

TYPE II CONDITION AUDIT REPORT
EGANVILLE AND DISTRICT COMMUNITY ARENA / HALL
178 JANE STREET
EGANVILLE

September 2013

Prepared for:

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EGANVILLE AND DISTRICT COMMUNITY ARENA / HALL
178 JANE STREET, EGANVILLE

EXECUTIVE SUMMARY

J.L. Richards & Associates Limited (JLR) was retained by Mr. Bryan Martin, Chief Administrative Officer for the Township of Bonnechere Valley, to provide a report on the condition of the Eganville and District Community Arena / Hall, located at 178 Jane Street, Eganville, Ontario, including an assessment of all major building elements and associated probable capital expenditures to replace obsolete or failing building systems over the next 20 years. As well, the Condition Audit Report identifies code compliance deficiencies that came to light during our cursory visual review of the building systems.

Based on site observations, the following is concluded:

- Immediate work which must be performed to meet Ontario Fire Code Review and Township Fire Prevention Inspection of approximately \$150,000.
- Over the next two years expenditures of approximately \$657,750 can be expected to replace older systems of the facility.
- Over the next three to five years expenditures of approximately \$797,050 can be expected to replace older systems of the facility.
- Over the next twenty years total expenditures of \$2,221,650, to replace obsolete or failing systems, can be expected.

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It should be noted for costing that, if the service life of a certain item is estimated over an identified time period, replacement costs for that item are identified at the earliest estimated replacement date.

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In any repair, alteration, maintenance, renovation, etc., to this facility, the Occupational Health and Safety Act requires that a Designated Substance Survey be performed to identify any potentially hazardous materials. If it has not already been performed, this report should be undertaken immediately to protect employees, contractors and the general public.

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178 JANE STREET, EGANVILLE

1.0 GENERAL

1.1 Purpose of this Study

The purpose of this study is to provide the Township of Bonnechere Valley with a comprehensive understanding of the condition of the Eganville and District Community Arena and Hall. In general, the study is an assessment of the condition of the various building elements and recommended actions required to maintain the asset in operating condition during the next twenty years. As such, the study provides information and assessments of remaining service life and probable capital expenditures to replace obsolete or failing systems. This report also addresses any code compliance deficiencies that come to light during the review of the building systems.

1.2 Information Provided by the Client

The Client provided a one page history of the facility for our review. There were no drawings available for the arena facility. The Client did provide architectural, mechanical and electrical drawings for renovations to the new Community Hall. No structural drawings were available and the drawings that were provided were marked “preliminary – for discussion purposes only”. Drawings were provided for the resurfacers and storage room additions and renovations to the refrigeration and electrical rooms. These drawings were not stamped. No condition assessments or maintenance reports were available for our review.

1.3 Report Organization

The report provides a brief description and a Type II Condition Audit of the various building components of the Arena and Community Hall. Architectural, structural, mechanical and electrical building components have been assessed and the condition of each described and reported on.

- 1 -

A seismic screening/assessment has not been undertaken for this facility.

Where a building system is deemed obsolete, in a poor state of repair or in need of replacement (i.e., within the next 20 years), the cost of the capital expenditure is estimated, prioritized and given a time frame for replacement. Information on all probable expenditures is summarized in a master spreadsheet with the replacement assigned an estimated time frame.

1.4 **Assumptions and Limitations**

The accuracy of discussions, comments and cost information presented herein is limited to the extent of the information available at this time. This information includes a history of the Arena/Hall, available drawings, background information provided by Township of Bonnechere Valley personnel, regulatory codes currently in force and visual observations of the building systems at the time of the site visits.

Assessment of the building systems has been specifically limited to visual observations at readily accessible locations. No destructive or exploratory testing or inspection involving the removal of finishes has been carried out. It has been necessary, in a number of instances, to make certain assumptions and/or projections as to the overall condition of a system based on the physical manifestations observed during the site reviews.

The following experienced engineering personnel conducted these field reviews and assessments of the various systems during April of 2013:

Pamela Dougherty	-	Architectural
Rick Westwell, P.Eng.	-	Structural
Lesroy George	-	Mechanical
George Chinkiwsky	-	Electrical

Specific life spans for various pieces of equipment can vary significantly with the frequency of use, maintenance and the environment. The calculation of the timeframes

for replacement or refurbishment of building components represents a judgment by the Consultant based on standards in the industry, the visually observable condition of the system and previous experience with similar systems in other applications. This assessment is contingent on the assumption that regular preventative maintenance of each system will be carried out for the duration of the life of the system.

This report and the information presented herein have been prepared for the exclusive use of the Township of Bonnechere Valley. JLR will not accept any responsibility for the use of this report by any other parties. Any unauthorized use or reliance is at the sole risk of the user.

1.5 **Building System Assessment**

An assessment of each major building system is presented in this report. As a result of the inspection process, each system is briefly described and its condition classified as "excellent", "good", "fair", "poor" or "failed". For consistency purposes, each of these five classifications is related to the remaining life of the element, as illustrated in the following table.

CLASSIFICATION OF CONDITION	PERCENTAGE (%) OF RATIO OF EXPECTED REMAINING LIFE TO EXPECTED OVERALL LIFE
Excellent	75 to 100%
Good	50 to 75%
Fair	25 to 50%
Poor	10 to 25%
Unsatisfactory	10 to 0%

As well, systems in need of repair, restoration or replacement are prioritized as follows:

- **Priority A:** Essential requirement, including code – mandatory, life safety and/or imminent failure.
- **Priority B:** Necessary but not essential, including code discretionary.
- **Priority C:** Desirable but not necessary.

Comments on any code violation and health and life safety issues are also noted if observed during our walkthrough.

Where a system is deemed in need of repair, restoration or replacement within the next 20 years, the projected expenditure is prioritized and an estimated cost is given along with a suggested timeframe. Estimates as to the timing and scope of major maintenance expenditures are premised on the maintenance of the facility at its current standard of functionality and appointment.

1.6 Costing

Costs presented in this report are base construction costs and do not include “implementation costs” such as professional fees, permits, contingency and HST. All costs are expressed in 2013 Dollars.

The projected expenditures are based on equipment replacement only and not on system replacement. For example, costs for boiler replacement would be for the boiler only and would not include for piping or accessory replacement at the same time. Certain components, like piping, are intended to last the life of the building.

The costing information does not include for upgrades of equipment that might be necessary beyond the current function. It is assumed that the use of the facility will remain “as is” and the equipment is currently meeting the needs of the users.

2.0 LIFE CYCLE RENEWAL FORECAST

Projected expenditures to replace building systems are shown on the following spreadsheet.

3.0 **CODE COMPLIANCE**

The following items are considered building code and life safety non-compliance issues. It is recommended that these items be corrected as soon as possible and a Life Safety (Exits) and Fire Separation Requirement Study be performed to assess the facility's current uses.

EGANVILLE AND DISTRICT COMMUNITY ARENA / HALL			
REFERENCE	PAGE	SYSTEM IMPROVEMENT	COST
A6, A8, A9	15, 19 and 21	Life Safety (Exits) and Fire Separation Requirements Study is necessary.	Study
A10	22	Arena Stair/Handrails	\$ 8,000
A12	25	Toilet Partitions, Barrier-Free Access, etc.	\$ 12,000
A16*	29	Refer to Ontario Fire Code Review and Township Fire Prevention Inspection	\$150,000
M2	35	Canteen Exhaust	\$ 25,000
E1	43	Disconnect Switch for Compressor No. 7	\$ 500
E6	53	Revisions to Fire Alarm System	\$ 4000

A16 Removal of the wheelchair lift is required due to violation of minimum exit requirements. The cost to provide a new lift/ramp for access to the Community Hall has not been provided because it is beyond our terms of reference.*

4.0 **BUILDING CONDITION AUDIT**

4.1 **General**

This report addresses the condition of the Arena and the Community Hall located at 178

Jane Street in Eganville. This building has a footprint measuring approximately 100' x 278' or 27,800 square feet. It consists of a two storey Community Hall (Eagle's Nest) measuring approximately 50' x 100' (5,000 square feet total), a single storey Arena measuring approximately 100' x 210' (21,000 square feet) and refrigeration, electrical, storage, and resurfacer rooms measuring approximately 18' x 100' (1,800 square feet).

