MORRISON HERSHFIELD

ONTARIO FIRE CODE REVIEW BASED ON ONTARIO FIRE CODE
ONTARIO REGULATION 213/07, DIVISION B, SECTION 9.2

Eganville Community Arena/Hall

178 Jane Street

Eganville, Ontario

Presented to:

Mr. Rick Westwell

J.L.Richards & Associates Limited
864 Lady Ellen Place
Ottawa, Ontario K1K 5M2

Report No. 2130560.00
Date: July 8, 2013
L:\PROJ\2130560\MH EGANVILLE COMMUNITY ARENA FIRE CODE REVIEW.DOC

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

Morrison Hershfield Limited (Morrison Hershfield) has been retained by J.L. Richards & Associates Limited to conduct an independent Ontario Fire Code (OFC) building review of the Eganville Community Arena/Hall located at 178 Jane Street, Eganville. The building review has been carried out relative to the provisions as indicated in Section 9.2, "Assembly Occupancies," of the OFC. However, Morrison Hershfield's scope of work did not include the analysis of fire alarm and detection as well as suppression requirements. Requirements (with analysis) related to fire alarm and detection as well as suppression requirements have been identified in this report.

In this report, requirements from the OFC are in *italic and smaller type font.* Text that is in ***bold*** represents defined terms in the OFC.

Unless otherwise indicated, the OFC references in this report are with respect to Division B.

1.2 Scope of Work

This report is a presentation of the OFC requirements applicable to an existing building of assembly occupancy.

The building analysis includes a Code compliance review with respect to the applicable requirements of Section 9.2 "Assembly Occupancies" of the 2007 OFC. However, as previously indicated, Morrison Hershfield's scope of work did not include the analysis of fire alarm and detection as well as suppression requirements. Requirements (without analysis) related to fire alarm and detection as well as suppression requirements have been identified in this report. Recommendations for remedial work are indicated within the body of this report as well as at the end of this report.

The verification of the maintenance of systems and building services is outside the scope of this review.

It is that other provisions of the OFC are applicable to this building (e.g., Part 2, Part 4, 6 etc., requirements). However, the analysis of these provisions is outside the scope of work.

1.3 Methodology

This report is based on the existing site conditions as observed during a site visit conducted on June 19, 2013.

Destructive testing by Morrison Hershfield was not undertaken and is outside the scope of this review. System performance testing was not undertaken and was also outside the scope of this review.

A random representative sampling of relevant areas was undertaken for this review.

1.4 Limitations

Reviewed correspondence, material, data, evaluations and reports furnished by others are expected to be free of latent deficiencies or inaccuracies.

Tests and detailed analysis have not been done, nor were they within the scope of work for this project. Our review is limited to visual observations of surface conditions and did not include operational tests of any system or equipment.

Comments and conclusions within this report represent our opinion, which has been based on an examination of the documents provided and a visual review of the conditions of the building. This review is limited to technical performance and fire safety related requirements of the building and applicable requirements of Section 9.2 of the 2007 Ontario Fire Code.

The findings in this report are based on a visual review. Deficiencies existing but not recorded in this report were not apparent given the level of study undertaken.

In issuing this report, Morrison Hershfield and the authors do not assume any of the duties or liabilities of the designers, builders, owner or operators of the subject property. Owners, prospective purchasers, tenants or others who use or rely on the contents of this report do so with the understanding as to the limitations of the documents examined and the general visual review undertaken. Such persons understand that Morrison Hershfield cannot be held liable for damages they may suffer in respect to the purchase, ownership, use or operation of the subject property.

1.5 Confidentiality

This report is intended for use only by J.L. Richards & Associates Limited and may contain information that is privileged, confidential, proprietary or exempt from disclosure under applicable law. This report is not to be distributed to the general public.

2. BUILDING DESCRIPTION

The Eganville and District Community Hall/Arena, located at 178 Jane Street in Eganville, was built in in the late 1970s. At a later unknown time, an addition was constructed to the building that included the Zamboni room, and the rear storage spaces.

The building has two levels and a footprint of approximately 25400 ft² (2360 m²).

The 1st floor is mainly occupied by the central ice rink and includes ancillary spaces located at the front and rear of the arena. The ancillary spaces located at the front of the building, adjacent to the main entrance include the following: entrance lobby, office, canteen, washrooms, two sets of change rooms per gender with different washrooms and electrical room. At the rear of the arena, there is an Olympia room (for the storage of the ice resurfacer), electrical and mechanical spaces, a mezzanine storage space and two additional dressing rooms.

Indoor tiered seating is located in the arena and is used only during the winter months, for viewing of winter sport activities. In the summer, the ice pad is operated as a community hall, with limited access to the tiered seating.

The 2nd level, overlooking the ice rink is used as an assembly space (i.e., community hall) and includes the following ancillary spaces: kitchen, bar, janitor room, washrooms and storage rooms.

The building contains two major occupancies:

- Group A, Division 2 (general assembly use such as a community hall) and
- Group A, Division 3 (arena).

Other uses in the building (e.g., storage rooms, dressing rooms, canteen, etc.) are subsidiary to the major occupancies of the building.

A residential type stove is located in community hall on the 2nd level and a commercial type stove is located in the canteen adjacent to the community lobby, on the main floor.

The building is equipped with a fire alarm system.

