

FIRE PROTECTION AND LIFE SAFETY  
BUILDING CODE OUTLINE REPORT

**WELLINGTON HOTEL**  
192 MAIN STREET, WELLINGTON, ON

*Revised*  
May 26, 2022  
Our File: 20-674

**1.0 INTRODUCTION**

The following is an outline of the building code concepts for the proposed Wellington Hotel (Project) located at 192 Main Street in Wellington, Ontario.

The Project will include renovations and an addition to an existing three-storey house to accommodate a new boutique hotel. The Project will include a spa on the Basement Floor, a restaurant on the Ground Floor, and hotel suites on the Second and Third Floors.

All reference numbers indicated in this report refer to the 2012 Ontario Building Code (OBC), as amended by O. Reg. 451/22, that is applicable to construction for which a permit has been applied for on or after April 29, 2022 and before July 1, 2022, unless otherwise indicated. This report is based on architectural drawings prepared by Global Architect Inc., received April 26 and May 3, 2022.

This report was prepared by LMDG Building Code Consultants Ltd. (LMDG) for Global Architect Inc. The material provided in this report is based on LMDG's best judgement in light of the information available to LMDG at the time of preparation. Any use of this report by third parties, or any reliance on or decisions to be made based on it are the responsibility of such third parties. LMDG accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

**2.0 PROJECT BUILDING CHARACTERISTICS**

**2.1 Existing Building Renovations**

The Project includes a change of major occupancy within a an existing three-storey house (Group C, Residential) as well as associated renovations and an addition to accommodate a new boutique hotel. A fire alarm system is proposed to be provided as part of the proposed renovations. Additionally, sprinkler protection is proposed to be provided within Ground Floor.

The Project will be classified as containing a combination of Group D (Business and Personal Services – Spa), Group A, Division 2 (Assembly – Restaurant), and Group C

(Residential – Hotel) major occupancies following the proposed renovations. Other occupancies within the building such as service and storage rooms are considered as subsidiary occupancies to the major occupancies.

Refer to **Section 2.3** of this report for additional details with respect to the proposed occupancies in the building.

**2.2 Building Characteristics**

The following identifies the Project characteristics for the purpose of applying the OBC:

- Applicable Building Code Parts: 3 and 11
- Number of buildings: 1
- Building height: 3-storeys
- Building area: 540 m<sup>2</sup> (approx.)
- First storey: Ground Floor
- Number of streets facing: 1
- Sprinklered: Partially (Ground Floor)
- Major occupancies: Group A-2 (Restaurant), Group C (Hotel) and Group D (Spa)
- Building height to ceiling of top floor: ≤ 14 m
- High Building: No
- Construction type: Existing combustible (refer to **Section 2.5.3.5** of this report)

**2.3 Major Occupancy**

For the purposes of applying the requirements of the OBC, the following table cross-references occupancy classifications with building uses. For the purposes of determining construction/structural fire protection requirements, the table below also defines the major occupancies of the Project.

Level	Use	Occupancy Classification
Basement Floor	Spa	<b>Group D (Major Occupancy)</b>
	Storage/Service Space	Group F, Division 3 (Subsidiary Occupancy)
Ground	Restaurant / Bar / Lounge / Parlour	<b>Group A-2 (Major Occupancy)</b>
	Kitchen	Group F, Division 3 (Subsidiary Occupancy)
Second Floor	5 Hotel Suites	<b>Group C (Major Occupancy)</b>
Third Floor	1 Hotel Suite	<b>Group C (Major Occupancy)</b>

Level	Use	Occupancy Classification
Belvedere Level	Roof Terrace	Group A, Division 2 (Subsidiary Occupancy)

**2.4 Building Height**

In accordance with Sentence 3.2.1.1.(1) a rooftop enclosure provided for elevator machinery, a stairway or a service room used for no purpose other than for service to the building, is not considered as a storey in calculating the building height. Accordingly, the Project will be classified as being 3-storeys in building height. This is based on the Belvedere Level being open to the exterior such that it is not considered a storey in determining building height.

**2.5 Part 11 – Renovations**

In accordance with Div. A, Sentence 1.1.2.7.(1) and except as provided for in Section 3.17. and Part 11, if an existing building is subject to material alteration or repair, the Building Code applies only to the design and construction of the extensions and those parts of the building that are subject to the material alteration or repair.

**2.5.1 Proposed Construction**

With respect to the renovation to the Project, in accordance with Article 11.1.2.1., where a building is subject to extension, material alteration, or repair, the proposed construction is required to comply with Section 11.3 and the performance level of the building is required to be evaluated and compensating construction to be undertaken in accordance with Section 11.4.

As further clarified in Appendix Note A-1.1.2.7.:

*...only the areas or portions of a building being renovated, or other parts of a building adversely affected by that renovation need comply with the requirements of the Code; all other areas or portions need not comply with the Code and may remain unchanged.*

In accordance with Article 11.3.1.1., where an existing building is materially altered or repaired, the performance level of the building will be required to be at least equal to the performance level of the building prior to the material alteration or repair.

In accordance with Article 11.3.1.2., the design and construction of a new building system is required to comply with all other Parts of the Building Code or a compliance alternative as shown in Section 11.5. A compliance alternative as shown in Section 11.5. may be substituted for a requirement contained in Part 3, 4, 6 or 8 where the chief building official is satisfied that compliance with the requirement is impracticable because of structural or construction difficulties, or it is detrimental to the preservation of a heritage building.

In accordance with Article 11.3.2.1., where an existing building is extended, Part 11 applies to the existing portion of the building and the extended portion of the building is required to comply with all other Parts.

In accordance with Sentence 11.3.3.2.(1), the proposed work will be considered an extensive renovation such that new structural and fire-resistance elements will be constructed in compliance with the requirements of the building code.

In accordance with Sentences 11.3.3.2.(2) and (3), the proposed construction is required to comply with the requirements of Section 3.8 – Barrier-Free Design. Refer to **Section 11.0** of this report for the extent of applicable requirements.

### **2.5.2 Classification According to Construction and Occupancy**

Based on the information provided, it is understood that the existing building is classified as containing a Group C major occupancy.

As per Table 11.2.1.1.A., based on the building being three-storeys in building height and of combustible construction, as the existing floor and roof assemblies are not attributed with a fire-resistance rating, the building will be assigned a construction index of **1** (Table 11.2.1.1.A. – Item 12.)

As per Table 11.2.1.1.I., based on the building being a “small” building size (maximum 600 m<sup>2</sup> / up to 3-storeys) containing a house, the building will be assigned a hazard index of **2** (Table 11.2.1.1.I. – Item 8.).

In accordance with Sentence 11.2.1.1.(3), the requirements of Articles 3.2.2.20. to 3.2.2.83. do not apply to a Part 11 renovation.

### **2.5.3 Performance Level Evaluation & Compensating Construction**

In accordance with Article 11.4.1.1., the performance level of the building is not permitted to be reduced as a result of the proposed construction.

#### **2.5.3.1 Structural, Plumbing and Sewage Requirements**

Evaluation of the performance level as it relates to structural, plumbing, and sewage are to be reviewed by the appropriate design professionals and are not included within the scope of this report. However, it should be noted that the requirements of Articles 11.4.2.1. and 11.4.2.4. for compensating construction of structural and plumbing systems would apply to the existing building if it was determined that a reduction in performance level resulted from the proposed alterations to the building.

#### **2.5.3.2 Early Warning and Evacuation Systems**

In accordance with Articles 11.4.2.2. (Increase in Occupant Load) and 11.4.2.3. (Change of Major Occupancy), the performance level of a building or part of a building is reduced where the early warning and evacuation systems requirements of the building do not meet the early warning and evacuation systems requirements set out in Table 11.4.3.3.

Accordingly, the early warning and evacuation systems are required to be checked against (and deficiencies upgraded where applicable for) the following:

<b>Table 11.4.3.3. Requirements</b>	<b>Report Section</b>
Access to exit widths based on occupant load in Subsection 3.3.1.	9.10
Exit widths based on occupant load in Subsection 3.4.3.	9.10
Exit signs in Subsection 3.4.5.	9.15
Lighting of exits, lighting of access to exits and emergency lighting in Subsection 3.2.7.	6.6
Fire alarm system in Subsection 3.2.4.	6.3
Travel distance and number of exits in other Parts	9.0
Door release hardware requirements in Articles 3.3.1.12. and 3.4.6.16.	9.14

**2.5.3.3 Hazard Index**

Except as provided in Sentence 11.4.2.5.(4), in accordance with Clause 11.4.2.3.(1)(a), the performance level of an existing building is reduced where a change in use will result in a change of the major occupancy of all or part of an existing building to another major occupancy of a greater hazard index.