The original wood framed building was built in 1947-1948 and an artificial ice plant was installed in 1966. In 1977 the wood framed structure was replaced with a preengineered rigid framed structure.

In 1984 resurfacer and storage rooms were built and renovations were undertaken in the electrical and refrigeration rooms.

In 1985 the front end of the facility was renovated to include the new hall, dressing rooms, a lobby, and a front entrance. Split-faced masonry was applied to the ice surface walls. It should be noted that no maximum occupant load was posted in the Hall.

In 1989 additional back-up compressors were installed and in 1990 the headers were replaced with PVC piping.

In 2002, the 1966 compressor was replaced with a new compressor and condenser and new floors in the dressing rooms were installed along with a stairway to the Community Hall.

In 2003 a new ammonia chiller and dehumidifier were installed. In 2004 two new change rooms and storage rooms were added. In 2005 the flooring was changed in the dressing rooms.

In approximately 2006 the doors to the ice surface were replaced. In 2007 the front entrance was reconstructed and a new roof added. In 2008 air conditioning and a chair lift were added to the Community Hall and a second humidifier was added to the ice surface.

In 2009, the following work was carried out:

- Chairlift in rear of upstairs Hall (Ontario Trillium);
- New Olympia Ice Resurfacers to replace 1979 machine;
- Ford 4 x 4 short box truck bought for recreation;
- Air conditioning installed in Eagle's Nest Hall;
- Parking lot repaired and paved;
- Three hot water tanks replaced; and
- Storage building for Arena tables, chairs, recreation mowers, etc. was built.

In 2010, the corners of the ice surface were reconstructed with steel posts, plates and puck boards, and a new time clock was installed.

In 2011, in-line flooring was installed.

No other improvements have been carried out since that time.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

A1 Exterior Doors

DESCRIPTION:

- double insulated hollow metal doors in pressed steel frames
- hardware – panic bars, closures and hinges
- door glazing – single pane with Georgian wired glass

CONDITION:

- Arena - double insulated metal doors installed in 2012 into existing pressed steel frames - good
- remainder of building has older insulated metal doors with pressed steel frames - good
- main entrance double doors with single pane glazing with Georgian wired glass – good but thermally inefficient
- all door frames are rusted - fair

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Prime and paint double unpainted insulated metal doors	A	\$ 600	2013
2.	Repaint insulated metal doors	A	\$ 400	2013
3.	Replace main entrance double doors	C	\$ 2,000	2020
4.	Scrape, clean and repaint all door frames	A	\$ 750	2013

COMMENTS:

As part of the operating budget, scrape and repaint the doors and frames on a regular basis. Prime and paint the new doors and existing frames.

To improve the overall thermal efficiency of the building, replace the two main entrance doors with double glazed thermal units.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

CODE COMPLIANCE:

N/A

A2 Overhead Doors

DESCRIPTION:

- three (3) overhead doors, no windows
 - first overhead door leads to outside through east wall of Arena
 - second overhead door leads to outside through south wall of service area
 - third overhead door leads from Arena to service area

CONDITION:

- first overhead door - fair
- wood frame at two exterior overhead doors - unsatisfactory
- steel frames at two exterior overhead doors - poor

PROJECTED EXPENDITURES:

	Priority	Estimated Cost	Year
1. Replace damaged lower portion of overhead door	C	\$ 1,000	2020
2. Replace rotting wood frames around two overhead doors	A	\$ 750	2013
3. Repair/repaint rusting steel frames	B	\$ 500	2015

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

COMMENTS:

For the overall appearance and efficiency of the east overhead door the lower portion of the door should be replaced. In the future a barrier of some sort should be placed in front of the door, when not in use, to keep snow removal vehicles away from the door.

All of the wooden frames should be removed and replaced with treated wood, primed and painted. All of the steel frames should be scraped clean of rust and dirt, cleaned, primed and painted.

New prefinished aluminum flashing and packed insulation at the perimeter of the two exterior doors is recommended.

CODE COMPLIANCE:

N/A

A3 Exterior Windows

DESCRIPTION:

- four (4) exterior windows on north wall of Eagle's Nest building; windows consist of PVC double glazed horizontal sliders
- three (3) exterior windows on south wall of Service building; windows are horizontal sliders covered with security grilles on exterior

CONDITION:

- four (4) north windows – fair
- paint and gypsum board at top and sides of window openings – poor
- security grilles covering south windows - unsatisfactory

PROJECTED EXPENDITURES:

Priority

Estimated
Cost

Year

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

1.	Replace sealant at perimeter of window frames at north windows	A	\$ 300	2013
2.	Replace deteriorated gypsum board at top and sides of window openings	A	\$ 500	2013
3.	Remove and replace existing rusting grilles	B	\$ 1,500	2015

COMMENTS:

The reason for the deterioration of the gypsum board and paint at the perimeter of the north windows should be investigated and rectified before repairing the gypsum board.

The security grilles on the south windows of the Service building should be removed and replaced with new aluminum or galvanized steel grilles. The rust is causing stains around the perimeter of the windows and on the metal siding below the windows. The rust stains should be removed from the window frames and siding.

CODE COMPLIANCE:

N/A

A4 Exterior Cladding

DESCRIPTION:

- building has two types of exterior cladding:
 - Eagle's Nest has a combination of architectural split-faced block with vertical metal siding in two different colours
 - Arena has vertical metal siding in one colour
 - Service area has vertical metal siding consisting of two different colours

CONDITION:

- split-faced architectural block - fair
- vertical metal siding - unsatisfactory

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Repair damaged split-faced block and remove paint	B	\$ 500	2015
2. Install concrete parking curbs at east parking lot	A	\$ 2,000	2013
3. Repair damaged vertical siding – north wall	A	\$ 5,000	2013
4. Repair siding trim piece at northeast corner	A	\$ 750	2013
5. Replace vertical metal siding in its entirety	B	\$300,000	2015

COMMENTS:

The architectural split-faced block should be repaired where the block meets the siding and paint should be removed to improve the overall appearance.

The vertical siding is damaged on the east side of the building due to its proximity to vehicle parking. Concrete vehicle parking curbs should be installed to prohibit this damage from occurring again in the future.

On the north side of the building, the bottom of the siding is deteriorating from rust. We were unable to determine whether there is a waterproofing membrane between the exterior concrete block and planter soil. This should be investigated further to ensure there is a waterproof membrane. We also recommend that the level of the grade be lowered and the rust removed if possible. Prime and paint the metal siding with rust paint formulated to penetrate rust and bind to metal.

A4 Exterior Cladding

COMMENTS: (Continued)

The damaged vertical trim piece at the northeast corner should be removed and replaced.

To improve the overall aesthetic, remove and replace vertical metal siding with new metal siding. The estimated cost for this replacement is \$18 per square foot. We

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

roughly calculated the area of the siding based on the limited drawings provided for our review.

CODE COMPLIANCE:

N/A

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

A5 Exterior Sealant

DESCRIPTION: - sealant at exterior windows, doors, overhead doors, vents, grilles and dissimilar materials
- sealant at architectural split-faced block joints

CONDITION: - sealant – unsatisfactory

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Remove old and deteriorated sealant and replace with new silicone sealant and backer rod; also apply silicone sealant and backer rod at pipe penetrations	A	\$ 750	2013

COMMENTS:

As part of the operating budget, scrape and remove old sealant and replace with new silicone sealant with backer rod on a regular basis.

We were not able to assess the condition of the sealants at the second floor level exterior windows, grilles and at the top of the overhead doors.