3. APPLICABLE CODES

3.1 Ontario Fire Code

Ontario Regulation 213/07, the 2007 Ontario Fire Code (OFC), came into force on November 21, 2007. By virtue of the Fire Protection and Prevention Act established by the Ontario Fire Marshal's Office, all municipal fire departments in Ontario have the responsibility of the Fire Marshal for fire prevention and public education with respect to fire safety. In Ontario, the OFC has been established as the base Code for fire safety in existing buildings. It is the building owner's responsibility to ensure that all requirements of the OFC are respected and to undertake the necessary upgrades where required.

3.2 Modification of the Building

The Fire Code review was conducted relative to the existing condition of the building as observed on June 21st, 2013. It is noted that any modifications to the building including but not limited to the removal or construction of assemblies, doors, etc. is permitted to be undertaken only after a building permit is issued from the Town of Eganville. A building permit application is also required for any changes of use to any rooms or areas in the building.

4. OFC SECTION 9.2 – RETROFIT OF ASSEMBLY OCCUPANCIES

4.1 Application

9.2.1.1.(1) This Section applies to

(a) art galleries,
(b) auditoria,
(c) beverage establishments,
(d) bingo halls,
(e) clubs,
(f) community halls,
(g) dance halls,
(h) enclosed arenas,
(i) exhibition halls,
(j) gymnasia,
(k) halls in religious establishments (excluding areas of worship),
(l) lecture halls,
(m) lodge rooms,
(n) movie theatres,
(o) museums,
(p) opera houses,
(q) restaurants,
(r) television studios, and
(s) theatres.

(2) For the purposes of this Section,
*"**1986 Building Code**" means Ontario Regulation 419/86, as it read on February 11, 1987;*
"existing" means in existence on February 11, 1987.

Exemption for educational facilities

*9.2.1.2. This Section does not apply to **assembly occupancies** in **buildings** that are regulated by or under the **Education Act** or the **Ministry of Colleges and Universities Act**.*

Exemption for hotels

*9.2.1.3. This Section does not apply to a **building** or part of a **building** regulated by Section 9.9.*

This report includes a building review in order to demonstrate compliance with the requirements of Section 9.2 of the OFC.

The provisions of Section 9.2 are applicable to the assembly portions of the building, and are consistent with those indicated in Sentence 9.2.1.1.(1). In addition, the exceptions listed above do not apply to the building.

The building contains Group A, Division 2 and Group A, Division 3 major occupancies. Other uses in the building are subsidiary to the major occupancies of the building and exist to serve those assembly occupancies. As the uses in the building are consistent with those indicated in Sentence 9.2.1.1.(1), the entire building has been evaluated relative to the provisions of Section 9.2.

4.2 Containment

Fire separations between major occupancies

*9.2.2.1. (1) **Fire separations** shall be provided between **assembly occupancies** described in Subsection 9.2.1. and other **major occupancies** in compliance with Article 3.1.3.2. of the **1986 Building Code**.*

*(2) Where a **building** is **sprinklered** and the sprinkler system complies with Article 9.2.5.2. or where a detection system is provided and connected to the **building** fire alarm system, and Sentence (1) requires*

*(a) a 2 h **fire separation**, a 1 h **fire separation** is deemed to be in compliance, or*

*(b) a 1 h **fire separation**, a 30 min **fire separation** is deemed to be in compliance.*

Observations and analysis with respect to the fire separation between occupancies:

- The building is not sprinklered.
- The building contains Group A, Division 2 (assembly occupancies not elsewhere classified in Group A) and Group A, Division 3 (assembly occupancies of the arena type) major occupancies. Other uses in the building are subsidiary to the major occupancies of the building.
- Sentence 9.2.2.1.(1) requires fire separations between assembly occupancies and other major occupancies to be in an accordance with the 1986 Building Code. Although the 1986 Building Code would require a fire separation between Group A, Division 2 and Group A, Division 3 major occupancies, this separation is not required by the OFC as the OFC only requires the fire separation of assembly major occupancies from other major occupancies.

Protection of openings in fire separations

*9.2.2.2. (1) **Closures** that are in compliance with Sentences 3.1.6.4.(2) and 3.1.6.7.(1) of the **1986 Building Code** shall be provided in **fire separations**.*

(2) Where Sentence (1) requires

*(a) a 1 h or a 45 min **fire-protection rating**, existing hollow metal or kalamein doors, with or without wired glass and equipped with self-closing devices, and existing hollow metal frames are deemed to be in compliance,*

*(b) a 1 h or a 45 min **fire-protection rating**, existing wired glass screens set in fixed steel frames are deemed to be in compliance, or*

*(c) a 20 min **fire-protection rating**, existing 45 mm solid core wood doors and existing solid wood frames are deemed to be in compliance.*

*(3) Despite the requirements referred to in Sentence (1), **fire dampers** or **fire-stop flaps** are not required to be installed in existing noncombustible ducts at penetrations of a **fire separation**.*

The requirements of Sentences 9.2.2.2.(1) to (3) have been incorporated in other sections of this report.