- **Basement Floor**

For the Basement Floor, as per Table 11.2.1.1.J., based on the building being a “medium” building size (maximum 1,600 m<sup>2</sup> / 3-storeys) containing a spa (public sauna) use, the building will be assigned a hazard index of **4** (Table 11.2.1.1.J. – Item 33.). As this is greater than the existing hazard index of **2** (refer to **Section 2.5.2** of this report), the performance level of the Basement Floor is reduced with respect to hazard index of the new major occupancy.

In accordance with Item 3. of Table 11.4.3.4.A. and Table 11.2.1.1.A., the provision of a ¾-hour rating for the Basement Floor will satisfy the requirement of Sentence 11.4.3.4.(1) for additional upgrading to support the new major occupancy.

- **Ground Floor**

For the Ground Floor, as per Table 11.2.1.1.C., based on the building being a “large” building size (any area / not exceeding 18 m high, measured between grade and the floor level of the top storey) containing a restaurant use, the building will be assigned a hazard index of **6** (Table 11.2.1.1.C. – Item 25.). As this is greater than the existing hazard index of **2** (refer to **Section 2.5.2** of this report), the performance level of the Ground Floor is reduced with respect to hazard index of the new major occupancy.

In accordance with the Alternative Compliance (a) for Item 10. of Table 11.4.3.4.A., the provision of a 1-hour fire-resistance rating for the floor assembly above as well as the provision of sprinklers with the Ground Floor will satisfy the requirement of Sentence 11.4.3.4.(1) for additional upgrading to support the new major occupancy.

- **Second and Third Floors**

For the Second and Third Floors, as per Table 11.2.1.1.I., based on the building being a “small” building size (maximum 600 m<sup>2</sup> / 3-storeys) containing a hotel use, the building will be assigned a hazard index of **3** (Table 11.2.1.1.I. – Item 7.). As this is greater than the existing hazard index of **2** (refer to **Section 2.5.2** of this report), the performance level of the building is reduced with respect to hazard index of the new major occupancy.

In accordance with the Alternative Compliance (a) for Item 2. of Table 11.4.3.4.A., the provision of a fire alarm system for the project will satisfy the requirement of Sentence 11.4.3.4.(1) for additional upgrading to support the new major occupancy.

- **Ontario Fire Code Retrofit Requirements**

A comprehensive review of the retrofit requirements applicable to hotels under Section 9.9. of the Ontario Fire Code (OFC) has not been completed as part of this review.

However, in accordance with the retrofit requirements of Sentences 9.9.2.2.(1) and (2) of the OFC, in addition to the upgrades noted above, floor assemblies and walls, columns and arches supporting floor assemblies are required to have a minimum ½-hour fire-resistance rating.

#### **2.5.3.4 Separation of Major Occupancies**

In accordance with Sentence 11.4.2.3.(4), the performance level of a building or part of a building is reduced where the new major occupancy in an existing building is not separated from adjoining major occupancies by fire separations having fire-resistance ratings conforming to Article 3.1.3.1. or Table 11.4.3.4.B. (refer to **Section 5.1** of this report).

In accordance with Table 3.1.3.1., the new Group D major occupancy is required to be separated from the new Group A-2 major occupancy above by a 1-hour rated fire separation. Additionally, in accordance with Table 3.1.3.1., the new Group A-2 major occupancy is required to be separated from the Group C major occupancy above by a 1-hour rated fire separation.

#### **2.5.3.5 Noncombustible Construction**

In accordance with Sentence 11.4.2.3.(5), the performance level of an existing building is reduced where the occupancy of all or part of an existing building of combustible construction is changed to a new major occupancy that would require the building, if it were a new building, to be of noncombustible construction or to be constructed in accordance with Article 3.2.2.43A. or 3.2.2.50A.

As addressed in **Section 4.1** of this report, if the building were constructed today the Ground Floor, including supporting construction within the Basement Floor, would be required to be of noncombustible construction. In accordance with Sentence 11.4.3.4.(5), the automatic sprinkler protection within the Ground Floor will satisfy the requirement for noncombustible construction for existing combustible construction within the Ground Floor of the building.

As addressed in **Section 4.2** of this report, new construction and building systems required to be of noncombustible construction will be in accordance with the requirements of Subsection 3.1.5.

#### **2.5.3.6 Additional Requirements**

In accordance with Sentence 11.4.3.4.(2), applicable to the Project, except as otherwise permitted by Compliance Alternatives under Section 11.5., the building is required to conform to the following requirements as they apply to the new major occupancy that the part of a building is to support:

- Health Requirements – Section 3.7., and
- Ventilation Requirements – Sentences 6.2.2.1.(2), 6.2.3.9.(1) and 6.2.4.7.(1).

The above items are to be reviewed by the appropriate design professionals and are not included within the scope of this report.

### **3.0 PROVISIONS FOR FIRE FIGHTING**

#### **3.1 Fire Department Principal Entrance**

In accordance with Article 3.2.5.5., the principal entrance of the building will be located 3 m to 15 m from the closest portion of an access route.

The fire alarm annunciator panel will be located in the vicinity of the principal Fire Department entrance of this building.

#### **3.2 Fire Department Vehicle Access Route**

In accordance with Article 3.2.5.6., the portions of the roadways that will serve as a required access route for Fire Department use will:

- have a clear width of not less than 6 m,
- have a centre line radius of not less than 12 m,
- have an overhead clearance of not less than 5 m,
- have a change in gradient of not more than 1 in 12.5 over a minimum distance of 15 m,
- be designed to support the expected loads imposed by firefighting equipment and surfaced with concrete, asphalt, or other material designed to permit accessibility under all climatic conditions,
- have turnaround facilities for any dead-end portion of the access route more than 90 m long, and
- be connected to a public thoroughfare.

**3.3 Fire Department Connections and Fire Hydrants**

In accordance with Article 3.2.5.16. and Sentence 3.2.5.5.(2), the Fire Department will be able to position their Fire Department pumper vehicle adjacent to a hydrant and the hydrant will be not more than 45 m from the Fire Department connections for the building.

In accordance with Sentence 3.2.5.7.(2), hydrants will be located within 90 m of any portion of a building perimeter required to face a street.

**4.0 PROJECT CONSTRUCTION / STRUCTURAL FIRE PROTECTION**

**4.1 New Construction – Floor and Roof Ratings**

Based on the building characteristics noted in **Section 2.2** of this report, if the building were constructed today, the construction/structural fire protection for the Project would be governed by the following requirements:

Occupancy Classification	Article	Max Bldg. Height	Max. Bldg. Area	Constr. Type	Sprinklers	Floor Assembly	Unoccupied Roof	Supports
Group A-2 (Assembly)	3.2.2.24.	6-storeys	Any	Non-comb.	Yes	1-hour <sup>(1)</sup>	No Rating	(2)
C (Hotel)	3.2.2.47.	3-storeys	600 m <sup>2</sup> (facing 1 street)	Comb.	No	¾-hour <sup>(1)</sup>	No Rating	(2)
Group D (Personal Service)	3.2.2.53.	3-storeys	1,600 m <sup>2</sup> (facing 1 street)	Comb.	No	¾-hour or non-comb. <sup>(1)</sup>	No Rating	(3)

<sup>(1)</sup> Constructed as fire separations.

<sup>(2)</sup> Load-bearing walls, columns, and arches are required to have a fire-resistance rating not less than that required for the supported assembly.

<sup>(3)</sup> Load-bearing walls, columns, and arches are required to have a fire-resistance rating not less than that required for the supported assembly or be of noncombustible construction.

In a building where one major occupancy is located entirely above another major occupancy, the requirements for each portion of the building containing a major occupancy will apply to that portion as if the entire building were of that major occupancy, and the fire-resistance rating of the floor assembly between the major occupancies will be determined on the basis of the requirements for the lower major occupancy.

In accordance with Sentence 3.1.7.5.(3), where an assembly is required to be of noncombustible construction and have a fire-resistance rating, it must be supported by noncombustible construction.

**4.2 Noncombustible Construction**

Where noncombustible construction is required, Subsection 3.1.5. outlines the various combustible elements permitted in this Project. Combustible elements will be provided in accordance with the following requirements of Subsection 3.1.5.



