Village of Lytton

BUILDING AMENDMENT BYLAW NO. 730, 2023

A Bylaw to Provide for Wildland/Urban Interface Fire Protection for Buildings

---

GIVEN that the Village Council

A. may by bylaw regulate, prohibit, and impose requirements in relation to buildings and structures under section 8(3)(g) and (l) of the *Community Charter* for the health, safety, or protection of persons or property under section 53(2) and 63 of that statute;

B. may by bylaw regulate, prohibit, or impose requirements in relation to trees and shrubs under section 8(3)(c) of that statute and section 527 of the *Local Government Act*;

C. is enacting PART 16 of this bylaw to amend Building Bylaw No. 710, 2022 in accordance with approvals of the Province of British Columbia respecting wildland/urban interface fire protection;

D. the Province has approved the provisions of this Bylaw that require such approval under the *Building Act and Building Act General Regulation* 131/2016; and

E. has engaged building officials for the purposes of this bylaw;

NOW THEREFORE the Council of the Village of Lytton enacts as follows:

Citation

1. This bylaw may be cited as “BUILDING BYLAW AMENDMENT BYLAW NO. 730, 2023”.

Amendment of Building Bylaw No. 710, 2022

1. BUILDING BYLAW NO. 710, 2022 is amended by :

(a) Adding page 2 of this bylaw as Part 16 to the Building Bylaw No. 710, 2022 and renumbering the rest of the bylaw as follows:

-Part 17: Excess of Standard Requirements
-Part 18: Offences
-Part 19: Interpretation
-Part 20: Repeal
-Part 21: In Force

and

(b) Adding Appendix M.

PART 16: FIRE SAFETY

Protection of Construction Against Wildland Urban Interface Fires

16.1 Construction of new Part 3 and Part 9 buildings shall comply with Appendix M. Appendix M is the Village of Lytton version of Chapter 3 of the NRC WUI 2021 Fire Guide.

APPENDIX M

Introduction

This Appendix M is a summary of the Wildland Urban Interface Fire Protection for Buildings applicable to building in Lytton. The detailed reference and specifications, adapted for the Village of Lytton, can be found on the Village's website: www.lytton.ca – or can be obtained by contacting the Village office and are labelled as PART 1 thru 5.

Note, the original paragraph numbering used in the NRC WUI 2021 Guide has been retained in this bylaw to allow for cross-referencing.

PART 1

SPECIFICATIONS for WILDLAND URBAN INTERFACE FIRE PROTECTION FOR BUILDINGS in the Village of Lytton.

Scope
Despite any other enactment, every new *building* and *structure* shall be *constructed* in accordance only with sections 3.3.1 through 3.3.8 including materials cross referenced in those sections. The original Chapter references have been maintained here for ease of cross-referencing.

Lytton version and EXCERPTS from Chapter 3 WUI Fire Risk Mitigation in the Structure Ignition Zone

Chapter 3 Village of Lytton Structural WUI Fire Risk Mitigation

3.1 General

This Chapter outlines construction measures for the protection of property from *WUI fire hazard* in relation to the *Exposure Level* determined in the Village of Lytton version of Chapter 2 of NRC WUI 2021 Guide. Qualitative assessment of property vulnerability has been established by *Qualified professionals* as an exposure of *High*. subject to establishing remedial actions appropriate for the severity of this *vulnerability*. See Appendix I for explanatory material related to this Chapter.

F. The recommended measures in this Chapter are the Provincial Government approved provisions of the Village of Lytton Bylaw No.730 that require such approval under the *Building Act and Building Act General Regulation* 131/201

Implementation of the Recommendations in This Chapter

1) The implementation of this Chapter may be achieved by

a) using the recommended measures and guidelines as written, or
b) using alternative measures that achieve the same performance as intended by the stated objectives and functions described in Chapter 1of the Village of Lytton version of the WUI Guide.

2) When implementing this Chapter as described in Clause (1)(b), a detailed analysis should be performed of the objectives and functions, as described in Chapter 1, that are related to property protection.