Fire separations for hazardous areas

*9.2.2.3. (1) In high **buildings** classified in the **1986 Building Code** under Subsection 3.2.6., **fire separations** that are in compliance with Subsection 3.5.2. of the **1986 Building Code** shall be provided between **service rooms** and **assembly occupancies**.*

*(2) In **buildings** not referred to in Sentence (1), **fire separations** that are in compliance with Subsection 3.5.2. of the **1986 Building Code** shall be provided between **service rooms** and **assembly occupancies**.*

*(3) A 30 min **fire separation** is deemed to be in compliance with Sentence (2) where*

*(a) the **service room** is **sprinklered**, or*

*(b) a detection system is provided and connected to the **building** fire alarm system.*

*(4) **Fire separations** shall be provided between theatrical stages and **assembly occupancies** in compliance with Sentences 3.3.2.14.(3) to (5) of the **1986 Building Code**.*

*(5) Despite Sentence (4), existing **fire separations** may be **approved**.*

Observations and analysis with respect to the fire separations for hazardous areas:

- The building is not a high building.
- The Chief Fire Official may approve existing fire separations.
- Fire separations between service rooms and assembly occupancies:

Service rooms containing fuel-fired equipment:

- Fuel-fired equipment is required to be located in service rooms separated from the reminder of the building by a fire separation with a 1 hour fire resistance rating, per the 1986 Building Code.
- An exemption to this requirement was added in the Building Code editions following the 1986 Building Code, for fuel fired appliances that serve only one room or suite. This exemption, found in the later editions of the Code following 1986 was originally intended for a residential suite located in a multi suite building, where each suite had its own gas-fired furnace or water tank, and typically in large buildings, this exemption does not deserve special consideration. However, as it is the intent of the Code to exempt fuel-fired appliances serving single rooms or suites, the exemption has been applied for space heaters serving the office and the rear change room and to the fryer located in the canteen. The exemption is not considered to be applicable to the hot water tanks as they serve the entire building.

Service rooms not containing fuel-fired separations:

- The 1986 Building Code requires other service rooms to be fire separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating unless the room is sprinklered or the room contains a limited quantity of service equipment and the service equipment does not constitute a fire hazard.
- The electrical room located at the rear of the arena, on the 1st floor, adjacent to the Olympia room is not considered a room to meet the service room exemption.
- The electrical room located at the front of the arena contains fuel fired equipment and has been evaluated below.

Fuel-fired appliance (hot water tank) in the electrical room located at the front of the building, on the 1st floor

Fuel-fired equipment (hot water tank) is located in the electrical room located at the front of the building, on the 1st floor. The room is constructed of concrete masonry unit partitions that are not consistently full height. The ceiling structure is wood joists and non-rated suspended acoustic ceiling tile and grid system, therefore the room is not separated from the remainder of the building by a fire rated separation. The door and frame to the room are of metal construction but the door is equipped with an unprotected louvre. The door is not equipped with self-closing device but is equipped with door hardware that provides positive latching.

Fuel-fired appliance (hot water tank) located in the Olympia room located at the rear of the building, on the 1st floor

Fuel-fired appliances (hot water tank and heater) are located in the Olympia room. The partition separating the room from the arena appears to be composed of metal studs, wood strapping and corrugated metal panels with insulation in the wall cavity, with wood studs and aspenite wall board inside the room, which does not provide a 1 hour resistance rating. Other interior partitions of the room are assumed to be plywood on wood studs and extend to the underside of the wood trusses, as such do not provide a fire separation from the remainder of the building. The door to the room is an overhead insulated door, covered with metal cladding. The door is electrically operated but is neither connected to the fire alarm system nor equipped with a fusible link. A doorway opening is provided into the adjacent electrical room.

Number	Location	Recommendation
1.	Electrical Room, Level 1	Separate the electrical room from the reminder of the building by a fire separation having a 1 hour fire resistance rating. The door and frame to the room are required to be provided with a 45 minute fire protection rating and be complete with self-closing device and positive latching mechanism.
2.	Olympia room, Level 1	Separate the Olympia room from the reminder of the building by a fire separation with a 1 hour fire resistance rating. **OR** Provide an enclosure around the hot water tank to separate the hot water tank from the reminder of the building by a fire separation with a 1 hour fire resistance rating.

Interior finishes

*9.2.2.4. (1) Interior finishes shall comply with the **flame-spread rating** requirements under Clauses 3.1.4.5.(3)(g) and (h) and Subsection 3.1.11. of the **1986 Building Code**.*

(2) Where

*(a) the finish is not an exposed expanded plastic, the assembly area is **sprinklered** and the sprinkler system complies with Article 9.2.5.2., the existing interior finish is deemed to be in compliance with Sentence (1), or*

*(b) the finish is treated with a fire retardant surface coating **listed** by a recognized **testing** laboratory and applied in accordance with the listing conditions, the finish is deemed to be in compliance with Sentence (1).*

*(3) Despite Sentence (1), existing interior finishes may be **approved**.*

Observations and analysis with respect to interior finishes:

Wall Finishes:

- Clause 3.1.4.5.(3)(g) of the 1986 Building Code permits combustible interior wall finishes that are a maximum of 25 mm thick which have a maximum flame-spread rating of 150 on any exposed surface, or any surface that would be exposed by cutting through the material in any direction.
    - Wood interior finishes (combustible) are located throughout the building. The wood paneling is not expected to meet the flame-spread requirements of the Code.