#### **4.2.1 Wood Nailing Elements**

In accordance with Article 3.1.5.6., wood nailing elements attached directly to or set into a continuous noncombustible backing will be used for the attachment of interior finishes in this Project. The concealed spaces created by the wood elements will not be more than 50 mm in depth.

#### **4.2.2 Millwork and Wood Trim**

In accordance with Sentence 3.1.5.7.(1), the Project may contain combustible millwork, including:

- interior trim,
- moveable wood panels/walls,
- shelves,
- cabinets,
- counters, and
- doors.

#### **4.2.3 Combustible Interior Finishes**

In accordance with Sentence 3.1.5.10.(2), combustible interior wall finishes (other than foamed plastics) used in this Project will not be more than 25 mm thick and will have a flame-spread rating of not more than 150 on any exposed surface or on any surface that would be exposed by cutting through the material in any direction.

In accordance with Sentence 3.1.5.10.(3), combustible interior ceiling finishes (other than foamed plastics) used in this Project will not be more than 25 mm thick, and will have a flame-spread rating of not more than 25 on any exposed surface or on any surface that would be exposed by cutting through the material in any direction, except that up to 10% of the ceiling area within each fire compartment will be permitted to have a flame-spread rating of up to 150. Alternatively, in accordance with Sentence 3.1.5.10.(4), the ceiling finishes may be of fire-retardant treated wood provided they are not more than 25 mm thick or are exposed fire-retardant treated wood battens.

#### **4.2.4 Combustible Insulation and Foamed Plastic Insulation**

In accordance with Sentence 3.1.5.12.(4), combustible insulation (other than foamed plastics) having a flame-spread rating of more than 25 but not more than 500 throughout the material is permitted in the building (required to be of noncombustible construction), provided that the insulation is protected from adjacent spaces in the building (other than adjacent concealed spaces within the wall assemblies) by a thermal barrier (interior finish) as described in Sentence 3.1.5.12.(4).

Furthermore, in accordance with Sentence 3.1.5.12A.(2), foamed plastic insulation having a flame-spread rating of not more than 500 throughout the material is permitted in the building (required to be of noncombustible construction), provided the insulation is protected from adjacent spaces in the building (other than adjacent concealed spaces

within the wall assemblies) by a thermal barrier (interior finish) as described in 3.1.5.12A.(2).

**4.2.5 Flame-Spread Rating and Smoke Developed Classification Limits**

In addition to the above-noted requirements, other interior finish materials on the surface of floors, walls and ceilings of this Project will not exceed the following flame-spread rating (FSR) and smoke developed classification (SDC) limits of Subsection 3.1.13.:

Occupancy, Location or Element	Maximum FSR			Maximum SDC		
	walls	ceiling	floor	walls	ceiling	floor
Exits and Exit Lobbies	25 <sup>(1)(2)</sup>	25 <sup>(1)(2)</sup>	—	—	—	—
Vertical Service Shafts	25	25	—	—	—	—
Light Fixture Lenses	—	150 <sup>(3)</sup>	—	—	—	—
Doors	200	—	—	—	—	—
Rooms/Spaces not mentioned above	150	150	—	—	—	—

- (1) Combustible doors, glazing and light diffusers and lenses are required to be considered in the calculation of wall and ceiling areas. Doors and trim are permitted to have a FSR of up to 150.
- (2) The FSR for exits will also apply to any surface in the exit that would be exposed by cutting through the material in any direction, except that this requirement does not apply to doors, heavy timber construction in a sprinklered building and fire-retardant treated wood.
- (3) Light fixture lenses conforming to Sentence 3.1.13.4.(1) may exceed 150 FSR.

**5.0 REQUIRED FIRE SEPARATIONS**

In accordance with Article 3.1.7.1., a material, assembly of materials, or a structural member required to have a fire-resistance rating will be based on either:

- a) an assembly assigned a fire-resistance rating based on tests conforming to CAN/ULC-S101-14, “Fire Endurance Tests of Building Construction and Materials,” such as listings from ULC (or an equivalent approved listing agency), or
- b) MMAH Supplementary Standard SB-2, “Fire Performance Ratings” of the OBC for wall assemblies or ceiling and floor assemblies.

The following sections summarize requirements for other fire separations of the Project.

**5.1 Separation of Major Occupancies**

As addressed in Section 2.5.3.4 of this report as new fire separations are proposed, major occupancies are required to be separated from adjoining major occupancies by fire separations having a fire-resistance rating conforming to Tables 3.1.3.1., as reproduced in part below:

Major Occupancy	Adjoining Major Occupancy	Min. Fire-Resistance Rating
		New Fire Separation (Table 3.1.3.1.)
Group A-2	Group C	1 hour
	Group D	

**5.2 Residential Suite Separations**

In accordance with Sentence 3.3.4.2.(2), residential suites will be separated from each other and the remainder of the building by fire separations having a ¾-hour fire-resistance rating.

**5.3 Public Corridors**

In accordance with Sentence 3.3.1.4.(2), a fire separation between a public corridor and the remainder of the storey is required to have a ¾-hour fire-resistance rating where serving a residential occupancy.

**5.4 Exits/Exit Corridors**

In accordance with Sentence 3.4.4.1.(1), every exit other than an exit doorway is required to be separated from each adjacent floor area or from another exit by a fire separation having a fire-resistance rating not less than that required by Subsection 3.2.2. for the floor assembly above the floor area, but not less than ¾-hour.

Level	Exits/Exit Corridor F.R.R.
Basement Floor	¾-hour
Ground	1-hour
Second and Third Floor	¾-hour

**5.5 Vertical Shafts**

In accordance with Sentence 3.6.3.1.(1), based on the required floor assembly fire-resistance ratings in **Sections 2.5.3** and **4.1** of this report, vertical service shafts will be required to be constructed as fire separations having a ¾-hour fire-resistance rating.

Where the top of a service shaft does not extend through the roof, it will terminate at an assembly having a fire-resistance rating at least equal to the walls of the shaft. Similarly, the bottom of a service shaft will terminate at an assembly having a fire-resistance rating at least equal to the walls of the shaft, except where the shaft extends to the bottom of the building.

**5.5.1 Grease Duct Enclosures**

In accordance with Article 3.6.3.5., fire separations enclosing grease ducts for commercial cooking operations will conform to NFPA 96-2014, "Ventilation Control and Fire

Protection of Commercial Cooking Operations.” The fire-resistance rating of field-applied and factory-built grease duct enclosure assemblies will be determined in conformance with CAN/ULC-S144-12, “Fire-Resistance Test – Grease Duct Assemblies.”

#### **5.6 Service Rooms**

In accordance with Sentence 3.6.2.1.(1), fuel-fired appliances will be required to be located in a service room separated from the remainder of the building by a fire separation having a fire-resistance rating of not less than 1-hour.

In accordance with Sentence 3.6.2.1.(8), a room containing a limited quantity of service equipment, and service equipment that does not constitute a fire hazard, will not be required to be separated from the remainder of the building by a fire separation.

#### **5.7 Electrical Rooms**

In accordance with Sentence 3.6.2.1.(6), electrical equipment that is required to be located in a service room by a regulation made under the Electricity Act, 1998, will be installed in a service room separated from the remainder of the building by a 1-hour fire separation.

#### **5.8 Janitors’ Closets**

In accordance with Sentence 3.3.1.20.(2), janitors’ closets located in non-sprinklered floor areas (i.e., Basement, Second and Third Floors) will be separated from the remainder of the building by fire separations having a ¾-hour fire-resistance rating.

In accordance with Sentence 3.3.1.20.(3), janitors’ closets located in sprinklered floor areas (i.e., Ground Floor) will be separated from the remainder of the building by fire separations having no fire-resistance rating.

#### **5.9 Building Services in Fire Separations and Fire-Rated Assemblies**

Penetrations in fire-separations and fire-rated assemblies will be permitted in conformance with Subsection 3.1.9.

In accordance with Sentence 3.1.9.1.(1), piping, tubing, ducts, chimneys, optical fibre cables, electrical wires and cables, totally enclosed noncombustible raceways, electrical outlet boxes, and other similar building services penetrating a membrane that forms part of an assembly required to provide a fire-resistance rating, or a fire separation, will be tightly fitted or sealed by a firestop system that, when subjected to the fire test method in CAN/ULC-S115-11, “Fire Tests of Firestop Systems,” has an F-rating not less than the fire-protection rating required for closures in the fire separation.