3.2 Exposure Levels and Construction Classes

3.2.1 Determination of Exposure Level

The determination of the ***Exposure Level*** is that the *Exposure Level is High* however *Qualified professionals* may propose an Alternative assessment in a format acceptable to the Building Official

3.2.2 Determination of Construction Class

The appropriate *Construction Class* of a *building* can be determined using Table 7 on the basis of its *Exposure Level*, as described in Section 3.2.1

Table 7: Determination of Construction Classes

Exposure Level	Recommended Construction Classes for Use with Mitigation Measures Applied in the Listed Priority Zones				
	None	1A	1A and 1	1A to 2	1A to 3
Ember-Only or Low	*CC1*(FR)[(1)]	*CC1*	*CC3*	*CC3*	*CC3*
Moderate	*CC1*(FR)[(1)]	*CC1*(FR)[(2)]	*CC2*	*CC3*	*CC3*
High	*CC1*(FR)[(1)]	*CC1*(FR)[(2)]	*CC1*	*CC2*	*CC3*

Notes to Table 7:

(1) Where the *Priority Zones* do not align with the guidance described in Section 3.4, the exterior walls of *buildings* in *Construction Class CC1*(FR) should have a *fire-resistance rating* of not less than 1 h based on fire *exposure* described in Clause 3.3.2(7)(a).

(2) Where only *Priority Zone 1A* aligns with the guidance described in Section 3.4, the exterior walls of *buildings* in *Construction Class CC1*(FR) should have a *fire-resistance rating* of not less than 45 min based on fire *exposure* described in Clause 3.3.2(7)(b).

3.3 Construction Measures

3.3.1 Existing Applicable Regulations

The Province has approved the provisions of this Bylaw that require such approval under the Building Act and Building Act General Regulation 131/2016.

3.3.2 Exterior Walls

1) This section applies to all exterior wall surfaces, components, openings, and gaps subject to within the Village of Lytton.

2) Except as described in Sentences (6) and (11), exterior wall cladding on *buildings* in *Construction Classes CC1*(FR) or subject to an Alternative solution acceptable to the Building Official CC2 or *CC3* should be selected using Table 8.

Table 8: Minimum Recommended Exterior Wall Cladding by Construction Class

Construction Class	Minimum Recommended Exterior Wall Cladding
CC1(FR) or *CC1*	*Noncombustible*(1)
CC2	*Ignition-resistant*(2)
CC3	Limited *ignition-resistant*(3)

Notes to Table 8:

(1) *Noncombustible* cladding is described in Sentences (3) to (5), (7), and (8).

(2) *Noncombustible* or *combustible* cladding is described in Sentences (3) to (5), (8) or (9), and (10).

(3) *Noncombustible* or *combustible* cladding is described in Sentences (3) to (5).

3) The exterior wall cladding should extend from the top of the foundation to

a) the top plate (track) of the exterior wall,
b) the bottom chord of the roof truss,
c) the intersection of the exterior wall and the soffit, or
d) the bottom of the built-up roof deck.

4) All joints in the exterior wall cladding or related wall components should be covered, sealed, overlapped, backed, or butt-jointed with no unprotected gaps greater than 3 mm.

5) All openings and penetrations in the exterior wall cladding or related wall components should be sealed with no gaps greater than 3 mm.

6) Exterior vertical surfaces that are less than 200 mm from the ground or a deck, roof, or similar horizontal surface where *embers* may accumulate should be protected on the exterior by

a) *noncombustible* material, or
b) at least one layer of Type X exterior gypsum sheathing or cement board.

7) For *buildings* in *Construction Class CC1*(FR), exterior walls should be constructed from a material or assembly of materials having a *fire-resistance rating*, established using the results of tests

conducted in conformance with CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials” [82], or by using Appendix D of the NBC [2] or the construction specifications presented in Table 9.10.3.1.-A of the NBC [2] (as appropriate) of not less than

a) 1 h, where none of the *mitigation* measures have been applied in the listed *Priority Zones* surrounding the *building*, or

b) 45 min, where *mitigation* measures have been applied only in *Priority Zone 1A*.

8) Except as described in Sentence (9), exterior wall assemblies on *buildings* in *Construction Classes CC1* and *CC2* should

a) be clad with masonry or concrete having a thickness not less than 25 mm, or
b) meet the recommended acceptance criteria stated in Table 9 when tested using ASTM E2707, “Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure” [83].

9) Exterior wall cladding on *buildings* in *Construction Class CC2* could be made of *ignition resistant* material that

a) has an exterior surface *flame-spread rating* of not more than 25 when tested using CAN/ULC-S102, “Test for Surface Burning Characteristics of Building Materials and Assemblies” [84], or

b) meets the recommended acceptance criteria stated in Table 9 when tested using ASTM E2768, “Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)” [85].

10) Where the exterior wall cladding referred to in Sentence (9) is *combustible* cladding made of *fire-retardant-treated wood*, the cladding should also be subjected to an accelerated weathering test as specified in ASTM D2898, “Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing” [86], prior to the testing described in Sentence (9).

11) Exterior walls on *buildings* in *Construction Classes CC2* and *CC3*, exterior walls can be made of *log wall construction*.