Ceiling Finishes:

- Clause 3.1.4.5.(3)(h) of the 1986 Building Code permits combustible interior ceiling finishes that are a maximum of 25 mm thick which have a maximum flame-spread rating of 25 on any exposed surface, or any surface that would be exposed by cutting through the material in any direction except that 10% of the ceiling area within each fire compartment is permitted to have a maximum flame-spread rating of 150. Exceptions apply for fire-retardant treated wood battens and fire retardant treated wood.
    - The plywood ceiling in the rear electrical room and resurfacing room is not expected to meet the flame-spread requirements of the Code (flame-spread rating greater than 25).
    - The interior roof liner located in the ice rink portion of the arena is expected to meet the flame spread rating requirements, however the material thickness could not be confirmed. In addition, flame-spread rating can only be determined through testing.

Exits and Exit Lobbies:

- A maximum flame spread rating of 25 is required for walls and ceilings of exits and exit lobbies. Wood interior finishes (combustible) are located throughout the exits.
    - The wood interior finish (combustible) located in the exits is not expected to meet the flame-spread requirements of the Code.

General applicable observations:

- Wood finishes on walls may have a maximum flame-spread rating of 150. However, flame-spread ratings can only be determined through testing.
- In portions of the building, there are wood plywood ceiling finishes provided. The ceiling finishes will not meet the requirements of the Code for flame-spread rating.
- Exposed foam plastic insulation was not observed in the building.
- The Chief Fire Official may approve the existing interior finishes in the building.
- The flame-spread rating for ceilings is required to be 25 except that not more than 10%of the ceiling area within each fire compartment is permitted to have

a flame-spread rating of not more than 150. The Olympia room located at the rear of the building has a plywood ceiling finish. Based on the hot water tank located in the Olympia room being enclosed in a separate fire compartment, the ceiling area of the Olympia room may be considered as being part of the same fire compartment of the arena (Refer to Recommendation 2 – Option of enclosure around hot water tank).

Number	Location	Recommendation
3.	**Walls:** Level 1: Olympia room, rear electrical room, exits. Level 2: community hall, exit stairs	Replace combustible interior **wall** finishes that have a flame-spread rating greater than 150 with interior finishes that have a maximum thickness of 25 mm and a maximum flame-spread rating of 150. **OR** Treat combustible interior ceiling finishes with a fire retardant coating listed by a recognized testing laboratory and applied in accordance with the listing conditions, suitable for interior applications. **OR** Sprinkler the building.
4.	**Ceilings:** Level 1: Arena (Ice Pad) and Olympia room	Replace combustible interior **ceiling** finishes that have a flame-spread rating greater than 25 with interior finishes that have a maximum thickness of 25 mm and a maximum flame-spread rating of 25 (except that not more than 10% of the ceiling area within each fire compartment is permitted to have a flame spread rating of not more than 150). **OR** Treat combustible interior ceiling finishes with a fire retardant coating listed by a recognized testing laboratory and applied in accordance with the listing conditions, suitable for interior applications. **OR** Sprinkler the building.

4.3 Means of Egress

Occupant load determination

*9.2.3.1. The **occupant load** for calculation of number and width of **exits** referred to in Articles 9.2.3.6. and 9.2.3.7. shall be in accordance with Article 2.7.1.4.*

Observations and analysis with respect to occupant load:

General applicable observations:

- The occupant load of the building has been estimated based on visual observations, approximate dimensions and user information. Refer to the Table 1 for the estimated occupant load of the building.
- As per Clause 2.7.1.4.(3)(b), the occupant load is permitted to be based on a design occupant load.

2nd Level:

- The building operators have indicated that the maximum occupant load of the 2nd level (i.e., community hall) is 250 persons.

Ice Rink Arena:

- In the winter months, the arena is used exclusively for ice related sports. The maximum occupant load is not expected to exceed 700 persons, as indicated in the Table 1, below.
- In the summer months, the arena does not operate as an ice rink. The central part of the arena operates as a community hall and access to the bleachers is limited. The building operators have indicated that the maximum occupant load in the summer months is 1000 persons.

Table 1: Occupant Load of Building

Space	Estimated Area (m²)	Occupant Load Factor	Occupant Load (persons)
First Floor			
Canteen on 1st Floor	40	9.3 m²/person	4
Lobby Area	--	--	0[1]
Locker Room	--	--	0[1]
Arena tiered seating (winter)	--	--	500[2]
Arena tiered seating (summer)	--	--	0Error! Bookmark not defined.
Arena Ice Pad (winter)	1800	9.3 m²/person	193
Arena Ice Pad (summer)	--	--	1000[3]
TOTAL Occupant Load on the 1st Level (Summer):			**1004**
2nd Level			
Community Hall (Eagle's Nest) on the 2nd Level	--	--	250[3]
Kitchen and Bar on the 2nd Level	45	9.3 m²/person	5
TOTAL Occupant Load on the 2nd Level:			**255**

Access to exits; number and location

9.2.3.2. (1) Where the occupant load of a room exceeds 60 persons, at least two egress doorways shall be provided in such a manner that one doorway can provide egress if the other doorway becomes inaccessible to the occupants.

(2) An existing room with one doorway is deemed to be in compliance with Sentence (1) where

*(a) the **occupant load** does not exceed 100 persons,*

*(b) the **floor area** is **sprinklered** and the sprinkler system complies with Article 9.2.5.2., and*

---

[1] Occupants accounted for in other areas of the building (i.e., ice pad, lobby and ice pad seating).