CODE COMPLIANCE:

N/A

A6 Flooring

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

- DESCRIPTION:
- slab-on-grade will be reviewed in the structural section of this report
 - ceramic tile at main entrance, stairwell at ground floor level and in shower areas
 - vinyl composite tile in washrooms, canteen, kitchen and entire second level of Eagle's Nest
 - rubber mat flooring in change rooms, main lobby, corridors, storage rooms and washrooms
 - carpet on stage in multi-purpose hall
 - painted and unpainted concrete slab in Arena and Service area
 - unpainted plywood on second level storage room in Arena

- CONDITION:
- ceramic tile in main lobby - good
 - ceramic tile in shower areas - poor
 - vinyl composite tile – poor
 - rubber mat flooring – good
 - carpet – good
 - painted and unpainted concrete slab – fair
 - unpainted plywood - good

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Remove and replace cracked tiles in lobby	C	\$ 350	2020
2.	In shower area remove and replace sealant at base,			

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

corners and drains and replace
with mildew resistant silicone

	sealant	A	\$ 1,800	2013
3.	Replace vinyl composite tile	C	\$ 24,000	2020
4.	Repair, clean and repaint concrete slab	B	\$ 30,000	2015

4.2 ARCHITECTURAL SYSTEMS

SYSTEM: A6 Flooring (Continued)

COMMENTS:

Damaged ceramic tile in the main lobby should be removed and replaced. In the shower areas, the sealant at the base, corners and drains should be removed and replaced with new mildew resistant silicone sealant. As part of the operating budget, the ceramic tiles should be cleaned on a regular basis to help improve appearance and hygiene.

The vinyl composite tiles are approaching the end of their service life. The existing tiles should be removed, the floor prepped and new tiles installed as part of the overall program to upgrade and modernize interior finishes in the facility.

The rubber mat flooring and carpet should be replaced as required as part of the annual operating budget.

The concrete surface should be cleaned and made ready for a new paint finish, then painted. The estimate noted above is per square metre as we do not have a complete set of drawings to estimate the total cost associated with this work.

CODE COMPLIANCE:

The 1984 documents show that the floor assembly was to be constructed to meet the requirements of ULC M510. In some locations, there was no gypsum board at the underside of the wood joists supporting the second floor. This requires further investigation.

A7 Ceilings

DESCRIPTION:

- exposed rigid steel frames in Arena area (see structural section)
- 2' x 4' acoustic panels in exposed T-bar suspended ceiling in every room of the Eagle's Nest area except the shower rooms
- painted gypsum board in shower rooms
- chip board ceiling in Service area

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

- painted and unpainted MDF board ceilings in Service area change rooms and Arena storage area

CONDITION:

- 2' x 4' acoustic panels in exposed T-bar suspended ceiling – poor
- gypsum board ceilings in shower rooms – fair to good
- chip board ceiling – good
- MDF board ceiling - good

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Replace damaged acoustic tile	A	\$ 300	2013
2.	Clean and paint gypsum board ceilings in shower areas	A	\$ 250	2013
3.	Operating budget to repair ceilings as required	B	\$ 300	yearly

COMMENTS:

The acoustic panels in the exposed T-bar suspended ceiling system are damaged and have water and other unidentifiable staining. The reasons for the staining should be investigated and rectified before the tiles are replaced. The T-bar system is rusted in some areas.

The gypsum board ceilings in the shower area should be cleaned and repainted with mildew resistant paint as required.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM: A7 Ceilings

CONDITION: (Continued)

Once the items noted above have been rectified, an annual operating budget of \$300.00 should be set aside for the partial replacement/up-keep of broken or damaged tiles and boards.

CODE COMPLIANCE:
N/A

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

A8 Interior Walls

DESCRIPTION:

- Eagle's Nest:
 - main floor is painted concrete block throughout with some walls consisting of painted gypsum board
 - shower rooms have ceramic tile walls
 - second level consists of wood wainscoting and painted gypsum board
- Arena:
 - lower portion of interior face of exterior walls are architectural split-faced block, the upper portion consists of a prefinished metal liner
 - south and north interior walls are painted concrete block
 - upper storage area consists of unpainted MDF board
- Service Area:
 - interior walls consist of painted and unpainted chipboard and concrete block
 - change rooms have a combination of painted concrete block and MDF board

CONDITION:

- split-faced architectural block in Arena (see Structural Systems) - poor
- ceramic tile in shower rooms (as noted in Section A6 – Flooring) - poor
- painted concrete block walls – good
- first 100 mm high painted base at concrete block walls - fair
- resilient baseboards on first and second floor of Eagle's Nest – unsatisfactory (missing or improperly adhered)

PROJECTED EXPENDITURES:

Priority Estimated Year

4.2 ARCHITECTURAL SYSTEMS

		Cost	
1.	Paint first 100 mm of concrete block wall as required	B	\$ 800 2015
2.	Install new 100 mm high resilient baseboards	B	\$ 1,500 2015
3.	Build new ULC labeled walls to comply with current codes	A	\$ 3,000 2013

4.2 ARCHITECTURAL SYSTEMS

SYSTEM: A8 Interior Walls (Continued)

COMMENTS:

The architectural split-faced block is showing signs of water infiltration from the exterior. The source of this water infiltration should be investigated. It is also recommended that the first 100 mm of the concrete block wall be painted.

As note in Section A6 – Flooring, the ceramic tile walls in the shower areas are deteriorating. The grout should be removed and replace with a mildew resistant silicone sealant.

It was noted that the resilient baseboards on the first and second levels of the Eagle's Nest was either missing or improperly adhered to the wall. New 100 mm resilient baseboards should be installed.

During our site review of the facility it was noted that some of the interior walls shown in the 1984 documents have been removed (i.e., both stairwells in Eagle's Nest area were open to the second floor). There is also a new opening in a concrete block wall under the stairwell to enlarge a storage room thereby exposing the underside of the stairwell's steel pan above. These modifications may have affected the required fire separation requirements. Further review of fire separations is recommended.

CODE COMPLIANCE:

The 1984 documents show that the floor assembly was to be constructed to meet the requirements of ULC M510. In some locations there was no gypsum board at the underside of the wood joists supporting the second floor. This requires further investigation.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM: A9 Interior Doors and Hardware

DESCRIPTION:

- hollow metal doors with Georgian wired glass and pressed steel frames
- hollow metal doors and pressed steel frames
- wood doors with wood frames

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

- wood doors with pressed steel frames

CONDITION:

- interior doors - fair
- door hardware - poor

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Repair/clean and repaint damaged interior doors	B	\$ 7,000	2015
2.	Repair/replace damaged and missing door hardware	A	\$ 2,500	2013
3.	Install missing ULC fire rated doors	A	\$ 9,000	2013
4.	Replace wood doors with hollow metal doors	A	\$ 6,000	2013

COMMENTS:

Clean, repair and repaint the interior doors. Installing kickplates to the bottom of the doors is recommended and would lengthen the life of the doors and deter further damage. Existing door hardware should be fixed and/or where missing, replaced.

New fire rated doors should be installed at new ULC labeled wall locations.

Remove wood doors and replace with new hollow metal doors, fire labeled as required.

CODE COMPLIANCE:

Doors shown in the 1984 documents at stairwells do not exist and a number of doors that were indicated to be hollow metal are now wood. These items may have affected the fire separation requirements and further review should be undertaken.

The door hardware is not barrier-free accessible compliant (i.e., they should be lever type).

A10 Stairwells

DESCRIPTION:

- Arena – wood stairs with handrails and guardrails
- Eagle's Nest – concrete filled steel pan with steel risers

CONDITION:

- south wood stairs in Arena - unsatisfactory
- west wood stairs in Arena - unsatisfactory
- east stairs at Eagle's Nest – fair
- west stair from second floor to exterior - unsatisfactory

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Replace/rebuild wooden stairs in southern portion of Arena	A	\$ 4,000	2013
2. Replace/rebuild wooden stairs in western portion of Arena	A	\$ 2,000	2013
3. Install new handrails at east and west stairs in Eagle's Nest area	A	\$ 2,000	2013

COMMENTS:

In both stairwells in the Eagle's Nest the stairs have rubber stair treads and nosings, some of which are loose and should be corrected.

The Arena stairs do not comply with the building code and should be corrected.

The chairs and other miscellaneous items stored at the west Arena stairwell landing should be removed as it could potentially impede egress to the exterior of the building.

At the east stair in Eagle's Nest, the inside handrail is too close to the wall and does not allow for minimum clearance.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

At the west stair from the second floor to the exterior of the building, the distance from the wall to the handrail is more than 1100 mm. It would appear that the second handrail was removed to install the chair lift.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

A10 Stairwells (Continued)

CODE COMPLIANCE:

The south wood stairs in the Arena are not compliant with the current building code because the space between some of the vertical pickets are more than 100 mm apart; the guardrail at the top landing is less than 1070 mm high; the treads are not 255 mm deep and the stair handrails are not graspable.