**5.10 Closures (Doors, Glazing and Dampers)**

**5.10.1 Maximum Size**

In accordance with Sentence 3.1.8.6.(1), the size of an opening in an interior fire separation required to be protected with a closure will not exceed 11 m<sup>2</sup> and will have no dimension greater than 3.7 m, if a fire compartment on either side is not sprinklered.

In accordance with Sentence 3.1.8.6.(2), the size of an opening in an interior fire separation required to be protected with a closure will not exceed 22 m<sup>2</sup> and will have no dimension greater than 6 m, provided the fire compartments on both sides are sprinklered.

**5.10.2 Fire Protection Rating**

Closures for openings in all fire separations will be provided with a fire-protection rating in accordance with Article 3.1.8.4. and Table 3.1.8.4., as reproduced in part below:

Fire-Resistance Rating of Fire Separation (Hours)	Required Fire-Protection Rating of Closure (Hours)
½	⅓
¾	¾ <sup>(1)</sup>
1	¾ <sup>(2)</sup>

<sup>(1)</sup> As permitted by Clause 3.1.8.10.(1)(b), door assemblies having a 20-minute fire-protection rating may be used as closures in required fire separations having a fire-resistance rating of not more than ¾-hour, located in a building not more than 3 storeys in building height.

<sup>(2)</sup> As permitted by Clause 3.1.8.10.(1)(a)(ii), door assemblies having a 20-minute fire-protection rating may be used as closures in required fire separations having a fire-resistance rating of not more than 1-hour, located between a public corridor and a suite.

Doors located in fire separations will not be permitted to incorporate louvres, grills, or other similar types of unprotected openings.

**5.10.3 Permitted Glazing in Fire Separations**

**5.10.3.1 Wired Glass or Glass Block**

In accordance with Article 3.1.8.14., wired glass or glass block may be used as a closure in a fire separation (except as noted in Table 3.1.8.15.), provided the required fire-resistance rating of the fire separation does not exceed 1-hour.

Wired glass assemblies used in vertical fire separation assemblies with a rating of up to 1-hour installed in accordance with Supplementary Standard SB-2, will be acceptable.

**5.10.3.2 Sprinkler-Protected Glazed Wall Assembly**

In accordance with Article 3.1.8.18., a sprinkler-protected glazed wall assembly may be installed in partitions with a fire-resistance rating of up to 2-hours. However, this type of protection is not permitted to be installed in the exits from floor areas of the Project. A

window sprinkler system is required to be constructed in accordance with ULC/ORD-C263.1-99, “Sprinkler-Protected Window Systems.”

#### **5.10.3.3 ULC Listed Assembly**

Glass assemblies that are CAN/ULC-S106-15, “Fire Tests of Window and Glass Block Assemblies” listed for use as a closure in a fire separation (such as Firelite) may also be used provided they are installed in accordance with their listing and the manufacturer’s installation instructions.

#### **5.10.4 Maximum Temperature Rise/Glass Area Limit in Doors**

The maximum temperature rise and area of glazing for closures within required fire separations will be in accordance with Table 3.1.8.15.

The maximum area of glazing for closures in locations other than listed in Table 3.1.8.15. will be in accordance with the individual listing for the closure and the manufacturer’s installation instructions.

#### **5.10.5 Fire and Smoke Dampers**

In accordance with Sentence 3.1.8.7.(1), a fire damper having a fire-protection rating is required to be installed in ducts or air-transfer openings that penetrate an assembly required to be a fire separation.

In accordance with Sentence 3.1.8.7.(2), a smoke damper or a combination smoke and fire damper is required to be installed in ducts or air-transfer openings that penetrate an assembly required to be a fire separation, where the fire separation:

- separates a public corridor, or
- serves an assembly or residential occupancy.

##### **5.10.5.1 Fire Dampers Waived**

In accordance with Sentence 3.1.8.8.(1), the requirement for fire dampers is permitted to be waived for:

- ducts that serve commercial cooking equipment,
- ducts or air-transfer openings that penetrate a vertical fire separation not required to have a fire-resistance rating, and
- noncombustible ducts or air-transfer openings that penetrate a horizontal fire separation not required to have a fire-resistance rating.

In accordance with Sentence 3.1.8.8.(2), the requirement for fire dampers is permitted to be waived for noncombustible branch ducts having a melting point above 760°C that penetrate a fire separation:

- provided the ducts,
  - have a cross-sectional area not more than 130 cm<sup>2</sup> and serve only air-conditioning units or combined air-conditioning and heating units discharging air not more than 1.2 m above the floor, or
  - extend not less than 500 mm inside exhaust duct risers that are under negative pressure and in which the airflow is upward as required by Article 3.6.3.4., or
- provided the fire separation separates a vertical service space from the remainder of the building and provided each individual duct exhausts directly to the outdoors at the top of the vertical service space.

#### **5.10.5.2 Smoke Dampers Waived**

In accordance with Sentence 3.1.8.8A.(1), the requirement for smoke dampers or combination smoke and fire dampers is permitted to be waived for:

- ducts that serve commercial cooking equipment, and
- ducts, in which all inlet and outlet openings serve not more than one fire compartment.

In accordance with Sentence 3.1.8.8A.(2), the requirement for smoke dampers or combination smoke and fire dampers is permitted to be waived for noncombustible branch ducts having a melting point above 760°C that penetrate a fire separation:

- provided the ducts,
  - have a cross-sectional area not more than 130 cm<sup>2</sup> and serve only air-conditioning units or combined air-conditioning and heating units discharging air not more than 1.2 m above the floor, or
  - extend not less than 500 mm inside exhaust duct risers that are under negative pressure and in which the airflow is upward as required by Article 3.6.3.4., or
- provided the fire separation separates a vertical service space from the remainder of the building and provided each individual duct exhausts directly to the outdoors at the top of the vertical service space.

#### **5.10.6 Self-Closing and Latching Devices**

In accordance with Sentence 3.1.8.11.(1), doors in required fire separations will be provided with self-closing devices (closers) designed to return the door to the closed position after each use.

In accordance with Article 3.1.8.13., swing-type doors in fire separations will be equipped with a positive latching mechanism designed to hold the door in the closed position after each use.

#### 5.10.7 Clearances at Door Sills

In accordance with NFPA 80-2013, “Fire Doors and Other Opening Protectives”, doors required to provide a fire-protection rating of  $\frac{3}{4}$  to 3-hours will have a maximum clearance below the bottom of the door of 9.5 mm where a noncombustible raised sill (threshold) is provided, and 19 mm where there is no sill (floor).

#### 5.10.8 Hold-Open Devices for Doors

In accordance with Article 3.1.8.12., hold-open devices, if provided, will be designed to release upon signal from dedicated smoke detector(s) located as described in CAN/ULC-S524-14, “Installation of Fire Alarm Systems,” and upon signal from the fire alarm system of the Project.

### 6.0 FIRE PROTECTION AND LIFE SAFETY SYSTEMS

In accordance with Sentence 3.2.10.1.(1), where fire protection and life safety systems and systems with fire protection and life safety functions are integrated with each other, they are required to be tested as a whole in accordance with CAN/ULC-S1001-11, “Integrated Systems Testing of Fire Protection and Life Safety Systems,” to verify that they have been properly integrated.

#### 6.1 Sprinklers

As addressed in **Section 2.5.3** of this report, an automatic sprinkler system will be provided throughout the Ground Floor as part of the required compensating construction associated with the proposed change of major occupancy.

In accordance with Sentence 3.2.5.13.(1), the automatic sprinkler system will be required to be designed, constructed, installed, and tested in conformance with NFPA 13-2013, “Installation of Sprinkler Systems.”

In accordance with Sentences 3.2.4.8.(2) and 3.2.4.10.(3), the sprinkler system will be required to be electrically supervised and monitored.

#### 6.2 Standpipe System

In accordance with the requirements of Sentence 3.2.9.1.(1), a standpipe system is not required for this Project in consideration that the building is not more than 3-storeys in building height, does not exceed a building area of 1000 m<sup>2</sup> for a non-sprinklered building, and is not more than 14 m high measured between grade and the ceiling of the top storey.

#### 6.3 Fire Alarm System

In accordance with Sentence 3.2.4.1.(2) and Clause 3.2.4.3.(1)(e), a single- or two-stage fire alarm system conforming to Subsection 3.2.4. will be provided for this Project. The fire alarm system will be installed in accordance with CAN/ULC-S524 and verified in conformance with CAN/ULC-S537-13, “Verification of Fire Alarm Systems”.