[2] It is noted that an occupant load of 418 persons has been determined using the Code prescribed occupant load factor of 450 mm/person. This is based on four rows of seating (fixed bench type seats) with a length of approximately 42 metres per row and one row of seating with a length of approximately 20 metres.

[3] Estimated occupant load, based on information from the user.

*(c) the **travel distance** does not exceed 23 m.*

Observations and analysis:

- Rooms with an occupant load greater than 60 are provided with two means of egress.

Access to exits

*9.2.3.3. (1) **Access to exits** shall comply with Article 3.3.2.7. of the **1986 Building Code**.*
*(2) Existing **access to exits** through dead end corridors are deemed to be in compliance with Sentence (1) where*
*(a) the **occupant load** does not exceed 20 persons, and*
*(b) the travel distance does not exceed 6 m plus the width of the dead end corridor to a point where a choice of two directions of **exit** travel are available.*

Observations and analysis:

- Article 3.3.2.7. of the 1986 Building Code permits dead-end corridors in an assembly occupancy where there is a second and separate egress from each room or suite not leading into a dead-end corridor.
- A dead-end corridor was observed at the front side of the building, on Level 1, adjacent to the Canteen and Mechanical-Electrical room. The length of the dead end corridor does not exceed 6 metres and the occupant load of the spaces discharging through the dead end corridor does not exceed 20 persons.
- The corridor adjacent to the locker rooms and the Olympia Room is not considered a dead-end corridor as this corridor leads directly to the ice pad where there is access to other exits. In addition, the path of travel is marked with directional exit signs.

Minimum number of exits

*9.2.3.4. (1) Each **floor area** shall be served by at least two **exits**.*
*(2) Despite Sentence (1), **floor areas** in **buildings** not exceeding 2 **storeys** in **building height** may be served by one **exit** where*
*(a) the **occupant load** for the **floor area** does not exceed 60 persons,*
*(b) the **floor area** does not exceed 200 m^2, and*
*(c) the **travel distance** from any point on the **floor area** does not exceed 15 m.*

Observations and analysis:

- Exits are located around the perimeter of the building.
- The 2nd level is served by an two exits. Refer to recommendation for the community hall under the analysis of Article 9.2.3.15. (i.e., upgrades of exit stairs).
- The storage mezzanine located at the rear side of the building is served by a single egress stair. The storage mezzanine has a small area and limited occupant load. The travel distance to the egress door that leads to the corridor is less than 15 meters, which would satisfy the egress and exiting requirements for mezzanines (based on the requirements for new construction), as the room in which the mezzanine is located is served by at least two egress doorways.

Door swing

*9.2.3.5. Each door serving as an **access to exit** from a room serving more than 60 persons shall open in the direction of **exit** travel and shall swing on its vertical axis.*

Observations and analysis:

- With the exception of the two doors of the change room area, all doors serving as an access to exit from rooms that have an occupant load greater than 60 persons swing in the direction of egress travel. The occupant load of the change room area may exceed 60 persons (the occupant load of the change room has not been calculated in Table 1 as these occupants are accounted for in other areas of the building).

Number	Location	Recommendation
5.	Front of building change rooms, Level 1	Limit the occupant load in the change rooms to a maximum of 60 persons. **OR** Reverse door swing to be in the direction of exit travel for both doors.

Number of exits

*9.2.3.6. (1) The minimum number of **exits** from a **floor area** shall be,*

*(a) for an **occupant load** of 61 up to and including 600 persons, not less than two **exits**,*

*(b) for an **occupant load** of 601 up to and including 1000 persons, not less than three **exits**, or*

*(c) for an **occupant load** of more than 1000 persons, not less than four **exits**.*

Observations and analysis:

- The ice pad is served by four exit doors.
- The community hall has an occupant load greater than 61 persons and is served by two exits. Refer to recommendation in the analysis of Article 9.2.3.15. for the fire separation requirement for the exit stairs.

Total width

*9.2.3.7. (1) The aggregate required width of **exits** shall be determined by multiplying the **occupant load** of the area served by*

(a) 6.1 mm (1/4 in) per person for ramps with a gradient of not more than 1 in 8, doorways, corridors and passageways, or

(b) 9.2 mm (3/8 in) per person for ramps with a gradient of more than 1 in 8 and stairs.

*9.2.3.8. The width of an **exit** stair or of a corridor used as an **access to exit** or as an **exit** shall not be less than 900 mm.*

*9.2.3.9. Where the total number of **exits** and the total width of **exits** comply with Articles 9.2.3.6. and 9.2.3.7., existing corridor and stair widths are deemed to be in compliance with Article 9.2.3.8.*

Observations and analysis:

- Exit capacity from the building is indicated in Table 2.
- Corridors in an access to exit and exit stairs have a width greater than 900 mm.

- The community hall on the 2nd level is served by two exit stairs.
- Based on the limiting width of the exit stair, the 2nd floor community hall is provided with a total exit capacity of 326 persons. The exit capacity is based on equal distribution of occupants to each exit from the 2nd level and a limiting width of 1500 mm for the exit stair discharging trough the exit lobby adjacent to the building main entrance.
- The 1st floor is served by five exits. These exits can accommodate 1430 people.
- The exits in the building can accommodate the occupant load of the building.