The west wood stairs in the Arena are also not compliant to current codes because the handrail/guardrail is climbable; the guardrail at the top landing is less than 1070 mm high, the treads are not 255 mm deep; the stair handrails are not graspable; and the distance from the handrail to the wall is more than 1100 mm and therefore another handrail is required.

The chair lift installed in the west stairwell in Eagle's Nest reduces the required exit width capacity as required by the building code and should therefore be removed. An alternate means of barrier-free access to the second floor should be investigated. It was noted that no maximum occupant load was posted.

As numerous changes have been performed over the years, a mandatory investigation of fire separation requirements and life safety (exits) is necessary and recommended.

A11 Millwork

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

DESCRIPTION: - all washrooms adjoining change rooms and four large washrooms have floor mounted vanities with sinks

- kitchen, bar area and canteen have floor and wall mounted cabinets

CONDITION: - laminate countertops – unsatisfactory

- kitchen cabinets - unsatisfactory

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Remove existing vanities and replace with new units	B	\$ 8,000	2015
2. Remove existing cabinetry and replace with new units	C	\$ 10,000	2020

COMMENTS:

Most of the vanities and cabinets in the facility have surpassed their life expectancy and should be replaced.

In the larger men's and women's washrooms, the new vanities should be built to comply with the current building code to meet barrier-free accessibility. The existing units do not meet code.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

CODE COMPLIANCE:

N/A

A12 Toilet Partitions

DESCRIPTION:

- metal toilet partitions in men's and women's washrooms on first and second floors of Eagle's Nest

CONDITION:

- metal toilet partitions on first floor - unsatisfactory
 - metal toilet partitions on second floor - unsatisfactory

PROJECTED EXPENDITURES:

	Priority	Estimated Cost	Year
1. Replace aging and damaged toilet partitions	A	\$12,000	2013

COMMENTS:

The metal partitions in the men's and women's washroom are past their life expectancy and should be replaced. In some instances (i.e. women's washrooms on first floor) they

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

have been replaced with painted plywood doors. The partitions in the men's washrooms on the second floor are, in many instances, held together with extra reinforcing.

CODE COMPLIANCE:

When new partitions are installed, they should meet current barrier-free access code requirements.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

DESCRIPTION:

A13 Fitments (Lockers, Benches, etc.)

- painted wood benches with steel supporting frames in all change rooms
- painted steel hooks in all change rooms
- shower curtain rods at all shower room entrances
- three (3) metal lockers

CONDITION: - wood benches - good

- painted steel hooks - fair
- shower curtain rods – poor
- metal lockers - good

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Clean and repaint worn wood benches and steel hooks	C	\$ 2,500	2020
2. Replace rusted shower curtain rods	B	\$ 750	2015

COMMENTS:

The wood benches in the change rooms should be sanded, cleaned and repainted to improve their overall appearance. The steel hooks should also be sanded, cleaned and repainted.

The shower curtain rods in the change rooms should be removed and replaced with new.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

DESCRIPTION:

CODE COMPLIANCE:

N/A

A14 Rink Boards

- pressure treated wood framing with polyethylene facing and cap

CONDITION: - pressure treated wood framing - fair
 - polyethylene facing/cap - good

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Replace rink board framing	B	\$12,000	2013-16 (phased over 4 years)
2. Replace polyethylene facing	C	\$ 500/yr	periodic repair

COMMENTS:

The rink board framing has started to rot, mainly at the bottom, and could be replaced in a phased approach over the next four years. Longer service life lumber conducive to this environment should be investigated. The polyethylene facing sections should continue to be replaced periodically when they are damaged.

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

DESCRIPTION:

CODE COMPLIANCE:

N/A

A15 Roof Membrane System

- pre-engineered building with a standing seam roof

CONDITION: - standing seam roofing - poor

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Replace roof membrane system	A	\$500,000	2013

COMMENTS:

The standing seam roofing is rusting and we were advised that it leaks depending on the wind direction.

It was not possible to visually inspect the underside of the roof system or framing as it is covered with a reflective insulated foil to improve the operation of the arena.

CODE COMPLIANCE:

N/A

4.2 ARCHITECTURAL SYSTEMS

SYSTEM:

DESCRIPTION:

SYSTEM: A16 Based on the Ontario Fire Code Review and the Township Fire Prevention Inspection, the following upgrades are required.

PROJECTED EXPENDITURE		PRIORITY	ESTIMATED COST	YE
1.	Revise door swing in Change Rooms and revise walls as required so that doors do not swing out into the exit corridor and add door operators. (Note: Not required if minimum occupant load of 60 is posted in each room and regulated.)	A	\$ 20,000	201
2.	Remove all combustible interior finishes in stairwells and upgrade exit enclosures on second level so they are separated from the remainder of the building by a one hour fire resistance rating.	A	\$ 25,000	201
3.	In Community Hall, remove and replace all combustible interior wall finishes, drapes, curtains, netting and portable dividers to meet CAN/ULS-S109.	A	\$ 25,000	201
4.	Separate Electrical Room and Janitor's Room from the remainder of the building by a fire separation having a one hour fire resistance rating. Doors and frames to have a 45 minute fire protection rating.	A	\$ 20,000	201
5.	Provide enclosure around the hot water tank to separate the hot water tank from the remainder of the building by a fire separation with a one hour fire resistance rating.	A	\$ 20,000	201
6.	Replace interior wall and ceiling finishes in the Olympia Room with maximum flame spread rating of 150 for walls and 25 for ceilings. (Note: Arena ice surface ceiling cover is assumed to be acceptable but should be tested to verify its acceptance.)	A	\$ 10,000	201
7.	Remove storage material below exit stairwell at Bar. Remove door and frame and block in wall to provide a one hour fire separation.	A	\$ 3,000	201
8.	Upgrade Front Entrance walls, ceiling, doors, and door frames from the remainder of the building so it is separated by a fire separation with a one hour fire resistance rating.	A	\$ 25,000	201
9.	Wheelchair lift at stairwell beside Bar area restricts exit width of stairs to below minimum requirements. Remove lift and install a handrail. Post maximum occupant load in Community Hall as 300 occupants.	A	\$ 2,000	201
TOTAL			\$150,000	

STRUCTURAL SYSTEMS**SYSTEM:****4.3**

S1 Slab-on-Grade

DESCRIPTION:

- concrete slab on grade throughout ground floor level (concrete ice slab – refer to Mechanical Systems – M5)
- trench and wood coverplates
- arena header

CONDITION:

- floor of electrical, refrigeration, storage and resurfacers rooms - good
- floor of arena – good
- floor of Community Hall – good
- header trenches - unsatisfactory

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Rehabilitate header trench wall	A	\$ 10,000	2013

COMMENTS:

The header trench wall is cracked and has moved. This may affect the integrity of the arena floor piping. The header trench should be rehabilitated this year.

The Arena concrete ice slab appears to be in good condition considering its age; however, it has exceeded its service life (refer to Mechanical Systems – M5).

The other concrete floor slabs appeared to be in good condition.

4.2 STRUCTURAL SYSTEMS

SYSTEM:

CODE COMPLIANCE:

N/A

DESCRIPTION: S2 Roof Framing
- structure appears to be a pre-engineered building with rigid moment frames in one direction and braced frames in the other direction

CONDITION: - roof framing - good

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Prep and paint corroded areas of rigid frames	A	\$ 5,000	2013

COMMENTS:

The roof framing appears to have minor corrosion on the rigid frames and at column baseplate locations.

It was not possible to visually inspect the underside of the roof framing due to the reflective insulated foil installed to improve the operation of the arena.

CODE COMPLIANCE:

4.2 STRUCTURAL SYSTEMS

SYSTEM:

N/A

DESCRIPTION: S3 Exposed Exterior Masonry Foundation Walls
- foundation walls on west side of facility consist of concrete block masonry

CONDITION: - foundation walls - unsatisfactory

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Repair concrete masonry block walls	A	\$ 10,000	2013

COMMENTS:

The exposed exterior masonry foundation walls are exposed to the environment and are deteriorating due to water infiltration and freeze-thaw damage. Water infiltration was also evident on the interior of the walls as moisture was observed on the interior exposed split-faced masonry. Portions of the interior wall system should be removed to evaluate the interior condition of the masonry wall.