Table 9: Recommended Acceptance Criteria for ASTM Fire Test Standards are included in PART 2 of the reference materials on the Village website.

Table 9: Recommended Acceptance Criteria for ASTM Fire Test Standards

Fire Test Standard	Recommended Acceptance Criteria	Source
ASTM E2632, "Standard Test Method for Evaluating the Under-Deck Fire Test Response of Deck Materials" [87]	1. Effective net peak heat release rate of less than or equal to 269 kW/m^2 (25 kW/ft.^{2}) 2. Absence of sustained flaming or glowing combustion at the end of the 40-min observation period 3. Absence of falling particles that are still burning when reaching the burner or floor	Adapted from Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure, of the 2019 California Building Code [88]
ASTM E2707, "Standard Test Method for Determining Fire Penetration of Exterior Wall Assemblies Using a Direct Flame Impingement Exposure [83]	1. Absence of flame penetration through the wall assembly at any time 2. Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70-min test	
ASTM E2726, "Standard Test Method for Evaluating the Fire-Test-Response of Deck Structures to Burning Brands" [89]	1. Absence of sustained flaming or glowing combustion at the end of the 40-min observation period 2. Absence of falling particles that are still burning when reaching the burner or floor	
ASTM E2768, "Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30-min Tunnel Test)" [85]	1. Flame-spread rating of 25 or less as determined for the initial 10-min test period 2. Flame front that does not progress more than 3.2 m (10.5 ft.) beyond the centreline of the burners at any time during the 30-min test period[24]	Adapted from Clause 13, Conditions of Classification, of ASTM E2768 [85]

3.3.3 Foundation Walls

1) Except as described in Sentence (2), where possible foundation walls should be constructed of concrete or unit masonry.

2) Foundation walls could also be constructed using insulating concrete forms or permanent wood foundations, considering the following conditions:

a) for *buildings* in *Construction Class CC1*(FR), the exposed portion of the foundation wall should be

i. constructed from a material or assembly of materials having a *fire-resistance rating* based on fire *exposure* from both sides using the results of tests conducted in conformance with CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials" (Standards Council of Canada 2014), or by using Appendix D of the NBC [2],

- of not less than 1 h, where none of the *mitigation* measures have been applied in the listed *Priority Zones* surrounding the *building*, or
- not less than 45 min, where *mitigation* measures have been applied only in *Priority Zone 1A*, and

ii. protected on its exterior face with *noncombustible* material or at least one layer of Type X exterior gypsum sheathing or cement board,

b) for *buildings* in *Construction Classes CC1* and *CC2*, the exposed portion of the foundation wall should be protected on its exterior face with

iii. *noncombustible* material, or

iv. at least one layer of Type X exterior gypsum sheathing or cement board, and

c) for *buildings* in *Construction Class CC3*, the exposed portion of the foundation wall should be protected on its exterior face to a height of at least 200 mm above grade with

i. *noncombustible* material,

ii. at least one layer of Type X exterior gypsum sheathing or cement board, or

iii. *fire-retardant-treated wood*.

3) All joints in the external wall cladding or related wall components of the foundation wall should be covered, sealed, overlapped, backed or butt-jointed with no unprotected gaps greater than 3 mm.

4) All openings and penetrations in the exterior wall cladding or related wall components of the foundation wall should be sealed with no gaps greater than 3 mm.

3.3.4 Raised[1] or Elevated Buildings

1) Except as described in Sentences (2) and (3), ideally all supporting elements for a raised or elevated *building* should be of *noncombustible construction*.

2) The supporting elements described in Sentence (1) may be made of combustible material, considering the following conditions

a) the *building* should be raised not less than 2 m above the adjacent ground level,

b) except as described in Sentence (3) (for heavy timber construction), where the *building* is in *Construction Class CC1*(FR), the exposed portion of any supporting element should be

i. constructed from a material or assembly of materials having a *fire-resistance rating* using the results of tests conducted in conformance with CAN/ULC-S101, “Fire Endurance Tests of Building Construction and Materials” [82], or using Appendix D of the NBC,

[1] “Raised *building*” refers to a *building* with all or part of its first storey raised at least 2 m above average grade and without basement.