Table 2: Exit Capacity

Exit	Serves	Width of Limiting Element (mm)	Exit Capacity Factor (mm/person)	Exit Capacity (persons)
1st Floor				
Front Entrance	Ground Floor	1735 (doors)	6.1	285
Double Door from Ice Pad Adjacent to Ice Pad Seating	Ground Floor	1760 (door)	6.1	289
Double Door from Ice Pad Adjacent to front change rooms	Ground Floor	1640 (doors)	6.1	267
Double Doors from Ice Pad Adjacent to Rear change rooms	Ground Floor	1800 (door)	6.1	295
Double Doors from Ice Pad Adjacent to Rear Olympia Room	Ground Floor	1790 (door)	6.1	294
TOTAL Exit Capacity on the 1st Level:				**1430**
2nd Level				
Community Hall Exit Adjacent to the Bar	Community Hall	1740 (stair)	9.2	163 (189 can be accommodated)[4]
Community Hall Exit Adjacent to the Front Entrance	Community Hall	1500 (stair)	9.2	163
TOTAL Exit Capacity on the 2nd Level:				**326**

[4] Although 189 persons can be accommodated by this exit, each exit is not permitted to contribute more than one half of the exit capacity from the floor area.

Fire escapes permitted

*9.2.3.10. A fire escape may be erected on an existing **building** to provide one or more of the **exit** facilities described in Article 3.4.1.2. of the **1986 Building Code**, provided that the fire escape does not serve **floor areas** above the fifth floor.*

Fire escape construction

*9.2.3.11.(1) Each fire escape shall be constructed to comply with Article 3.4.7.13. of the **1986 Building Code**, except as permitted in Article 9.2.3.18.*

*(2) Despite Sentence (1), an existing fire escape may be **approved**.*

Observations and analysis with respect to fire escapes:

- Fire escapes are not provided from the building. As such, compliance with the provisions of Article 9.2.3.10. and Sentences 9.2.3.11.(1) and (2) is not required.

Emergency lighting

*9.2.3.12. Emergency lighting shall comply with Article 3.2.7.3. of the **1986 Building Code**.*

Observations and analysis with respect to emergency lighting:

- Based on information from building operators, emergency lighting is provided throughout the building.
- Emergency lighting is required in the 1st floor arena as the occupant load is greater than 60 persons and the space is not provided with natural lighting.
- Although the 1986 OBC does not require installation of emergency lighting in assembly areas provided with natural lighting, principal routes providing access to exit in an open floor areas are required to be equipped with emergency lighting.
- Emergency lighting is required in the 1st floor exit lobby, corridors used by public and exit stairs.
- A test of the emergency lighting system has not been conducted and is outside the scope of work. Emergency lighting is required to be tested to confirm that illumination to an average level of 10 lx is provided for a minimum of 30 minutes and the emergency lighting automatically actuates when the power to the building is interrupted.

Number	Location	Recommendation
6.	Throughout the building	Provide a test record confirming that adequate illumination (average level of 10 lx) is provided for a minimum of 30 minutes and the emergency lighting automatically actuates when the power to the building is interrupted for the emergency lighting system. If a test record is not available, a test of emergency lighting would be required and the emergency lighting system may be required to be upgraded.

Exit signs

*9.2.3.13. (1) Markings and signs for **exits** and **access to exits** shall comply with Subsection 3.4.5. of the **1986 Building Code**.*

*(2) Despite Sentence (1), existing markings and signs may be **approved**.*

*9.2.3.14. In **buildings** over 2 **storeys** in **building height**, any part of an **exit** ramp or stair that continues past the **exit** door at ground level to a **basement** shall be clearly marked by a sign indicating that it does not lead to an **exit**.*

Observations and analysis with respect to exit signs:

- Exit signs have the word EXIT in red on a contrasting background.
- Exit signs are provided throughout the building in general accordance with Subsection 3.4.5. of the 1986 Building Code.

Separation of exits

*9.2.3.15. (1) Where an **exit** stairway, an escalator or a moving walkway serves as a required **exit**, it shall be separated from the remainder of the **building** in accordance with Sentence 3.4.4.1.(1) of the **1986 Building Code**.*

*(2) Doors in **fire separations** required in Sentence (1) shall be equipped with self-closing devices.*

*(3) An existing 45 min **fire separation** with a 45 min rated **closure** as described in Clause 9.2.2.2.(2)(a) is deemed to be in compliance with Sentence (1).*

*(4) Existing wired glass screens set in fixed steel frames are acceptable in **fire separations** required by this Article.*

Observations and analysis with respect to separation of exits:

- The community hall located on the 2nd level is served by two exit stairs. The exit stair separations from the 2nd level are not full height (i.e., do not extend to the underside of the roof structure)
- The drawings provided indicate doors at the top of the stairs that were not observed on site.
- The door and door frame at the bottom of exit stair adjacent to the main building entrance are of metal construction and are equipped with self-closing devices and positive latching mechanisms. The doors were propped open at the time of the site visit and are equipped with a slide bolt on the exit stair side. Doors in fire separations are not permitted to be held-open by a mechanical hold-open device.

