

Section 11.2. Upgrade Application

11.2.1. Upgrade Requirements

11.2.1.1. Upgrade Objectives

- 1) An *alteration* to an *existing building* shall trigger upgrading of the *existing building* to meet the following objectives
 - a) all unsafe conditions shall be corrected to an *acceptable* level,
 - b) all new materials and *construction* work shall comply with this By-law,
 - c) the *building* shall be upgraded to an *acceptable* level of
 - i) fire, life and health safety,
 - ii) structural safety,
 - iii) non-structural safety,
 - iv) accessibility for persons with disabilities, and
 - v) energy and water efficiency,
 - d) any significant extension of the design life of an *existing building* beyond its original design life shall require upgrading to an *acceptable* level,
 - e) an *alteration* to an individual *suite* within an *existing building* will not trigger upgrades within any other *suites* except where the *alteration* creates non-conformity with the By-law within such other *suites*, and
 - f) the level of life safety and *building* performance shall not be decreased below the existing level.

11.2.1.2. General Requirements

(See Note A-11.2.1.2.)

- 1) Where *construction* of *existing buildings* occurred before the effective date of this By-law, reconstruction or *alteration* of *existing buildings* is not a requirement of this By-law, except as required by Articles 11.2.1.3. to 11.2.1.11. inclusive.
- 2) Except as permitted by Sentences (3) to (9), and Articles 11.2.1.3. to 11.2.1.11., where an *alteration* is made to an *existing building*, the *alteration* shall comply with this By-law and the *existing building* shall be
 - a) upgraded to an *acceptable* level as defined in the *existing building* Upgrade Mechanism Model in Division B Appendix A, except that existing lighting exceeding the Lighting Power Density of ASHRAE 90.1-2016 shall be removed within existing spaces of a *suite* within the scope of a *project*,
 - b) upgraded to the satisfaction of the *Chief Building Official* where the *owner* demonstrates that the design levels, as defined by the Upgrade Mechanism Model in Division B Appendix A, present a hardship for the *owner*, or
 - c) upgraded to the satisfaction of the *Chief Building Official* through alternative upgrades, that demonstrate equivalent improvement where specific characteristics of the building are intended to be retained.
- 3) Except as required by Sentence (9) and changes of *major occupancy* in a *small suite*, where an *alteration* does not involve an *addition* or a change in *major occupancy*, further upgrading to an *existing building* is not a requirement of this By-law provided
 - a) *construction* or a full upgrade of the *building* occurred by means of a *building permit* issued on or after November 1, 1999,
 - b) all *unsafe conditions* are corrected to the satisfaction of the *Chief Building Official*, and
 - c) all new work is in compliance with this By-law.
- 4) Where a voluntary upgrade for fire alarm systems, *sprinkler systems*, *exits*, accessibility, seismic work, washrooms or kitchens for *single room accommodations*, energy efficiency or *building* envelope repair is carried out, no further upgrade of the *building* is required except that, where other work is included in the application, the upgrade requirement will only be based on the non-voluntary work proposed.
- 5) Where *building* envelope repair involves more than 60% of an opaque portion of a *building* face, the *building* envelope on the entire vertical section of that *building* face shall be replaced and upgraded to the thermal resistance and air-tightness requirements of Part 10, except where

- a) the scope of work is limited to the replacement of windows
- b) the *building* is two *storeys* in *building height* or less and is required to comply with Part 9 per Division A, Article 1.3.3.3., or
- c) the *building* face has heritage merit and is required to be retained as part of an approved retention plan.
- 6)** Where a *building* is altered and is a *post disaster building* as defined in Table 4.1.2.1., or where there is a major *addition* to a *post disaster building*, the entire *building* shall be upgraded to design upgrade levels F4, S4, N4, A4 and E4 as detailed in the Upgrade Mechanism Model in Division B Appendix A.
- 7)** Where there is a temporary change of *major occupancy* to an assembly occupancy for an *arts and culture indoor event* in a *building* which is classified as Group D offices, Group E retail, Group F Division 2 production or rehearsal studio, wholesale, warehouse, or factory, or Group F Division 2 artist studio without living accommodations, the upgrade requirements shall be based solely on Section 11.6.
- 8)** Where there is a change of *major occupancy* in a *building*, and the aggregate area of the change in *major occupancy* within any 5 year period is greater than 50% of the *building area* in a one *storey building* or greater than 100% of the *building area* in a *building* of more than one *storey*, the entire *building* shall be upgraded to design upgrade levels F4, S4, N4, A4 and E3 as detailed in the Upgrade Mechanism Model in Division B Appendix A except where
- a) the change in *major occupancy* is to a single *suite* and the work does not exceed 5% of the *building area* or more than 100 m² in area, or
- b) such upgrades are in conflict with an approved heritage retention plan.
- 9)** The upgrade requirements for energy efficiency to *existing buildings* shall conform to the upgrade mechanism model in Division B Appendix A for energy efficiency except for
- a) *buildings* designed and constructed in conformance with ASHRAE 90.1-2007 or as deemed acceptable to the *Chief Building Official*,
- b) *buildings* designed and constructed in conformance with Article 9.25.2.1. Division B of Building By-law No. 9419,
- c) *buildings* where the *alteration* is limited to the upgrade of energy related specific equipment, as listed in Table 11.2.1.2., provided the replacement equipment complies with industry standards for “high efficiency,” and
- d) *multi-family buildings* not more than 3 *storeys* in *building height* may comply with the energy efficiency upgrade requirements of Table 11.2.1.4.(2)