- of not less than 1 h, where none of the *mitigation* measures have been applied in the listed *Priority Zones* surrounding the *building*, or
- not less than 45 min, where *mitigation* measures have been applied only in *Priority Zone 1A*, and

ii. protected on its exterior face with *noncombustible* material or at least one layer of Type X exterior gypsum sheathing or cement board,

c) except as described in Sentence (3) (for heavy timber construction), where the *building* is in *Construction Class CC1* or *CC2*, the exposed portion of any supporting element should be protected on its exterior face with
   i. *noncombustible* material, or
   ii. at least one layer of Type X exterior gypsum sheathing or cement board, and

d) except as described in Sentence (3) (for heavy timber construction), where the *building* is in *Construction Class CC3*, the exposed portion of any supporting element should be protected on its exterior face to a height of at least 300 mm above grade with
   i. *noncombustible* material, or
   ii. at least one layer of Type X exterior gypsum sheathing or cement board, or
   iii. *fire-retardant-treated wood*.

3) The supporting elements referred to in Sentence (2) may be constructed of heavy timber construction with a minimum nominal dimension not less than 150 mm.

4) Spaces underneath a raised or elevated *building* should be enclosed to prevent storage under the *building* and to discourage growth of vegetation.

3.3.5 Roofing Materials

1) Roof coverings should have a Class A classification when tested using CAN/ULC-S107, “Fire Tests of Roof Coverings” [90].

2) Valley and hip flashing, roof penetration flashing, sill plate flashing, and any other flashing that could be exposed to accumulated *embers* should be *noncombustible*.

3) Drip edges should

a) be *noncombustible*, and
b) extend at least 75 mm upslope from the edge of the roof.

4) Cant strips, roof curbs, nailing strips, and similar components used in the installation of roofing may be *combustible*.

5) Roof penetrations, such as pipes, should be *noncombustible*.

6) Any gaps larger than 3 mm on the roof, including gaps at junctions or around penetrations or attachments, that could allow the entry of *embers* should be sealed with *noncombustible* material.

3.3.6 Gutters and Downspouts

1) Gutters and downspouts should be

a) *noncombustible*,
b) fitted with corrosion-resistant, *noncombustible* screens or guards to prevent the buildup of *combustible* materials in the gutters and downspouts, and
c) regularly cleaned to remove accumulated material from gutters and guard surfaces.

3.3.7 Eaves, Soffits, and Roof Projections

1) Eaves, soffits, and roof projections on *buildings* in *Construction Classes CC1*(FR), *CC1*, and *CC2* should be constructed of materials tested using ASTM E2957, "Standard Test Method for Resistance to Wildfire Penetration of Eaves, Soffits and Other Projections" [91]. Three replicate tests should be performed, and in all three replicates the following acceptance criteria should be considered:

a) absence of flame penetration of the eave or roof projection assembly at any time during the test,
b) absence of structural failure of the eave or roof projection subassembly at any time, and
c) absence of sustained combustion of any kind at the conclusion of the 40-min test.

Three additional tests may be run until the recommended acceptance criteria are reached if one of the first three replicates does not meet the recommended acceptance criteria.

2) Eaves, soffits, and roof projections on *buildings* in *Construction Classes CC1*(FR), *CC1*, and *CC2* should be finished with *noncombustible* material.

3) Eaves, soffits, and roof projections on *buildings* in *Construction Class CC3* may also be finished with *noncombustible* or *combustible* material.

4) Except as described in Section 3.3.8, eaves, soffits, and roof projections should be enclosed without openings.

3.3.8 Service Openings and Vents

1) Openings required for soffit venting or the ventilation of roof spaces should be enclosed by materials tested using ASTM E2886, "Standard Test Method for Evaluating the Ability of Exterior Vents to Resist the Entry of Embers and Direct Flame Impingement" [92], or screened with corrosion-resistant, *noncombustible* wire mesh with a maximum mesh aperture of 3 mm. When testing using ASTM E2886 [92], three replicate tests should be performed, and in all three replicates the following acceptance criteria should be considered:

a) there should be no flaming ignition of the cotton material during the Ember Intrusion Test,

b) there should be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test, and

c) the maximum temperature of the unexposed side of the opening should not exceed 350°C (662°F).

2) Where required for the ventilation of wall assemblies, ventilation gaps greater than 3 mm in width should be covered by *noncombustible* screening with a maximum mesh aperture of 3 mm.

Repeal

3. “Village of Lytton Building Amendment Bylaw No.711, 2022” (and any amendments hereto) are/is hereby repealed.

In Force

4. This amendment bylaw comes into force on adoption.

READ A FIRST TIME this 12 day of April, 2023.

READ A SECOND TIME this 12 day of April, 2023.

READ A THIRD TIME this 28 day of June, 2023.

PART16 and Appendix M APPROVED BY PROVINCE OF BRITISH COLUMBIA under the *Building Act and Building Act General Regulation* 131/2016 this ___ day of _____, 2023.

ADOPTED this ___ day of _____, 2023.

Mayor O’Connor Alba Banman, Corporate Officer