Number	Location	Recommendation
7.	Exit stair adjacent to the building main entrance, Levels 1 and 2	Upgrade the front exit enclosure so that is separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating (Based on the requirements of the 1986 Building Code).
8.	Exit stair adjacent to the building main entrance, Levels 1 and 2	At the top of the stairs, provide doors with a 45 minute fire protection rating to separate the front exit stair from the 2nd floor community hall. Doors are to be complete with self-closing devices and positive latching mechanisms.
9.	Exit stair adjacent to the building main entrance, Levels 1 and 2	Remove existing mechanical hold-open device. If the doors are required to be kept open, install hold open device connected to the fire alarm system.
10.	Exit stair adjacent to the bar, Level 2	Upgrade the exit enclosure so that is separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating (Based on the requirements of the 1986 Building Code).
11.	Exit stair adjacent to the bar, Level 2	At the top of the stairs, provide doors with a 45 minute fire protection rating to separate the front exit stair from the 2nd floor community hall. Doors are to be complete with self-closing devices and positive latching mechanisms.

Exits through lobbies

*9.2.3.16.(1) **Exits** through a lobby area shall comply with the requirements of Clauses 3.4.4.1.(7)(c) to (f) of the **1986 Building Code**.*

*(2) Despite Sentence (1), more than one **exit** may be permitted through a lobby area where there is at least one alternate **exit** capable of serving 50% of the total capacity and leading directly to the outside.*

Observations with respect to exits through lobbies:

- The exit lobby is required to be separated from the reminder of the building by a fire separation with a 1 hour fire resistance rating (based on the requirements of the 1986 OBC). The exit lobby separation is not full height (i.e., does not extend to the underside of the roof structure).
- The doors and door frames of the occupancies adjacent to the lobby are of metal construction, which provides an inherent fire protection rating. These doors are equipped with self-closing devices and positive latching mechanisms.

- The doors between the exit lobby and the main building lobby were propped open at the time of the site visit and are equipped with mechanical door holders.

Number	Location	Recommendation
12.	Exit lobby, Level 1	Upgrade the exit lobby fire separation so that the exit lobby is separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating.
13.	Exit lobby, Level 1	Remove mechanical door holders existing on the door between the exit lobby and the main building lobby.

Ancillary rooms

*9.2.3.17.(1) Existing storage rooms, garbage rooms and laundry rooms, opening directly into an **exit** stairway, shall be **sprinklered** and the rooms shall be separated from the **exit** stairway by a 45 min **fire separation**.*

*(2) Existing washrooms and toilet rooms opening directly into an **exit** stairway shall be separated from the **exit** stairway by a 45 min **fire separation**.*

*(3) Despite Sentences (1) and (2), existing ancillary rooms opening directly into an **exit** stairway may be **approved**.*

*9.2.3.18. (1) Openings adjacent to fire escapes shall comply with Sentence 3.4.7.13.(5) of the **1986 Building Code**.*

(2) Existing openings are deemed to be in compliance with Sentence (1) where each opening is protected by sprinklers in conformance with Article 9.2.5.2.

*(3) Despite Sentences (1) and (2), existing openings may be **approved**.*

Observations with respect to ancillary rooms:

- Ancillary rooms do not open into the exit stair in the building.
- The building is not provided with a fire escape.

4.4 Fire Alarm and Detection

Fire alarm systems

*9.2.4.1. (1) Fire alarm and detection systems shall be installed in compliance with Subsection 3.2.4., excluding Article 3.2.4.7., of the **1986 Building Code**.*

*(2) Despite Sentence (1), existing fire alarm systems may be **approved** where the system reliability and performance will not increase the risk of life safety.*

Observations and analysis with respect to fire alarm systems:

- The review of the requirements of Article 9.2.4.1. is outside the scope of work.
- It is noted that the building is provided with a fire alarm system.

4.5 Suppression

Access for fire fighting

*9.2.5.1. (1) Access for firefighting shall comply with Sentence 3.2.5.2.(1) of the **1986 Building Code**.*

*(2) Sentence (1) does not apply where the **building** is **sprinklered**.*

*(3) Access routes that do not comply with Sentence (1) may be **approved** where available **fire department** equipment has access to the **building** or alternative provisions are made under Subsection 2.8.2. for such access.*

Observations and analysis with respect to access for firefighting:

- The review of Article 9.2.5.1. is outside the scope of work.

Sprinkler systems

*9.2.5.2. (1) Except as permitted in Sentence (3), sprinkler systems shall comply with Article 3.2.5.5. of the **1986 Building Code**.*

(2) An existing sprinkler system is deemed to be in compliance with Sentence (1) where the average sprinkler discharge density over the design area is at least equal to the minimum density corresponding to the area for the hazard classification as defined in Table 9.2.5.A.

*(3) Where **buildings** with a ceiling height in excess of 9 m are required to be **sprinklered**, the design of the system shall be **approved** prior to installation.*

(4) The water supply requirements for an existing sprinkler system shall be based on

(a) the hazard classification, as determined in Table 9.2.5.A., and

(b) the minimum sprinkler discharge density, area of application and sprinkler spacing, as determined in NFPA 13, "Standard for the Installation of Sprinkler Systems", that corresponds to the hazard classification determined under Clause (a).

(5) Clause (4)(b) does not apply to the water supply requirements for an existing sprinkler system in an arena or an exhibition hall.