Table 11.2.1.2.
Energy Related Equipment
 Forming part of sentence 11.2.1.2.(9)

Equipment Type	Specific Equipment
Basic Building Systems	Boilers
	Furnaces
	Hot Water Tanks
	Lighting Systems
	Energy Reduction Sensors (occupant, light, etc.)
Renewable Energy Systems	Photovoltaic system
	Solar Thermal system
	Biofuel-based Energy system
	Geothermal Heating system
	Geothermal Electric system
	Wave & Tidal Power system
High Performance Energy Systems	Ground Source Heat Pump system
	Air Source Heat Pump system
	Waste Heat Recovery system

11.2.1.3. Sprinkler Installation Requirements for the Addition of Dwelling Units in Multi-family Buildings

(See Note A-11.2.1.3.)

- 1) Except as provided in Sentence (2) and Sentence 11.2.1.4.(3), where an *alteration* to an *existing building* creates or adds one or more *dwelling units*, the *building* shall be *sprinklered* in conformance with Table 11.2.1.3.
- 2) Where the *alteration* in Sentence (1) involves the *addition* of existing floor area to an existing *dwelling unit*, and that converted space is greater than 50% of the *floor area* of the original *dwelling unit*, the altered *dwelling unit* shall be considered as a new *dwelling unit* and the *building* shall be *sprinklered* in conformance with Table 11.2.1.3.
- 3) If sprinklers are required by Table 11.2.1.3., they shall be installed throughout the *storey* on which the new *dwelling unit* is to be located and all *storeys* below the new *dwelling unit*.

Table 11.2.1.3.
Sprinkler Installation Determination Where Dwelling Units are Added
 Forming part of sentence 11.2.1.3.(1),(2), and (3)

Existing Dwelling Units	New DUs ⁽¹⁾ Added Over Any 5 year Period ⁽²⁾				
	1	2-3	4-5	6	>6
0-1	Spr R ⁽³⁾	Spr R	Spr R	Spr R	Spr R
2-4	-	Spr R	Spr R	Spr R	Spr R
5-10	-	-	Spr R	Spr R	Spr R
11-20	-	-	-	Spr R	Spr R
>20	-	-	-	-	Spr R

Notes to Table 11.2.1.3.

- (1) Dwelling Units
- (2) The creation of dwelling units over the previous 5 years from the date of the proposed building permit application.
- (3) Sprinklers Required.

11.2.1.4. Upgrade Requirements for a Residential Building Containing not more than Two Principal Dwelling Units

- 1) Except as permitted by Subsection 11.4, an *alteration* or *addition* to a residential *building* containing not more than two principal *dwelling units* shall comply with this By-law, and the existing portions of *building* shall be upgraded to an *acceptable* level as determined by Tables 11.2.1.4.(1)-A, 11.2.1.4.(1)-B, and 11.2.1.4.(1)-C.

Table 11.2.1.4.(1)-A
Fire and Life Safety Upgrade requirements for Residential Buildings containing not more than Two Principal Dwelling Units
 Forming part of Sentence 11.2.1.4.(1)

Scope of Work	Smoke Alarms ⁽¹⁾	CO Alarms ⁽²⁾	Guards ⁽³⁾	Spatial Separation ⁽⁴⁾	Structural ⁽⁵⁾
Renovation	Y	Y	Y	N	N
Relocation or Reconstruction	Y	Y	Y	Y	Y
Horizontal Addition Floor Area					
up to 25% ⁽⁶⁾	Y	Y	Y	N	N
over 25% ⁽⁷⁾	Y	Y	Y	Y	Y
Vertical Addition Floor Area					
up to 25% ⁽⁶⁾	Y	Y	Y	N	Y
over 25% ⁽⁷⁾	Y	Y	Y	Y	Y

Notes to Table 11.2.1.4.(1)-A:

- (1) Smoke Alarms: to be installed in conformance with Subsections 3.2.4. and 9.10.19. as applicable.
- (2) CO Alarms: to be installed in conformance with Subsections 6.2.4. and 9.32.4. as applicable.
- (3) *Guards*: all unsafe *guards* to be upgraded to the satisfaction of the *Chief Building Official*.