**6.4 Commercial Cooking Equipment**

In accordance with Sentence 3.3.1.2.(2), systems for the ventilation of cooking equipment used in processes producing grease-laden vapours are required to be designed and installed in conformance with Articles 3.6.3.5 and 6.2.2.6. As such, all commercial cooking equipment is required to be provided with ventilation systems designed, constructed and installed to conform to NFPA 96-2014, "Ventilation Control and Fire Protection of Commercial Cooking Operations".

**6.5 Portable Fire Extinguishers**

In accordance with Article 3.2.5.17., portable fire extinguishers will be required to be provided throughout the Project in accordance with the Ontario Fire Code.

**6.6 Emergency Lighting & Power**

In accordance with the requirements of Subsection 3.2.7., a **½-hour** emergency power supply will be required for:

- a) emergency lighting,
- b) exit signs, and
- c) fire alarm system.

The emergency electrical power supply system will be installed in conformance with CSA C282-15, "Emergency Electrical Power Supply for Buildings" in accordance with Article 3.2.7.5.

Where self-contained emergency lighting units are used, they will conform to CSA C22.2 No. 141-10, "Emergency Lighting Equipment".

In accordance with Article 3.2.7.3., emergency lighting is required to be provided at an average of 10 lx in the following areas:

- a) exits,
- b) principal routes providing access to exit in open floor areas and service rooms,
- c) public corridors,
- d) floor areas or parts of them where the public may congregate in Group A, Division 2 occupancies having an occupant load greater than 60 persons,
- e) food preparation areas in commercial kitchens,
- f) principal routes providing access to exit in floor areas not subdivided into rooms or suites of rooms served by corridors in business and personal services or industrial occupancies,
- g) internal corridors or aisles serving as principal routes to exits in business and personal services or industrial occupancies that are subdivided into rooms or suites of rooms, and are not served by a public corridor, and
- h) washrooms with fixtures for public use .

In accordance with Sentence 3.2.7.10.(1), electrical conductors serving emergency lighting are required to be protected in accordance with Sentences 3.2.7.10.(2) to (9).

## **7.0 SPATIAL SEPARATION AND EXPOSURE PROTECTION**

### **7.1 Building Spatial Separation**

#### **7.1.1 Ground Floor**

In accordance with Clause 3.2.3.1.(1)(a) and Table 3.2.3.1.D., Group A, Division 2 occupancies are permitted to have unlimited unprotected openings on any exposing building face that is provided with a minimum limiting distance of 9 m measured from the building face to a property line, an imaginary property line between buildings on the same property, or the centreline of a street. Accordingly, **all** exposing building faces on the Ground Floor are permitted unlimited unprotected openings.

#### **7.1.2 Second and Third Floors**

In accordance with Clause 3.2.3.1.(1)(a) and Table 3.2.3.1.B., based on a maximum exposing building face area of not more than 60 m<sup>2</sup>, unlimited unprotected openings are permitted on any exposing building face of a Group C occupancy that is provided with a minimum limiting distance of 11 m measured from the building face to a property line, an imaginary property line between buildings on the same property, or the centreline of a street. Accordingly, **all** exposing building faces are permitted unlimited unprotected openings.

### **7.2 Exit Exposure**

In accordance with Sentence 3.2.3.13.(1), where an opening in the exterior wall of the exit enclosure is within 3 m horizontally, and could be exposed to a fire from an opening in the exterior wall of the building with an intersecting angle less than 135° with the plane of the exterior wall, the opening in either the exterior wall of the exit or the exterior wall of the building is required to be protected in accordance with Sentence 3.2.3.13.(4).

In accordance with Sentence 3.2.3.13.(2), where an unenclosed exterior exit stair or ramp could be exposed to fire from an opening in the exterior wall of the building which is located within 3 m horizontally and less than 10 m below or 5 m above the exit stair, the opening is required to be protected in accordance with Sentence 3.2.3.13.(4).

In accordance with Sentence 3.2.3.13.(3), where an exterior exit door is located within 3 m horizontally of an opening in another fire compartment and the exterior walls of these fire compartments intersect at an exterior angle of less than 135°, the opening will be required to be protected in conformance with Sentence 3.2.3.13.(4).

In accordance with Sentence 3.2.3.13.(4), the opening protection referred to in Sentences 3.2.3.13.(1) to (3) is required to consist of wired glass in fixed steel frames conforming to Supplementary Standard SB-2 Article 2.3.14., glass block conforming to the requirements of Article 3.1.8.14., or a closure installed in conformance with Subsection 3.1.8.

It is proposed to install closely-spaced quick-response sprinklers over, or in the vicinity of, openings in the dining room where the openings are in the exterior walls of the building that are within 3 m horizontally and less 5 m above exterior Exit Stair E. This approach is

an alternative solution and will be subject to concurrence from the local building department.

**7.3 Wall Exposed to Another Wall**

In accordance with Sentence 3.2.3.14.(1), except where both fire compartments are sprinklered, where an unprotected opening in an exterior wall of a fire compartment is exposed to an unprotected opening in the exterior wall of another fire compartment, and the planes of the two walls are parallel or at an angle less than 135°, measured from the exterior of the building, the unprotected openings in the two fire compartments is required to be separated by a distance not less than  $D_o$ , where:

- $D_o$  =  $2D - [(\theta/90) \times D]$  but in no case less than 1 m, and
- $D$  = the greater required limiting distance for the exposing building faces of the two fire compartments, and
- $\theta$  = the angle made by the intersecting planes of the exposing building faces of the two fire compartments (in the case where the exterior walls are parallel and face each other,  $\theta = 0^\circ$ ).

The exterior wall of each fire compartment referred to above within the distance,  $D_o$ , is required to have a fire-resistance rating not less than that required for the interior vertical fire separation between the fire compartment and the remainder of the building.

This will be applicable between Bedrooms 2 and 3 on the Second Floor of the Project.

**7.4 Wall Exposed to Adjoining Roof**

In accordance with Sentence 3.2.3.15.(1), where a wall in a building is exposed to a fire hazard from an adjoining roof of a separate fire compartment that is not sprinklered in the same building, and the exposed wall contains windows within 3 storeys vertically and 5 m horizontally of the roof, the roof shall contain no skylights within 5 m of the exposed wall.

**8.0 INTERCONNECTED FLOOR SPACES**

In accordance with Clause 3.2.8.1.(1)(a), floor assemblies that do not terminate at an exterior wall, a firewall or a vertical shaft will terminate at a vertical fire separation having a fire-resistance rating not less than that required for the floor assembly and extending from the floor assembly to the underside of the floor or roof assembly above.

No interconnected floor spaces are proposed for this Project.

**9.0 EGRESS/EXITING REQUIREMENTS**

Exit systems in this Project, used singly or in combination, will consist of exterior doors, exit stair enclosures and exit corridors which will discharge at locations having access to public thoroughfares. Exit systems will not re-enter floor areas.

**9.1 Egress from Rooms**

In accordance with Sentence 3.3.1.5.(1), and Tables 3.3.1.5.A. and B, a minimum of two egress doorways will be provided from every room or suite (including exterior terraces) intended for an occupant load exceeding 60 persons, or where the following area and/or egress distance limits are exceeded:

Occupancy Type	Area	Egress Distance
Group A, Division 2	150 m <sup>2</sup> (200 m <sup>2</sup> if sprinklered)	15 m (25 m if sprinklered)
Group C	150 m <sup>2</sup>	25 m
Group D and Group F, Division 3	200 m <sup>2</sup> (300 m <sup>2</sup> if sprinklered)	25 m

In accordance with Sentence 3.3.1.5.(2), where two egress doorways are required the doorways are to be located a minimum distance from one another equal to one-third the maximum overall dimension of the room.

Egress distance is measured from the most remote location within the room or suite to a corridor or an exit, taking into account permanent fixtures which interfere with the most direct egress path.

**9.2 Dead-End Corridors**

In accordance with Sentence 3.3.1.9.(9), public corridors serving suites of residential occupancy will be permitted to contain dead-end portions that do not exceed 6 m.

In accordance with Sentence 3.3.1.9.(8), a dead-end corridor is permitted in an assembly occupancy where there is a second and separate egress doorway from each room or suite not leading into a dead-end.

In accordance with Sentences 3.3.1.9.(11) and (13), a dead-end corridor is permitted in a business and personal services or low hazard industrial occupancy where the dead-end corridor serves an occupant load of not more than 30 persons, is not more than 9 m long, and is provided with doors having self-closing devices. Alternatively, a dead-end corridor is permitted if there is a second and separate egress doorway from each room or suite not leading into a dead-end corridor.