(6) The water supply requirements for an existing sprinkler system in an arena or an exhibition hall shall be based on the lesser area of

(a) 100% of the display area, or

(b) 280 m^2.

TABLE 9.2.5.A.
Forming Part of Article 9.2.5.2.

*Hazard Classification**	***Occupancy***
Light Hazard	*Art galleries*
	Beverage establishments
	Gymnasia
	Halls in religious establishments (excluding areas of worship)
	Lecture halls
	Museums
Ordinary Hazard Group 1	*Auditoria (excluding stages)*
	Bingo halls
	Clubs
	Community halls
	Dance halls
	Lodge rooms
	Motion picture theatres
	Opera houses (excluding stages)
	Restaurants
	Television studios
	Theatres (excluding stages)
Ordinary Hazard Group 3	*Enclosed arenas*

	Exhibition halls
	Stages excluded in Ordinary Hazard Group 1

**Hazard Classification is defined as per NFPA 13, "Standard for the Installation of Sprinkler Systems".*

Observations and analysis with respect to sprinkler systems:

- The building does not have a sprinkler system.
- Article 9.2.5.2. states the requirements for existing sprinkler systems, however, it does not require the installation of a sprinkler system in existing unsprinklered buildings (Note: An existing building can be sprinklered to comply with other requirements).
- If a sprinkler system will be installed, the sprinkler system is to be installed in accordance with the current provisions of the Building Code (i.e., 2006 Ontario Building Code).

5. SUMMARY OF RECOMMENDATIONS

Where deficiencies have been identified relative to Section 9.2 of the 2007 Ontario Fire Code, recommendations have been provided for compliance to the OFC. Refer to Table 3 below.

Table 3: Recommendations

Number	Location	Recommendation
1.	Electrical Room, Level 1	Separate the electrical room from the reminder of the building by a fire separation having a 1 hour fire resistance rating. The door and frame to the room are required to be provided with a 45 minute fire protection rating and be complete with self-closing device and positive latching mechanism.
2.	Olympia room, Level 1	Separate the Olympia room from the reminder of the building by a fire separation with a 1 hour fire resistance rating. **OR** Provide an enclosure around the hot water tank to separate the hot water tank from the reminder of the building by a fire separation with a 1 hour fire resistance rating.
3.	**Walls:** Level 1: Olympia room, rear electrical room, exits. Level 2: community hall, exit stairs	Replace combustible interior **wall** finishes that have a flame-spread rating greater than 150 with interior finishes that have a maximum thickness of 25 mm and a maximum flame-spread rating of 150. **OR** Treat combustible interior ceiling finishes with a fire retardant coating listed by a recognized testing laboratory and applied in accordance with the listing conditions, suitable for interior applications. **OR** Sprinkler the building.
4.	**Ceilings**: Level 1: Arena (Ice Pad) and Olympia room	Replace combustible interior **ceiling** finishes that have a flame-spread rating greater than 25 with interior finishes that have a maximum thickness of 25 mm and a maximum flame-spread rating of 25 (except that not more than 10% of the ceiling area within each fire compartment is permitted to have a flame spread rating of not more than 150). **OR** Treat combustible interior ceiling finishes with a fire retardant coating listed by a recognized testing laboratory and applied in accordance with the listing conditions, suitable for interior applications. **OR** Sprinkler the building.

Number	Location	Recommendation
5.	Front of building change rooms, Level 1	Limit the occupant load in the change rooms to a maximum of 60 persons. **OR** Reverse door swing to be in the direction of exit travel for both doors.
6.	Throughout the building	Provide a test record confirming that adequate illumination (average level of 10 lx) is provided for a minimum of 30 minutes and the emergency lighting automatically actuates when the power to the building is interrupted for the emergency lighting system. If a test record is not available, a test of emergency lighting would be required and the emergency lighting system may be required to be upgraded.
7.	Exit stair adjacent to the building main entrance, Levels 1 and 2	Upgrade the front exit enclosure so that is separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating (Based on the requirements of the 1986 Building Code).
8.	Exit stair adjacent to the building main entrance, Levels 1 and 2	At the top of the stairs, provide doors with a 45 minute fire protection rating to separate the front exit stair from the 2nd floor community hall. Doors are to be complete with self-closing devices and positive latching mechanisms.
9.	Exit stair adjacent to the building main entrance, Levels 1 and 2	Remove existing mechanical hold-open device. If the doors are required to be kept open, install hold open device connected to the fire alarm system.
10.	Exit stair adjacent to the bar, Level 2	Upgrade the exit enclosure so that is separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating (Based on the requirements of the 1986 Building Code).
11.	Exit stair adjacent to the bar, Level 2	At the top of the stairs, provide doors with a 45 minute fire protection rating to separate the front exit stair from the 2nd floor community hall. Doors are to be complete with self-closing devices and positive latching mechanisms.
12.	Exit lobby, Level 1	Upgrade the exit lobby fire separation so that the exit lobby is separated from the remainder of the building by a fire separation with a 1 hour fire resistance rating.
13.	Exit lobby, Level 1	Remove mechanical door holders existing on the door between the exit lobby and the main building lobby.

END OF REPORT

Morrison Hershfield Limited

for Madalina Gozu
Code Consultant

Dominic Esposito, P.Eng.
Associate, Code Consultant