- (4) Spatial Separation: Spatial separation of the *building* shall comply with Subsections 3.2.3., 9.10.14 or 9.10.15. as applicable; or as permitted by Section 11.3.
- (5) All existing wood frame walls to be anchored to existing concrete foundation walls for seismic resistance
- (6) Aggregate increase in floor area less than 25% of the building area (see flow chart #2 of A-11.2.1.2).
- (7) Aggregate increase in floor area greater than 25% of the building area.

Table 11.2.1.4.(1)-B

Egress and Exit Upgrade requirements for Residential Buildings containing not more than Two Principal Dwelling Units
Forming part of Sentence 11.2.1.4.(1)

Scope of Work	Means of Egress ⁽¹⁾	Handrails ⁽²⁾	Exit Exposure ⁽³⁾	Stair Dimensions ⁽⁴⁾	Building Services ⁽⁵⁾	Falling Hazards ⁽⁶⁾
Renovation	N	Y	N	N	N	N
Relocation or Reconstruction	Y	Y	Y	Y	Y	Y
Horizontal Addition Floor Area						
up to 25% ⁽⁷⁾	Y	N	N	N	N	Y
over 25% ⁽⁸⁾	Y	Y	Y	Y	Y	Y
Vertical Addition Floor Area						
up to 25% ⁽⁷⁾	Y	Y	N	N	N	Y
over 25% ⁽⁸⁾	Y	Y	Y	Y	Y	Y

Notes to Table 11.2.1.4.(1)-B:

- (1) Means of Egress: confirm that access to exit (9.9.9.) and means of escape (9.9.10.) from all floor areas is compliant with regards to travel distance and fire separation (where applicable).
- (2) Handrails: all unsafe handrails to be upgraded to the satisfaction of the *Chief Building Official*.
- (3) Exit Exposure: Exits to be confirmed to be compliant with regards to exit exposure where applicable.
- (4) Stair Dimensions: Existing stairs in means of egress to comply with the dimensional requirements of Subsection 9.8.2.
- (5) Building Services: Restrain building service piping, conduit, and *appliances* to resist lateral movement due to earthquake.
- (6) Falling hazards: Restrain falling hazards within 3 m of the egress path to resist lateral movement due to earthquake.
- (7) Aggregate increase in floor area less than 25% of the building area (see flow chart #2 of A-11.2.1.2).
- (8) Aggregate increase in floor area greater than 25% of the building area.

Table 11.2.1.4.(1)-C

Floor Area Upgrade Requirements for Residential Buildings containing not more than Two Principal Dwelling Units
Forming part of Sentence 11.2.1.4.(1)

Scope of Work	Flame Spread ⁽¹⁾	Floor Fire Separations ⁽²⁾	Suite Fire Separations ⁽³⁾	Lighting & Emergency Lights ⁽⁴⁾	Door Hardware ⁽⁵⁾
Renovation	N	N	N	N	N
Relocation or Reconstruction	Y	Y	Y	Y	Y
Horizontal Addition Floor Area					
up to 25%	N	N	N	N	N
over 25%	Y	Y	Y	Y	Y
Vertical Addition Floor Area					
up to 25%	N	N	N	Y	N
over 25%	Y	Y	Y	Y	Y

Notes to Table 11.2.1.4.(1)-C:

- (1) *Flame Spread Rating*: Exposed wall and ceiling finishes of egress routes to meet the requirements of Subsection 9.10.17. in exits
- (2) *Floor Fire separations*: Floor and occupied roof assemblies to be fire rated per Article 9.10.8.1.
- (3) *Suite Fire Separations* (where applicable): Residential *suites* to be provided with a fire separation in accordance with Article 9.10.9.14. and Section 9.37.
- (4) *Lighting & Emergency Lights* (where applicable): Lighting and emergency lighting to be provided in means of egress in accordance with Subsection 9.9.12.
- (5) *Door Hardware*: Door hardware within existing floor areas to be made adaptable as per Subsection 3.8.5.