**9.3 Integrity of Exits**

In accordance with Sentence 3.4.4.1.(1), exit stairways and exit corridors serving the floor areas for this Project will be separated from the adjoining floor areas by a smoke-tight fire separation having a fire-resistance rating as determined in **Section 5.4** of this report.

In accordance with Sentence 3.4.4.4.(1), fire separations that enclose exits will have no openings or penetrations except for:

- a) sprinkler piping,
- b) electrical wires and cables, totally enclosed noncombustible raceways and noncombustible piping that serve only the exit,
- c) exit doorways, and
- d) wired glass and glass block permitted by Article 3.1.8.14.

#### **9.4 Exit through a Lobby**

In accordance with Sentence 3.4.4.2.(2), not more than one exit from a floor area is permitted to lead through a lobby provided:

- a) the lobby floor is not more than 4.5 m above grade,
- b) the path of travel through the lobby to the outdoors is not more than 15 m,
- c) the adjacent rooms or premises having direct access to the lobby do not contain a residential occupancy or an industrial occupancy,
- d) the lobby conforms to the requirements for exits, except that,
  - i) rooms other than service rooms and storage rooms are permitted to open onto the lobby,
  - ii) the fire separation between the lobby and a room used for the sole purpose of control and supervision of the building need not have a fire-resistance rating, and
  - iii) the fire separation between the lobby and adjacent occupancies that are permitted to open onto the lobby need not have a fire-resistance rating provided the lobby and adjacent occupancies are sprinklered,
- e) a fire separation, constructed in accordance with Sentence 3.4.4.1.(1), is maintained between the lobby and any exit permitted by this Sentence to lead through the lobby, and
- f) that if the exit serves a hotel, the lobby is not located within an interconnected floor space.

#### **9.5 Prohibited Rooms Opening into an Exit**

In accordance with Sentences 3.4.4.4.(7), (8) and (9), service rooms, mechanical rooms, electrical rooms, and ancillary rooms such as storage rooms, washrooms, and janitors' closets which are adjacent to exit shafts will not open directly into an exit.

Where necessary, vestibules will be placed between the prohibited rooms and the exit.

#### **9.6 Minimum Number of Exits**

In accordance with Sentence 3.4.2.1.(1), every floor area of the Project is required to be served by at least two exits.

#### **9.7 Main Entrance**

In accordance with Sentence 3.4.2.6.(1), at least one door at every principal entrance from the ground level will be designed as an exit.

**9.8 Distance Between Exits**

In accordance with Article 3.4.2.3., the least distance between two required exits in a floor area will be:

- one-half the maximum diagonal dimension of the floor area, but not less than 9 m in floor areas not served by a public corridor, or
- one-half the maximum diagonal dimension of the floor area, but need not exceed 9 m in floor areas served by a public corridor.

The minimum distance between two exits is required to be measured as the shortest distance that smoke would travel between the exits, assuming that the smoke will not penetrate an intervening fire separation.

In accordance with Sentence 3.4.2.3.(4), the distance between exterior doors leading from two or more exit stairs serving the same floor area are required to be:

- not less than 9 m, or
- not less than 6 m, where the building is sprinklered and the exterior doors are located within 15 m of a street.

**9.9 Location of Exits**

In accordance with Clause 3.4.2.5.(1)(f), a 30 m maximum travel distance to an exit will be provided and will be measured from any point in a floor area of the Project where the floor area is not sprinklered.

In accordance with Clause 3.4.2.5.(1)(c), a 45 m maximum travel distance to an exit will be provided and will be measured from any point in a floor area of the Project where the floor area is fully sprinklered.

**9.10 Occupant Loads and Exit Capacities**

In accordance with Sentence 3.4.3.2.(1), the aggregate required width of exits serving the floor areas of the Project has been determined by multiplying the occupant load of the area served by:

- a) 6.1 mm per person for ramps with a gradient of not more than 1 in 8, doorways, corridors, and passageways,
- b) 8.0 mm per person for a stair consisting of steps whose rise is not more than 180 mm and whose run is not less than 280 mm, or
- c) 9.2 mm per person for a ramp with a slope less than 1 in 8 or stairs other than those described in Clause (b) above.

The required exit capacities and therefore the widths of the exit doors and stairs for the Project will be based on the occupant loads as determined by Table 3.1.17.1. Approximate exit widths required are indicated in the following table:

Level	Occupant Load (persons)	Aggregate Width of Exits Required (mm) <sup>(1)</sup>	Aggregate Width of Exits Provided (mm)
Basement Floor	18 <sup>(1)</sup>	110 (at doors) 166 (at stairs)	2,610 (at doors) 3,790 (at stairs)
Ground Floor	225 <sup>(1)</sup>	1,373 (at doors) 2,070 (at stairs)	5,560 (at doors) 6,510 (at stairs) The combination of the above doors and stairs serve 909 persons <sup>(1)</sup>
Second Floor	11	67 (at doors) 101 (at stairs)	1,660 (at doors) 1,820 (at stairs)
Third Floor	5	31 (at doors) 46 (at stairs)	1,660 (at doors) 1,800 (at stairs)

- <sup>(1)</sup> Exit capacity has been determined based on a factor of 6.1 mm per person for doors, 9.2 mm per person for existing stairs and 8.0 mm per person for new stairs.
- <sup>(2)</sup> Program occupant loads as advised by the Architect. Where the occupant load is not based on the OBC factors, a permanent sign indicating the occupant load is required to be posted in conspicuous location in accordance with Sentence 3.1.17.1.(2).

**9.11 Exit and Corridor Widths**

In accordance with Subsection 3.3.1. and Sentences 3.4.3.2.(7) and 3.8.3.3.(1), the minimum widths for egress/exit facilities will be as follows:

- Corridors/Passageways/Ramps: 1100 mm
- Exit Stairs serving not more than two storeys above or 900 mm
- not more than one storey below the lowest exit level:
- Exit Doors: 790 mm
- Room Entry/Egress Doors: (clear) 800 mm
- Doorways in a barrier-free path of travel: (clear) 860 mm

**9.12 Direction of Door Swing**

In accordance with Sentence 3.3.1.10.(2), where a room or suite is intended for an occupant load of more than 60 persons, all egress doors from the room or suite will swing on a vertical axis in the direction of exit travel.

All exit doors will swing on a vertical axis. Exit doors serving a floor area having an occupant load of more than 60 persons will swing in the direction of exit travel, as per Sentence 3.4.6.12.(1).

**9.13 Clearance beyond Door Swing**

In accordance with Sentence 3.4.3.4.(3), swinging doors in their swing will not reduce the effective width of exit stairs or landings to less than 750 mm. This effective width is measured from the arc of the door swing to the closest portion of the outer face of the dividing wall, or other obstruction. Furthermore, swinging doors in their swing will not reduce the effective width of an access to exit or an exit passageway to less than the minimum required width.

**9.14 Door Hardware**

Doors and door hardware are to be provided in accordance with Article 3.3.1.12. A door in an access to exit will be readily openable in travelling to an exit without requiring keys, special devices or specialized knowledge of the door opening mechanism.

Door release hardware will be operable by one hand and the door will be openable with not more than one releasing operation. Door release hardware will be installed not more than 1200 mm above the finished floor. A door in an access to exit that is also a barrier-free path of travel provided with door opening devices that are the only means of operation will be designed to be operable using a closed fist and be mounted not less than 900 mm and not more than 1100 mm above the finished floor.

In accordance with Article 3.4.6.16., locking, latching and other fastening devices on every exit door will permit the door to be readily opened from the inside with not more than one releasing operation and without requiring keys, special devices or specialized knowledge of the door opening mechanism. Door hardware will be installed at a height not more than 1200 mm above the finished floor.

In accordance with Sentences 3.3.2.6.(1), 3.4.6.16.(2), and 3.8.3.3.(7), doors will be equipped with panic hardware that will release the latch and allow the door to swing open when a force of not more than 22 N for interior doors and 38 N for exterior doors is applied to the device in the direction of travel to the exit in the following locations:

- a) at every egress or exit door serving an assembly occupancy with an occupant load exceeding 100 persons, and
- b) at every exterior exit door from a stair shaft or exit lobby in a building containing an occupant load of more than 100 persons.

**9.15 Exit Signs**

In accordance with Sentence 3.4.5.1.(9), every exit door will have an illuminated exit sign placed over it. Where illuminated exit signs at exit doors are not visible from open floor areas or corridors used by the public, directional exit signs will be provided to indicate the direction of egress. Specifications for these exit signs will conform to the requirements of Subsection 3.4.5.