To prevent further deterioration of the exterior masonry, a proper below grade weeping tile drainage system should be installed, drainage board against the masonry wall installed, metal siding extended down to within 8" of grade and proper drip flashings installed.

To improve drainage away from the foundation wall, a drainage swale should be provided during the installation of the weeping tile and drainage board.

4.2 STRUCTURAL SYSTEMS

SYSTEM:

CODE COMPLIANCE:

N/A

DESCRIPTION: S4 Various Structural Elements

- masonry walls supporting condensing unit
- steel framing supporting dehumidifier at north end of Arena
- exterior wood framed canopy at Arena electrical room

CONDITION:

- masonry walls supporting chiller - fair
- steel framing supporting dehumidifier - unsatisfactory
- wood framed canopy - poor

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Replace masonry walls supporting condenser unit	B	\$ 5,000	2015
2. Replace steel framing supporting dehumidifier	A	\$ 500	2013
3. Replace wood framed canopy	A	\$ 500	2013

COMMENTS:

The masonry supporting the condenser unit is showing signs of deterioration. Proper reinforced concrete piers are recommended. The steel framing supporting the

4.2 STRUCTURAL SYSTEMS

SYSTEM:

dehumidifier at the north end of the Arena is not of conventional framing and should be replaced.

The canopy main support framing is all twisted and warped and should be rebuilt. The base support for the middle post is completely deteriorated and should be rebuilt at the same time.

CODE COMPLIANCE:

N/A

4.4 MECHANICAL SYSTEMS

SYSTEM:

M1 Fire Protection

DESCRIPTION:

- dry chemical portable fire extinguishers (tested January 16, 2013)
- Ansul R-102 wet chemical 3 gallon tank fire suppression system complete with remote surface mounted manual pull station, Serial No. R100973 Installed in 1999. (tested January 16, 2013)

CONDITION:

- all systems noted above – good

PROJECTED EXPENDITURES:

Priority

Estimated
Cost

Year

1. None

COMMENTS:

None

CODE COMPLIANCE:

N/A

M2 HVAC

4.4 MECHANICAL SYSTEMS

SYSTEM:

DESCRIPTION:

- systems consists of supply, return and exhaust air ductwork, ceiling mounted diffusers, ceiling, door and wall mounted return air grilles and registers; below ceiling duct mounted damper and wall mounted louvres
- two (2) grade mounted condensing units; York Model No. TCGD60S41S1A, Serial Nos. WOK8286140 and WOK837045, refrigerant R-410A, cooling capacity 5 tons; power supply 208203, 1 phase, 60 hz; installed in 2009
- two (2) ceiling mounted fan coil units, Model No. AHP60D3XH21H; cooling capacity 5 tons with electric heat; power supply 208-203, 3 hp, 60 hz
- twelve (12) ceiling mounted bathroom exhaust fans located in Change Rooms 1, 2, 3, 4, 5, 6 and 7 and Janitor's Closet; six (6) fans interlocked with bathroom light switches; no other data
- one (1) grade mounted exhaust utility fan serving main floor Canteen exhaust hood; no available data
- three (3) ceiling mounted exhaust fans complete with exterior gooseneck serving second floor bar and washrooms; no data available
- one (1) Broan Microtek System IV range hoods and associated ductwork; no data available
- one (1) wall mounted exhaust fan serving the arena; capacity 6000 cfm, no other data
- two (2) ceiling mounted propane gas unit heaters located in Change Room Nos. 6 and 7; Sterling Model No. RFO30N, Serial No. CO3S000384, capacity 30,000 BTUH, installed in 2004
- one (1) ceiling mounted propane gas unit heater located in Olympia Room, Sterling Model No. RFO60N, Serial NO. CO3S000707, capacity 60,000 BTUH, installed in 2004
- arena wall mounted exhaust fan and intake air louvres

CONDITION:

- supply, return and exhaust ductwork, diffusers, grilles and registers - good

4.4 MECHANICAL SYSTEMS

SYSTEM:

- surface mounted condensing units – good
 - ceiling mounted condensing units – good
- M2 HVAC (Continued)

CONDITION (Continued)

- ceiling mounted bathroom exhaust fan – good with the exception of those in the ground and second floor Janitor’s Closets which are not working and those in Change Rooms 2 and 4 which are very noisy
- ground mounted exhaust fan – fair
- three (3) ceiling mounted exhaust fans – fair
- below ceiling duct mounted damper and wall mounted louvers – fair
- one (1) Broan Microtek System IV range hoods and associated ductwork – good
- unit heaters – good
- arena exhaust fan and intake air louvers - fair

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Replace grade mounted condensing units (installed in 2009)	B	\$ 8,500	2024
2. Replace ceiling mounted condensing units	B	\$ 6,500	2024
3. Replace ceiling mounted bathroom exhaust fans	B	\$ 2,000	2014
4. Replace grade mounted canteen utility exhaust fan	A	\$25,000	2013
5. Replace ceiling mounted			

4.4 MECHANICAL SYSTEMS

SYSTEM:

	exhaust fans	B	\$ 9,000	2018
6.	Replace Broan Microtek System			
	IV range hood	B	\$ 1,100	2017
7.	Replace unit heaters	B	\$ 5,000	2021
8.	Replace Arena exhaust fan			
	and louvers	B	\$ 7,000	2015

COMMENTS:

Modify the range hood exhaust system to comply with NFPA 96.

CODE COMPLIANCE:

It would appear that the grade mounted canteen utility exhaust fan installation does not meet current codes. There should be a clearance of 3 m (10 ft) between the fan outlet and the property line (NFPA 96.7.8.3.1).

M3 Plumbing

DESCRIPTION:

- system consists of domestic cold and hot water piping to countertop lavatories, wall mounted lavatory, water closets, wall mounted urinals, countertop stainless steel sinks, showers, above grade sanitary drain piping to below grade sanitary drain piping, vent piping and propane gas piping
- one (1) wall mounted lavatory
- twenty (20) countertop mounted lavatories
- six (6) wall mounted urinals complete with manual flush valves
- nineteen (19) floor mounted flush tank water closets
- two (2) floor mounted janitor's sinks
- one (1) bar sink
- two (2) triple compartment countertop stainless steel sinks
- one (1) Aquarius wall mounted refrigerated drinking fountain; no other data
- six (6) shower stalls and eleven (11) shower heads and mixing valves

4.4 MECHANICAL SYSTEMS

SYSTEM:

- floor and shower drains
- one (1) electric domestic hot water heater, GE Model No. GE60T06CAJ00, Serial No. GC1109223625, capacity 72 gallons (270 litres), power supply 240/208, power supply total watts 4500/3380, installed in 2010
- one (1) tankless instantaneous propane hot water heater, Noritz Model No. NC380-SV-ASME, Serial No. 2011.04-001016, input 380,000 BTUH, output 304,000 BTUH
- one (1) liquid propane hot water heater, John Woods Signature Series, Model No. JWSM95199P, Serial No. 0941M001526, capacity 100 gallons, input 199,000 BTUH, recovery 193 gallons/hour, power supply 120 V/1 hp/60 hz; used for rink flooding
- two (2) liquid propane domestic hot water heaters, John Wood, Model No. 6G-75-3PCV-06, Serial Nos. S0926F707873 and S0926F707874, capacity 75 gallons (285 litres), power supply 12 V/1 ph/60 hz; installed in 2009

M3 Plumbing (Continued)

- DESCRIPTION (Continued) -
- vertical propane storage tanks – owned by McCarthy Propane
 - horizontal propane tank – owned by McCarthy Propane
 - one (1) submersible sewage pump and sump; no available data
 - no insulation on barrier-free lavatories

- CONDITION:
- gas fired domestic hot water heater – good
 - tankless water heater – good

4.4 MECHANICAL SYSTEMS

SYSTEM:

- electric domestic hot water heater – good
- propane storage tanks – good
- water closets, lavatories, stainless steel sinks, urinals, shower drains, shower heads/mixing valves, Janitor's sink, trench drain, floor drain and drinking fountain – fair (with the exception of floor drains in ground floor Men's and Ladies Washrooms, Janitor's Closet ground floor, Electrical Room, and Change Rooms 3 and 4; grates are broken; drain pipe on one urinal on each level is leaking at the trap, six lavatories have chipped enamel and shower head in Referee's Change Room leaks) -Fair
- Submersible sump and pump - Good
- domestic hot and cold water, tempered water, liquid propane, sanitary and vent piping - good

PROJECTED EXPENDITURES:

	Priority	Estimated Cost	Year
1. Replace gas fired hot water heater B \$12,000	2018		
2. Replace tankless water heater B \$ 8,000	2018		
3. Replace electric domestic hot water heater	B	\$ 5,500	2020
4. Replace floor drain grate	B	\$ 3,000	2014
5 Replace urinal sanitary drain piping A \$ 500	2014		
6. Replace lavatory (bowl) B \$ 900	2014		
7. Replace two showerheads B \$ 1,650	2014		
8. Replace submersible sump pump C \$ 8,000	2020		
9. Add insulation to barrier-free lavatory P-traps	A	\$ 1950	2014

M3 Plumbing (Continued)

COMMENTS:

4.4 MECHANICAL SYSTEMS

SYSTEM:

The domestic water and sanitary system are expected to last for the life of the facility. Regular flushing of the underground piping will ensure good operation.

CODE COMPLIANCE:

As per Ontario Building Code 2006.3.8.3.11(D).

4.4 MECHANICAL SYSTEMS

SYSTEM:

M4 Refrigerant Plant

DESCRIPTION:

- one (1) Toromont Cimco Humicon dehumidifier, Model No. Mark 4, Serial No. 4342, compressor motor, 7.5 hp, maximum watts 420, 7.0 amps, fan motor 1 hp, power supply 575/3/60; installed in 2003
- one (1) Toromont Cimco Humicon dehumidifier, Model No. Mark 8; installed in 2009
- one (1) Baltimore Aircoil of Canada evaporative condenser, Model No. VC1-72, Serial No. CO20349801, Belt No. B78, CRN No. OH7705.5; installed in 2002
- one (1) Mycom reciprocating compressor (Compressor No. 1), Model No. NAW4, Serial No. 4114301, motor 30 hp; installed in 2002
- one (1) Cimco Lewis compressor (Compressor No. 2), Model No. C5W00A, Serial No. 89194, Motor 40 hp; installed in 1989
- one (1) shell and tube heat exchanger, Toromont Cimco refrigeration unit, Serial No. 307080A, CRN No. A2176, maximum allowable working pressure shell side - 200 psi, tube side – 150 psi (from nameplate data); installed in 2003
- one (1) base mounted condenser water pump, Taco Model No. F1507-5.9E2C, serial number not available, capacity 125 gpm, Tag No. 2010213, Date Stamp 08-9=02, no other data; installed in 2002.
- one (1) Brine pump, Manufacturer – Robbins& Myers, Serial No. S.K. 7014, frame 284U, 15 hp, 1740 rpm, motor 575/3/60, 15.5 amps, no other available data; installed in 1966. Rebuilt in 2003.
- condenser water sump tank, no data Installed in 1966
- expansion tank, installed in 1966
- control panel, installed in 1966

4.4 MECHANICAL SYSTEMS

SYSTEM:

- glycol cooling supply and return piping, condenser water piping, ammonia piping, domestic hot and cold water piping; installed in 1966
- refrigeration room wall mounted exhaust fan

M4 Refrigerant Plant (Continued)

CONDITION:

- Toromont Cimco Humicon dehumidifier – good
- Baltimore Aircoil of Canada evaporative condenser – good
- Mycom reciprocating compressor – good
- Cimco Lewis compressor – good
- shell and tube heat exchanger – good
- condenser water pump – good
- Brine pump – fair
- condenser water tank – good
- expansion tank – fair
- control panel – fair
- glycol, condenser water, ammonia piping, domestic hot and cold water piping – good
- refrigeration room wall mounted exhaust fan - fair

PROJECTED EXPENDITURES:

Priority	Estimated Cost	Year
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4.4 MECHANICAL SYSTEMS

SYSTEM:

1.	Replace Toromont Cimco Humicon dehumidifier	B	\$ 67,700	2025
2.	Replace Baltimore Aircoil of Canada evaporative condenser	B	\$ 80,000	2018
3.	Replace compressors	B	\$130,000	2020
4.	Replace shell and tube heat exchanger	B	\$185,000	2025
5.	Replace condenser water pump	B	\$ 15,000	2020
6.	Replace Brine pump	B	\$ 10,000	2018
7.	Replace refrigeration room exhaust fan	B	\$ 2,000	2018

COMMENTS:

Regularly scheduled maintenance will keep the Brine pump operational for another five to ten years. This would be supplemented by individual parts replacement as failures occur.

CODE COMPLIANCE:

N/A

MECHANICAL SYSTEMS**SYSTEM:****4.2**

M5 Ice Service Piping and Concrete Slab

DESCRIPTION: - concrete slab with piping

CONDITION: - concrete slab with piping - fair

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Replace concrete floor slab with service piping	A	\$400,000	2016-18

COMMENTS:

The concrete slab with ice service piping appears to be in fair condition with observed cracking but no major leaking observed. We were advised that no loss of coolant has been experienced.

The operational life expectancy for an installation of this nature is 20 to 40 years depending on the quality of the original installation. However, through the years the service piping may become brittle. Based on the age of the floor in the Arena, the remaining service life is expected to be between three to five years.

CODE COMPLIANCE:

N/A

4.5 ELECTRICAL SYSTEMS

SYSTEM: E1 Normal Power

Description (Continued):

- DESCRIPTION:** - facility has two hydro services:
- one (1) 800 amp, 120/240 volt, single phase service
 - one (1) 400 amp, 600 volt, three phase service
 - 800 amp, 120/240 volt service:
 - service consists of 800 amp service entrance switchboard located in main Electrical Room at front of building; service is fed from a pole mounted transformer located at street in front of northwest corner of building; feeders (three (3) conductors run down the pole and underground in conduit to 800 amp service entrance switchboard
 - switchboard was installed in mid 1980's when two storey community centre was added to arena
 - switchboard consists of three (3) sections one with a main 800 amp two pole breaker; one for utility metering compartment; and one for branch feeder distribution panel consisting of nine (9) two pole breakers
 - switchboard is over 30 years old and near the end of its life expectancy
 - breakers are obsolete and difficult to obtain (and expensive to replace if they are available)
 - main incoming feeder conductors and branch feeder conductors could not be observed without shutting off the main breaker (which was not done); it is understood that the feeder conductors are from the original installation date of construction of this portion of the building
 - nine (9) two pole branch breakers in distribution board consist of:
 - one (1) 200 amp breaker for lighting Panel A for ice surface lighting
 - one (1) 200 amp breaker for Panel B for heating on main floor
 - one (1) 200 amp breaker for Panel C for lighting on main floor
 - one (1) 200 amp breaker for Panel D for heating on upper floor
 - one (1) 200 amp breaker for Panel E for lighting/power to upper floor