- 2) Where an *alteration* or *addition* is made to an existing residential *building*, containing not more than two principal *dwelling units*, the energy efficiency of a the *building* shall be upgraded to an *acceptable* level in conformance with Table 11.2.1.4.(2)

Table 11.2.1.4.(2)
Energy Efficiency Upgrade Requirements for Residential Buildings containing not more than Two Principal Dwelling Units (except as permitted by Clause 11.2.1.2.9)d)
 Forming part of Sentence 11.2.1.4.(2)

Alteration construction (\$) value	EnerGuide Assessment ⁽¹⁾	Air tightness upgrades ⁽²⁾	Attic and Sloped Roof Insulation ⁽³⁾	E6 - Upgrade Mechanism Model ⁽⁴⁾
\$20,000 to \$74,999	Y	N	N	N
≥\$75,000	Y	Y	Y	N*

Notes to Table 11.2.1.4.(2):

- (1) An EnerGuide Assessment completed within the last 4 years must be submitted, a post-construction assessment must also be completed where the cost of construction exceeds \$75,000.
- (2) Where EGH>5 air changes per hour, air sealing is required.
- (3) Where attic insulation <R12 (2.11RSI), increase to R28 (4.93RSI); where attic insulation ≥R12 (2.11RSI), increase to R40 (7.04RSI); Insulation in existing attics shall not exceed R43.7 (7.7RSI). All flat roof and cathedral ceiling insulation shall be upgraded to ≥R14 (2.47RSI).
- (4) Reconstruction is defined in the Upgrade Mechanism Model in Appendix A Division B Part 11. A reconstruction project must meet the Part 10 energy efficiency requirements as per E6 in Table A-11.2.1.2.-C.

3) Where an *alteration* is made to an existing residential *building* containing not more than two principal residential *dwelling units*, that creates one or more new principal *dwelling units* or increases the size of an existing *dwelling unit*, a *sprinkler system* shall be installed

- a) throughout the *building*, where the value of the *alteration* exceeds 50% of the replacement value of the *existing building*, (See Note A-11.2.1.4.(3)(a).)
- b) throughout any *storey* on which a new principal *dwelling unit* is created, and all *storeys* below, or
- c) throughout any *storey* on which an *alteration* to the *building* increases the aggregate area of an existing *dwelling unit* and the converted space is greater than 50% of the *floor area* of the original *dwelling unit*.

11.2.1.5. Self-contained Volumetric Spaces

(See Note A-11.2.1.5)

1) Where an *alteration* to a *building* is a self-contained volumetric space that is separated from the remainder of the *building* by a *non-combustible vertical fire separation* with a 2 h *fire resistance rating*, the upgrade requirements of this Part do not apply to the remainder of the *building* provided

- a) the self-contained volumetric space is upgraded in conformance with this By-law,
- b) the self-contained volumetric space does not *exit* through the remainder of the *building*,
- c) the *building area* of the self-contained volumetric space is not larger than 10% of the existing *building area*,
- d) a *non-combustible vertical fire separation* with a 2 h *fire resistance rating* is constructed as a continuous vertical *fire separation* from the *building foundation* to the underside of the roof sheathing, and
- e) the self-contained volumetric space does not reduce the existing structural capacity of the *building*.

11.2.1.6. Relocated Buildings

1) Where a *building* is relocated from another municipality to the *City*, from another lot within the *City* or within its existing lot, the *building* shall be upgraded to Design Upgrade Levels F4, S4, N4, A4 and E4, as determined by the Upgrade Mechanism Model in Division B Appendix A.

11.2.1.7. Relocated Property Lines

1) Where property lines are relocated closer to a *building*, the *building* shall be upgraded to conform to the spatial requirements, fire department access requirements and *means of egress* requirements of this By-law or the applicant shall demonstrate that the relocated property lines and the *existing building* configuration comply with this By-law.

11.2.1.8. Demolished Buildings

1) Where a *building* is being demolished in whole or in part, the *demolition* work shall conform to the requirements of Part 8 and any part of the *building* that remains after *demolition* shall be upgraded in conformance with Article 11.2.1.2.

11.2.1.9. Damaged Buildings

1) Where a *building* has been damaged, all work necessary to reconstruct the damaged portions of the *building* shall conform to this By-law and the Fire By-law and the remainder of the *building* shall be upgraded in conformance with Article 11.2.1.2.

11.2.1.10. Fire Department Order

1) Where an order issued under the Fire By-law requires upgrading of a *building*, the *Chief Building Official* may allow deviations from this By-law.

11.2.1.11. Specific Upgrade Requirements for Float Homes and Marinas

1) Except as permitted by Sentence (2), where a *marina* is altered, all new work shall comply with Subsection 12.2.2. and the *marina* shall be upgraded to an *acceptable* level as determined by the Upgrade Mechanism Model in Division B Appendix A.

2) Except as required by Sentence (3); Sentences 12.2.2.7.(1), and 12.2.2.8.(1) need not apply to a *marina*.

3) Where the total value of the *alteration* to a *marina* exceeds 50% of the value of the *marina* as determined at the application stage for the *alteration*, then the *marina* shall comply with Subsection 12.2.2.

4) Where a *float home* is altered

- a) new work shall comply with Subsection 12.2.2. of Division B and this By-law, and
- b) the *float home* shall be upgraded to an *acceptable* level in accordance with Article 11.2.1.4.

5) A *marina* shall have an *occupancy* classification as specified in Sentences 12.2.2.1.(4) and (5).