In accordance with Sentence 3.4.5.1.(2), exit signs will consist of a green pictogram and white graphic symbol meeting the visibility specifications referred to in ISO 3864-1, "Graphical Symbols – Safety Colours and Safety Signs – Part 1: Design Principles for Safety Signs and Safety Markings," and conform to ISO 7010, "Graphical Symbols – Safety Colours and Safety Signs – Registered Safety Signs" for the following symbols:

- a) E001 emergency exit left,
- b) E002 emergency exit right,
- c) E005 90-degree directional arrow, and
- d) E006 45-degree directional arrow.



**10.0 HEALTH REQUIREMENTS****10.1 Water Closet Requirements**

In accordance with Subsection 3.7.4., the following identifies the minimum number of washroom fixtures required to be provided for the Project and is based on area per person calculations and anticipated occupant loads.

In accordance with Sentence 3.7.4.2.(2), water closets will be provided for each sex assuming that the occupant load is equally divided between males and females.

**10.1.1 Spa**

In accordance with Sentence 3.7.4.7.(1), the number of water closets provided for the Spa will be in conformance with Table 3.7.4.7. Based on a program occupant load of 18 persons, or 9 persons per sex, a minimum of 1 water closet per sex is required for the Spa.

**10.1.2 Restaurant**

In accordance with Sentence 3.7.4.3.(4), the number of water closets provided for patrons of the restaurant will be in conformance with Table 3.7.4.3.D. Based on a program occupant load of 210 persons, or 105 persons per sex, a minimum of 3 water closets per sex are required for the restaurant patrons.

In accordance with Sentence 3.7.4.3.(6), the number of water closets provided for employees of the restaurant will be in conformance with Table 3.7.4.3.F. The number of employees is to be based on those who are normally present on the premises at one time and is to include only those who are present for more than 25 percent of the working day. Based on a calculated occupant load of 12 persons, or 6 persons per sex, a minimum of 1 water closet per sex is required for the restaurant employees.

**10.1.3 Hotel Suites**

In accordance with Sentence 3.7.4.6.(1), the number of water closets provided for residential occupancies will be in conformance with Table 3.7.4.6. Each hotel suite is proposed to be served by a private water closet, in compliance with the OBC.

**11.0 REQUIREMENTS FOR BARRIER-FREE DESIGN****11.1 Applicability**

In accordance with Sentence 11.3.3.2.(2), new construction within the Ground Floor of the Project will comply with Section 3.8 with respect to barrier-free accessibility.

In accordance with Clause 3.8.2.1.(2)(b), a barrier-free path of travel is not required to extend to the Basement, Second, or Third Floors in consideration that the storeys are used for Group C and Group D occupancies, the building is three or fewer storeys in building height and the building area does not exceed 600 m<sup>2</sup>. As an elevator to the Basement,

Second, and Third Floors will not be provided as part of the Project, Clause 3.8.2.1.(1)(c) is not applicable to the Project.

Therefore, in accordance with Sentence 11.3.3.2.(3), new construction within the Basement, Second and Third Floors of the Project will comply with the requirements of Sentences 3.8.1.3.(6), 3.8.2.3.(6), 3.8.3.1.(6), 3.8.3.3.(19), 3.8.3.7.(1), 3.8.3.15.(5) and 3.8.3.16.(4) where new interior walls or floor assemblies are installed.

The following is a summary of the major applicable accessibility requirements applicable to the Project. Members of the design team should reference the OBC for detailed design.

## **11.2 Ground Floor**

### **11.2.1 Barrier-Free Path of Travel**

In accordance with Sentence 3.8.2.1.(1), a barrier-free path of travel will be provided from the barrier-free accessible main entrances and throughout the entrance storey.

In accordance with Article 3.8.1.3., a barrier-free path of travel having a minimum unobstructed width of 1100 mm will be provided throughout each floor area. An unobstructed turnaround space of 1800 mm by 1800 mm will be provided at intervals not exceeding 30 m where the barrier-free path of travel has a width less than 1600 mm.

In accordance with Sentence 3.8.2.1.(3), a barrier-free path of travel is not required to extend:

- into service rooms,
- into janitors' rooms, or
- into service spaces.

In accordance with Sentence 3.8.1.3.(2), interior and exterior walking surfaces that are within a barrier-free path of travel that will:

- have no opening that will permit the passage of a sphere more than 13 mm in diam,
- have any elongated openings oriented approximately perpendicular to the direction of travel,
- be stable, firm and slip-resistant,
- be bevelled at a maximum slope of 1 in 2 at changes in level not more than 13 mm, and
- be provided with sloped floors or ramps at changes in level more than 13 mm.

Where the headroom of an area in a barrier-free path of travel is reduced to less than 1980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor will be provided.

### **11.2.2 Power Door Operators**

In accordance with Article 3.8.3.3., every new door that provides a barrier-free path of travel through a barrier-free entrance required by Article 3.8.1.2., will be equipped with a power door operator.

Where a barrier-free entrance required by Article 3.8.1.2. incorporates a vestibule, a door leading from the vestibule into the floor area will be equipped with a power door operator.

A door will be equipped with a power door operator where the door serves:

- a washroom for public use required to be barrier-free, or
- a universal washroom conforming to Article 3.8.3.12.

### **11.2.3 Washrooms Required to be Barrier-Free**

In accordance with Sentences 3.8.2.3.(2) and (3), barrier-free washrooms are to be provided where washrooms are required by Subsection 3.7.4.

A new Universal Washroom complying with Article 3.8.3.12. is proposed to be provided on the Ground Floor. Refer to **Section 11.2.4.4** of this report for design standards applicable to barrier-free washrooms.

### **11.2.4 Barrier-Free Design Standards for New Construction**

#### **11.2.4.1 Exterior Walks**

In accordance with Sentence 3.8.3.2.(1), exterior walks that form part of a barrier-free path of travel will:

- be provided by means of a continuous plane not interrupted by steps or abrupt changes in level,
- have a permanent, firm and slip-resistant surface,
- have an uninterrupted width of not less than 1100 mm and an unobstructed turnaround space of 1800 mm by 1800 mm provided at intervals not exceeding 30 m where the barrier-free path of travel has a width less than 1600 mm,
- have a gradient not exceeding 1 in 20 or be designed as a ramp where the gradient is greater than 1 in 20,
- have not less than 1100 mm wide surface of a different texture to that surrounding it, where the line of travel is level and even with adjacent walking surfaces,
- be free from obstructions for the full width of the walk to a minimum height of 1980 mm, except that handrails are permitted to project not more than 100 mm from either side into the clear area,
- have a level area adjacent to the entrance doorway of at least 1670 mm by 1670 mm at the top and bottom of a ramp and where a door is located in a ramp, so that the level area extends at least 600 mm beyond the latch side of the door opening, except that where the door opens away from the ramp, the area

extending beyond the latch side of the door opening may be reduced to 300 mm, and

- have tactile attention indicator conforming to Article 3.8.3.18. that is located to identify an entry into a vehicular route or area where no curbs or any other element separates the vehicular route or area from a pedestrian route.

A curb ramp may be provided where a difference in elevation between levels in a walkway is not more than 200 mm. The curb ramp will:

- have a running slope of:
  - 1:10 to 1:12 for a vertical rise between 75 and 200 mm, and
  - 1:8 to 1:10 for a vertical rise less than 75 mm.,
- have a width of not less than 1500 mm exclusive of flared sides,
- have a surface including flared sides that will
  - be slip-resistant,
  - have detectable warning surface that is colour -and texture-contrasted with the adjacent surfaces, and
  - have a smooth transition from the ramp to adjacent surfaces, and
- have flared sides with a slope of not more than 1:10 where pedestrians are likely to walk across them.

A curb ramp does not require handrails or guards.

#### **11.2.4.2 Doorways and Doors**

In accordance with Sentence 3.8.3.3.(10), new doorways in a barrier-free path of travel will have a clear width of 860 mm. All new doors in a barrier-free path of travel will be required to provide a clear space of 600 mm on the latch side of the door when the door swings toward the approach side. A 300 mm clear space is required on the latch side of the door when the door swings away from the approach side or on both sides of a sliding door. Alternatively, a power door operator may be provided in lieu of the latch side clear spaces.

In accordance with Sentence 3.8.3.3.(11), new vestibules located in a barrier-free path of travel will be arranged to allow the movement of wheelchairs between doors. A distance of 1500 mm plus the width of any door that swings into the space in the path of travel from one door to another is required when the doors into the vestibule are in series. A turning diameter of 1500 mm is required within the vestibule clear of any door swing when the doors into the vestibule are not aligned.

