respectfully submitted,

DILLON CONSULTING LIMITED

DRAFT

Dwight Klassen, P.Eng.
Associate, Structural Engineer