4.5 ELECTRICAL SYSTEMS

- SYSTEM:** E1 Normal Power
- one (1) 125 amp breaker for panel in Zamboni Room area
 - one (1) 125 amp breaker for HVAC No. 1
 - one (1) 125 amp breaker for HVAC No. 2
 - one (1) 60 amp breaker (this breaker is now a spare that once fed water heater No. 3)
 - Panel "A" – 42 circuit, 225 A, 120/240 volt, Square D panel, Catalogue No. Q0C4024C consisting of: five (5) 20 amp, two pole; three (3) 20 amp, two pole; one (1) 60 amp, 2 pole; four (4) 20 amp, 1 pole; one (1) 15 amp, 1 pole and 16 spaces for future breakers
 - Panel A is located in main electrical room and is only 3 to 4 years old having replaced original system (refer to Photograph E5)
 - Panel "B" – 42 circuit, 225 A, 120/240 volt FPE panel, Type NBLP 42-3L consisting of: twelve (12) 20 amp, 2 pole; one (1) 30 amp, 2 pole, two (2) 30 amp, 1 pole and 14 spaces for future breakers, breakers are still available for the panel (panel is original and is located in main electrical room (refer to Photograph E5)
 - Panel "C" – same characteristics as Panel B but with the following breakers: fourteen (14) 15 amp, 2 pole; one (1) 40 amp, 2 pole; one (1) 20 amp, 2 pole; two (2) 30 amp, 1 pole; eight (8) 15 amp, 1 pole; panel is full with no spaces and is from original construction and located in main electrical room
 - Panel "D" – same characteristics as Panel B but with the following breakers: two (2) 40 amp, 2 pole; eight (8) 20 amp, 2 pole; two (2) 15 amp, 2 pole, and eighteen (18) spaces for future breakers; panel is original and located in main electrical room
 - Panel "E" – same characteristics as Panel B but with the following breakers: one (1) 70 amp, 2 pole; two (2) 40 amp, 2 pole; one (1) 20 amp, 2 pole, twelve (12) 15 amp, 2 pole, ten (10) 15 amp, 1 pole; panel is full with no future spaces, is original

4.5 ELECTRICAL SYSTEMS

SYSTEM: E1 Normal Power

Description (Continued):

- Panel – Zamboni Room – 200 amp, 120/240 volt
and is located in the second floor kitchen
Westinghouse Nova panel, Type NL40 with the following breakers: three (3) 20 amp, 2 pole; three (3) 30 amp, 2 pole; twelve (12) 15 amp, 1 pole; one (1) space for a future breaker; panel does not appear to be in good condition, breakers becoming obsolete; panel is located in Zamboni Room

4.5 ELECTRICAL SYSTEMS

SYSTEM: E1 Normal Power

Description (Continued):

- Panel – Scorekeeper Box – 100 amp, 120/240 volt
Square D panel, Catalogue No. Q0-16 with the following breakers: one (1) 50 amp, 2 pole; two (2) 20 amp, 2 pole; three (3) 15 amp, 2 pole; one (1) 15 amp, 1 pole; panel is old but breakers are still available
- 400 amp, 600 volt service:
- service is located in electrical room in Zamboni area at rear of arena; service is fed from three (3) pole mounted transformers located in southwest area of parking lot at rear of arena
- service is fed overhead with triplex cable to building and connected to conductors at service conduit mast; conductors in conduit service mast feed a main incoming 400 amp service disconnect switch fused at 400 amps (refer to Photograph E1)
- disconnect switch feeds a splitter trough through a utility metering CT box (refer to Photograph E2)
- connected to splitter trough are five (5) fusible disconnect switches that feed 600 volt equipment consisting of: one (1) 200 amp switch fused at 200 amps for refrigeration equipment panel; one (1) 30 amp switch fused at 15 amps for ground fault lights; one (1) 30 amp switch fused at 15 amps for rink dehumidifier north; one (1) 30 amp switch fused at 15 amps for rink dehumidifier south; one (1) 30 amp switch with no load connected and identified as River Pump Outlet
- all 600 volt service equipment with exception of a few branch connect switches appear to be original (circa 1970's)
- conductors for service are original, appear to be aluminum conductors with the old type of insulation using cloth wrapped over rubber with a lower temperature rating; these are in need of immediate replacement (refer to Photographs E3 and E4)
- 400 amp disconnect switch and splitter trough are

1.	Replace 800 amp, 120/240 volt service entrance board with new incoming wiring	B	\$ 25,000	2015
2.	Replace panels, 120/240 volt, 42 circuit for Panels B, C, D, E and Zamboni Room	B	\$ 12,000	2018
3.	Replace 400 amp, 600 volt service disconnect, splitter and feeder conductors	A	\$ 12,000	2013
4.	Replace and/or repair Cimco refrigeration room panel (Cimco to confirm actual cost/complete replacement may not be necessary) B		\$ 10,000	2013

4.5 ELECTRICAL SYSTEMS

SYSTEM: E1 Normal Power (Continued)

COMMENTS:

Project expenditures for the 800 amp, 120/240 volt service and the 400 amp, 600 volt service are based on replacement as per the original design. The cost may change if Hydro One requires the Owner to install a padmount transformer, etc., for the service.

It is recommended that the 400 amp service be updated and the CIMCO panel repaired/replaced as soon as possible.

CODE COMPLIANCE:

A disconnect switch on the CIMCO panel is required for turning off the power to the Compressor No. 1 motor that feeds directly out of the control panel. Compressor No. 2 has a disconnect beside the control panel. This is an ESA requirement.

4.5 ELECTRICAL SYSTEMS

SYSTEM:

E2 Emergency Power

DESCRIPTION:

- building has no emergency generator
- emergency lighting consists of battery units and remote fixture heads; this also illuminates exit signs in the event of a power failure
- appear to only be three (3) battery units installed on site; two (2) in arena and one (1) in main electrical room
- many areas lack emergency lighting
- additional battery units and remote heads are required
- existing battery units are old and condition of batteries is unknown

CONDITION:

- battery units (arena) - fair
- Battery units (main electrical room) - fair

PROJECTED EXPENDITURES:

	Priority	Estimated Cost	Year
1. Replace existing battery units \$ 1,000	B		2013-15
2. Provide additional battery units and remote heads for areas requiring emergency lighting (including conduit and wiring)	B	\$ 3,000	2013

COMMENTS:

The existing emergency lighting should be tested to confirm proper operation as well as the exit light operation. They appear to be well maintained.

4.5 ELECTRICAL SYSTEMS

SYSTEM:

The emergency battery units viewed appear to have been installed for some time. Depending on the manufacturer and the type of unit, most battery units have a battery with a service life of approximately five to ten years.

CODE COMPLIANCE:

Additional emergency battery units and remote heads are required for proper safe egress of the building (i.e., bleachers require better lighting).

E3 Interior Lighting

DESCRIPTION:

- arena light fixtures over ice surface (approximately 32 fixtures) are 400 watt metal halide; fixtures were installed in 2008 to replace old fixtures; fixtures appear to be in good condition
- fluorescent light fixtures in community centre area consist mostly of: 1'x4' two (2) lamp fixtures installed in a T-bar ceiling for the ground floor; 2'x4' two (2) lamp fixtures installed in T-bar ceiling for the second floor
- fluorescent fixtures were converted from T-12 lamps to T-8 lamps and electronic ballast in 2008; all appear to be in good condition
- fluorescent light fixtures located in change rooms and storage rooms located near the Zamboni room area still have T-12 lamps, these should be replaced or modified for T-8 or T-5 lamps
- fixtures in corridors off dressing rooms in community centre area have no lenses; lenses have been broken; wire guards on these fixtures is recommended

CONDITION:

- arena metal halide fixtures over ice area – excellent
- fluorescent fixtures in community centre area – good
- fluorescent fixtures in change room/storage room in Zamboni room – poor to fair

4.5 ELECTRICAL SYSTEMS

SYSTEM:

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. Replace or change fluorescent fixtures in change room / storage room / Zamboni room	B	\$ 800	2013-15
2. Install wire guards on fixtures in corridor outside dressing rooms in community centre area	B	\$ 300	2013
E3 Interior Lighting (Continued)			

COMMENTS:

It is recommended that wire guards be installed on the fixtures outside the dressing rooms in the community centre area as soon as possible. The fluorescent lamps will explode on impact and can cause injury.

CODE COMPLIANCE:

N/A

4.5 ELECTRICAL SYSTEMS

SYSTEM:

DESCRIPTION:

E4 Exterior Lighting

- exterior lighting consists of wall pack type fixtures using metal halide lamps; four (4) on east wall of building and one (1) on north street side of building; fixtures were installed in summer of 2012
- at rear of building there is a fixtures with a quartz lamp and an older wall pack over the exit door to the arena
- weatherproof spotlight with an incandescent lamp over the exit door on the west wall of the arena

CONDITION:

- exterior fixtures – good to excellent

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
1. None			

COMMENTS:

Because the exterior wall pack fixtures are new, they should last for many years. Only maintenance costs for fixtures would be required for lamp/ballast change.