In accordance with Sentence 3.8.3.3.(15), a door in a barrier-free path of travel consisting of a sheet of glass will be marked with a continuous opaque strip that:

- will be colour and brightness contrasted to the background of the door,
- will be at least 50 mm wide,
- will be located across the width of the door at a height of 1350 mm to 1500 above the finished floor, and
- may incorporate a logo or symbol, provided such logo or symbol does not diminish,

- the opacity of the strip.
- the width of the strip,
- the colour and brightness contrast of the strip to the background of the door, and
- the continuity of the strip across the width of the door.

#### **11.2.4.3 Ramps**

In accordance with Article 3.8.3.4. ramps and floors or walks in a barrier-free path of travel having a slope steeper than 1 in 20 will be designed as ramps.

#### **11.2.4.4 Universal Washrooms**

- **Water Closets**

In accordance with Article 3.8.3.8., the water closet will be located so that the centre line of the water closet is not less than 460 mm and not more than 480 mm from one side wall. In addition, a clear transfer space of at least 900 mm wide and 1500 mm deep will be provided on the other side of the water closet.

The water closet will be equipped with a seat located at not less than 430 mm and not more than 485 mm above the finished floor. The water closet will be designed to flush automatically or be equipped with a flushing control that is located between 500 mm and 900 mm above the finished floor, is operable from the transfer side, and is operable using a closed fist and with a force of not more than 22.2 N. A back support will be provided if there is no seat lid or tank.

- **Grab Bars**

In accordance with Article 3.8.3.8., a grab bar will be provided at the side wall that is a continuous L-shape with 750 mm long horizontal and vertical components and be wall mounted with the horizontal component 750 mm above the finished floor and the vertical component 150 mm in front of the water closet.

A grab bar will be provided behind the water closet that is at least 600 mm in length and mounted horizontally from 840 mm to 920 mm above the finished floor and, where the water closet has a water tank, be wall mounted 150 mm above the tank.

- **Lavatories**

In accordance with Article 3.8.3.11., lavatories will be located so that:

- the distance between the centre line of the lavatory and the side wall is not less than 460 mm,
- the rim height of the lavatory is not more than 865 mm above the finished floor,
- the clearance beneath the lavatory is not less than,
  - 920 mm wide,
  - 735 mm high at the front edge,
  - 685 mm high at a point 200 mm back from the front edge, and

- 350 mm high from a point 280 mm to a point 430 mm back from the front edge,
- faucets operate automatically or have lever type handles (or are otherwise operable with a closed fist) that do not require the application of continuous force to maintain water flow, and that are located so that the distance from the centre line of the faucet to the edge of the basin or, where the basin is mounted in a vanity, to the front edge of the vanity, is not more than 485 mm,
- there is a minimum 1370 mm deep floor space to allow for a forward approach, of which a maximum of 500 mm can be located under the lavatory,
- a soap dispenser that operates automatically or is operable using a closed fist and a force of not more than 22.2 N, and is located not more than 1100 mm above the finished floor, within 500 mm from the front of the lavatory, and
- a towel dispenser or other hand-drying equipment that is operable with one hand and located to be accessible to persons in wheelchairs, and not more than 1200 mm above the finished floor (dispensing height) and not more than 610 mm measured horizontally from the edge of the lavatory.

A mirror will be provided above that lavatory that is mounted with its bottom edge not more than 1000 mm above the finished floor or inclined to the vertical to be usable by a person in a wheelchair.

- **Room Dimensions**

In accordance with Article 3.8.3.12., a universal washroom will be served by a barrier-free path of travel and have a minimum internal dimension of 1700 mm. In addition, the washroom will have an unobstructed turning diameter of 1700 mm for a wheelchair.

- **Adult-Size Change Table**

In accordance with Article 3.8.3.12., a clear space not less than 810 mm wide and 1830 mm long will be provided in each universal washroom for an adult-size change table.

The space for the adult-sized change table may encroach upon the 1700 mm turning circle only where the change table is moveable and is not permanently fixed or stored within the washroom.

Where the clear space provided for an adult-size change table is adjacent to a wall, reinforcement will be installed in the wall to permit the future installation of the change table.

Where an adult-size change table is installed, it will:

- when fully loaded, have a surface height above the finished floor that can be adjusted from between 450 mm and 500 mm at the low range to between 850 mm and 900 mm at the high range,
- be designed to carry a minimum load of 1.33 kN,
- have a clear floor space parallel to the long side of the table not less than 760 mm wide and 1500 mm long, and
- in the case of a fold-down table,

- be installed so that it does not encroach into a clear transfer space described in the washrooms section above, and
- have no operating mechanisms higher than 1200 mm.

- **Door Hardware**

In accordance with Article 3.8.3.12., door hardware will consist of a graspable latch-operating mechanism that is operable with a closed fist and with a force of not more than 22.2. N, and located not less than 900 mm and not more than 1000 mm above the finished floor. The door will be capable of being locked from the inside and released from the outside in case of emergency.

A door to a public washroom and a door to a universal washroom that is equipped with a self-closing device will also be equipped with a powered door operator.

- **Emergency Call Button**

In accordance with Article 3.8.3.12., an emergency call system will be provided that consists of audible and visual signal devices inside and outside of the washroom that are activated by a control device inside the washroom.

In addition, an emergency sign will be posted above the emergency call button that contains the words IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE in letters at least 25 mm high with a 5 mm stroke.

#### **11.2.4.5 Tactile Attention Indicators**

In accordance with Sentence 3.4.6.1.(2), a tactile attention indicator will be installed, at the top of the stairs, starting one tread depth back from the edge of the top stair and at the leading edge of landings where a doorway opens onto stairs, starting one tread depth back from the edge of the landing.

In accordance with Article 3.8.3.18, a tactile attention indicator will have a depth not less than 300 mm and not more than 610 mm. The tactile attention indicator will conform to Clauses 4.1.1. and 4.1.2. of ISO 23599: 2012, "Assistive Products for Blind and Vision-Impaired Persons – Tactile Walking Surface Indicators."

### **11.3 Basement, Second and Third Floors**

#### **11.3.1 Interior Walking Surfaces**

In accordance with Sentence 3.8.1.3.(6), a normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel must meet the following requirements:

- a) interior walking surfaces throughout the normally occupied floor area are required to comply with Clauses 3.8.1.3.(2)(a) to (e) (refer to **Section 11.2.1** of this report), and

- b) where the headroom of an area in a corridor or aisle in the normally occupied floor area is reduced to less than 1980 mm, a guardrail or other barrier with its leading edge at or below 680 mm from the finished floor is required to be provided.

### **11.3.2 Washrooms**

In accordance with Sentence 3.8.2.3.(6) where a new washroom required by Subsection 3.7.4. is provided in a storey that is not required by Article 3.8.2.1. to have a barrier-free path of travel, the washroom must meet the following requirements:

- a) conform to Article 3.8.3.9. and Sentences 3.8.3.10.(4) and 3.8.3.11.(5), and
- b) be provided with at least one ambulatory water closet stall or enclosure conforming to Sentence 3.8.3.8.(10).

### **11.3.3 Doorways and Doors**

In accordance with 3.8.3.3.(19), applicable to the Project, new doors in a normally occupied floor area that is not required by Article 3.8.2.1. to have a barrier-free path of travel are required to comply with the following requirements:

- a) door opening devices that are the only means of operation on doors in the normally occupied floor area are required to comply with Sentence 3.8.3.3.(3),
- b) where a vision panel is provided in a door in the normally occupied floor area, the panel is required to comply with Sentence 3.8.3.3.(14),
- c) doors consisting of a sheet of glass in the normally occupied floor area are required to comply with Sentence 3.8.3.3.(15), and
- d) where a power door operator is installed for doors in the normally occupied floor area, the control for the power door operator are required to comply with Sentence 3.8.3.3.(17).

## **12.0 CONCLUSION**

The 2012 Ontario Building Code provides a minimum set of requirements which establishes an acceptable level of fire protection and life safety for buildings. This Building Code Outline Report outlines the various approaches to meet the intent of the applicable requirements with the 2012 Ontario Building Code.





In conclusion, the proposed fire protection and life safety features for the Project, as described in this report, will provide a level of fire protection and life safety which equals or exceeds the minimum acceptable levels established by the requirements of the 2012 Ontario Building Code.

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