CODE COMPLIANCE:

N/A

E5 Exit Lights

DESCRIPTION:

- exit light fixtures appear to be original
- exit light fixture lamps were converted to LED lamps in 2008

4.5 ELECTRICAL SYSTEMS

SYSTEM:

- exit light fixtures appear to be in good condition; there are approximately seven (7) exit lights on the ground floor, two (2) on the second floor and four (4) exit lights in the arena

CONDITION: - exit light fixtures – good

PROJECTED EXPENDITURES:	Priority	Estimated Cost	Year
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1.	None		
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COMMENTS:

Although the exit light fixtures are older, they are in good condition. The LED lamps installed should provide a long life without lamp replacement, as well as energy savings.

CODE COMPLIANCE:

N/A

E6	Fire Alarm System	
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DESCRIPTION:

- existing fire alarm panel is a Mirtone 7400; panel is located in front lobby of community centre building; panels is from original construction
- remote devices connected to panel include pull stations, heat detectors and fire alarm bells
- fire alarm panel appears to be in good operating order and is serviced yearly by Valley Fire Alarm Services; last inspected August 2012
- panel indicates four (4) zones connected for: main floor, upper floor, ice surface and Zamboni room / new dressing rooms

4.5 ELECTRICAL SYSTEMS

SYSTEM:

- panel is over 30 years old and has been obsolete since 1989

CONDITION:

- fire alarm panel – poor to fair

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Replace fire alarm panel	B	\$ 2,000	2014-16
2.	Replace bells with horn/strobe devices and add new devices	B	\$ 4,000	2014-16

COMMENTS:

It is recommended that the fire alarm panel be changed in the near future since the panel has been obsolete for many years and replacement parts will be hard to obtain (if available at all).

The fire alarm bells should be changed to horn/strobe devices for this facility. The pull stations and heat detectors can be maintained and reconnected to a new panel.

CODE COMPLIANCE:

Depending on the wiring used to wire the devices, this wiring may need to be changed to meet current code requirements.

When the new panel is installed, additional horn / strobe devices should be added to meet current code requirements.

E7 Electric Heaters

DESCRIPTION:

- building is heated with electric heaters consisting of baseboard heaters, suspended unit heaters, force flow wall mounted heaters and a duct heater
- baseboard heaters mainly in the change room areas and stairs

4.5 ELECTRICAL SYSTEMS

SYSTEM:

- suspended unit heaters in main vestibule, main lobby area and chiller room
- force flow wall heaters in lobby and washrooms
- duct heater in second floor hall area

CONDITION: - electrical heaters – poor to good

PROJECTED EXPENDITURES:		Priority	Estimated Cost	Year
1.	Replace heaters	C	\$ 5,000	2014-16

COMMENTS:

Some of the heaters have been changed or repaired over the years and all appear to be functioning. Most of the heaters are from the original construction.

CODE COMPLIANCE:

N/A

APPENDIX 'A'
ARENA HISTORY

ARENA HISTORY

- 1947 – 1948 - Original building was built - wood structure.
- 1966 - artificial ice plant installed
- 1977 - original wood structure building was renovated to steel frame & walls.
(Wintario project).
- 1985 - front end of building was newly renovated for hall, dressing rooms, lobby
front entrance, and blocks along ice surface walls. (Arena Fundraising C
- 1989 - 40 HP Cimco compressor installed for back up for the old compressor.
- 1990 - headers redone from steel to pvc piping
- 1990's - replace ceiling tiles, doorways for application for permanent liquor licens
- 2002 - 30 HP Mycom compressor & condenser installed. (Superbuild Fundraisi
(replacing old '66 compressor).
- Floors in dressing rooms were installed & stairway to hall. (Local Heroes).
- 2003 - New Ammonia chiller & dehumidifier installed (Superbuild Fundraising
- 2004 - 2 new change rooms added to building with a storage room for Minor Ho
(Ontario Trillium)
- 2005- flooring in dressing rooms redone with thick rubber.
- 2006- new low-e-ceiling & lighting installed over ice surface area.
- 2007 - front entrance restructured with new roof.
- 2008 – funds forwarded to 2009 for air conditioning and chair lift.
- 2nd dehumidifier installed (ice surface).

- 2009
- Chair lift in rear of upstairs hall (Ontario Trillium)
 - New Olympia Ice resurfacer to replace '79 machine.
 - Ford 4x4 short box truck bought for Recreation.
 - Air conditioning installed in Eagles' Nest Hall.
 - Parking lot repairs & paved.
 - Three hot water tanks replaced.
 - Storage building for arena tables & chairs & rec mowers, etc.

- 2010
- Reconstruct ice surface corners with steel posts, plates & puck boards.
 - New time clock

2011 - INLINE FLOORING

APPENDIX 'B'
SITE PHOTOGRAPHS



PHOTOGRAPH NO. E1 – Main Incoming 400 Amp, 600 V, 3 Phase Service Entrance Disconnect Switch.



PHOTOGRAPH NO. E2 – Splitter through 600 V, 3 Phase



PHOTOGRAPH NO. E3 –
Inside the 400 Amp, 600 V
Disconnect Switch.



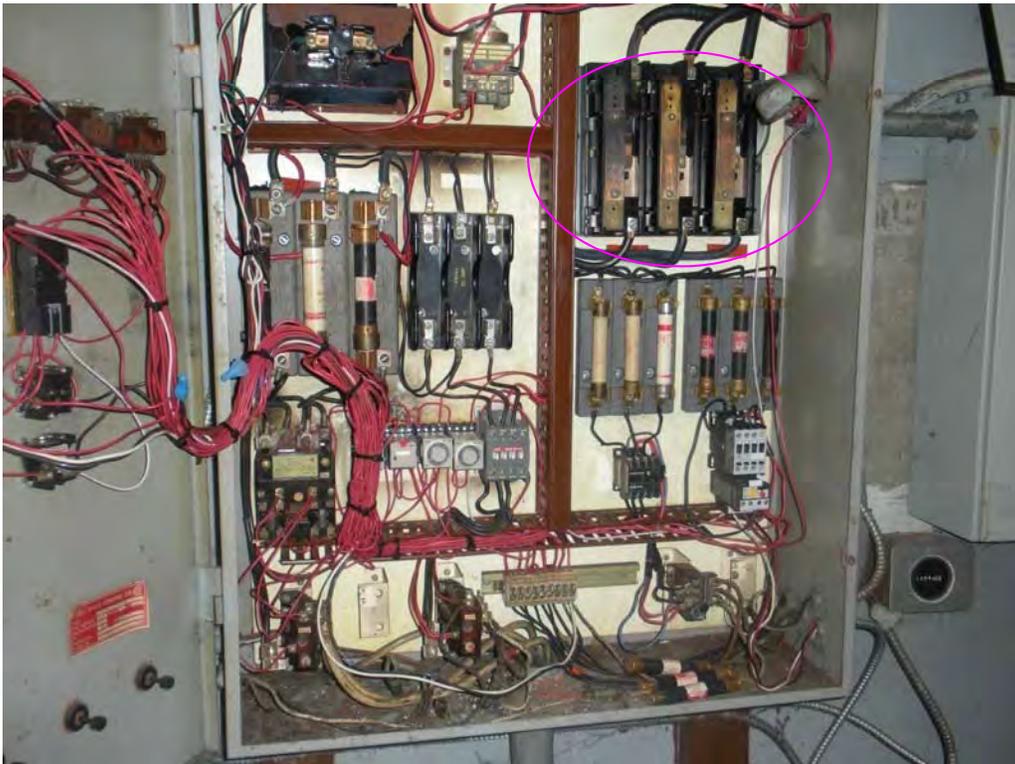
PHOTOGRAPH NO. E4 – Terminal Block Appears to Have Overheated Compared to Other Two Terminal Blocks



PHOTOGRAPH NO. E5 – Panel B is Typical for Panels C, D and E.



PHOTOGRAPH NO. E6 – CIMCO Refrigeration Control Panel.



PHOTOGRAPH NO. E7 – The Terminals and Conductions Show
Signs of Overheating.

APPENDIX 'C'
ONTARIO FIRE CODE REVIEW