



COUNCIL REPORT

Report Date: May 10, 2024
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VanRIMS No.: 08-2000-20
Meeting Date: June 11, 2024
[Submit comments to Council](#)

TO: Vancouver City Council

FROM: General Manager of Development, Buildings and Licensing
and the Chief Building Official

SUBJECT: Improvements to Roofing Installation Requirements

Recommendation

THAT Council approve, in principle, amendments to the Building By-law, as described in this report and as attached in Appendix A;

FURTHER THAT the Director of Legal Services be instructed to bring forward for enactment the necessary amendments to the Building By-law, generally in accordance with Appendix A.

Purpose and Executive Summary

The proposals provide an incremental improvement to roofing installations, and were developed in collaboration with local industry. Amendments address water, wind and administrative requirements and facilitate better green roofs (vegetated roof assemblies) with updated standards. The changes are supported by the Roofing Contractors Association of British Columbia (Appendix B).

Council Authority/Previous Decisions

- The current edition of the Building By-law came into force and effect on November 1, 2019 ([RTS 12601](#), By-law 12511).
- [Section 306](#) of the *Vancouver Charter* permits Council to make By-laws to regulate the construction of buildings, and to adopt by reference any codes, standard or rule affecting the construction of buildings.

City Manager's Comments

The City Manager concurs with the foregoing recommendations.

Context and Background

Roofs protect occupants and are integral to safe buildings. They also support mechanical equipment essential to occupant health and comfort, like vents, heat pumps and cooling towers. The Building By-law addresses topics like fire safety, structural integrity and weather protection through performance-based criteria.

The allocation of roof space is dependent on a building's needs and context. Roofs can be designed to improve a building's energy efficiency, generate electricity, enhance aesthetics, control rainwater runoff, mitigate sound transmission, provide habitat and promote biodiversity (including urban agriculture), and facilitate social programming. Architects and engineers are again guided by the Building By-law in meeting their building-specific objectives.

This report proposes Building By-law amendments for an incremental improvement to roofing installations. This includes standards for vegetated roof assemblies (such as green roofs) in response to developers' adoption of these to meet their rainwater management requirements. The focus of this report is complex buildings (so-called "Part 3 buildings" in the Building By-law) and the proposals do not modify the prescriptive roofing requirements for simple buildings (so-called "Part 9 buildings," such as houses and small apartment buildings).¹

Discussion

Roofing amendments are proposed to address waterproofing and water-shedding requirements, wind resistance, penetrations, permit documentation and vegetated roof assemblies, such as green roofs (**Appendix A**). Proposals were developed in collaboration with industry, refined through public consultation and are supported by the Roofing Contractors Association of British Columbia (**Appendix B**).²

Vegetated roof assemblies (green roofs)

Local industry adoption of green roofs has been voluntary and catalysed by City policies. This includes the *Rezoning Policy for Sustainable Large Developments*, the Director of Planning's discretion for additional height with green roofs, and rainwater management requirements.³

¹ The two main types of buildings in the City of Vancouver are classified as either "Part 3" (complex) or "Part 9" (simple). The provincial government provides a summary of the difference here, on page 5: www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codesand-standards/guides/buildingactguide_sectiona1_june2015_web.pdf Note that in the City, there can be important differences from the provincial code in the details of Part 3 and Part 9 buildings.

² The January 11, 2024 consultation letter requesting feedback by March 4, 2024 was distributed to and through local industry groups such as the Architectural Institute of British Columbia (AIBC), the American Society of Plumbing Engineers – BC Chapter (ASPE-BC) and the Urban Development Institute (UDI). It was shared through the City's website and the Chief Building Official's e-mail distribution list.

³ See *Rezoning Policy for Sustainable Large Developments* [Section A.3.2](#), *Zoning and Development By-law* [Section 10.1.1.\(d\)](#) and *Building By-law*, Book II, Division B, [Article 2.4.2.5](#).

The Building By-law does not prescribe a solution for rainwater management, recognising the complexity of site- and building-specific factors, and instead defines performance-based objectives (vancouver.ca/rainwater). A developer may then choose to employ any number of strategies, including green roofs, to meet these rainwater management criteria (**Figure 1**).⁴

As of May 3, 60 new buildings will include a green roof to address the relatively new rainwater management requirements (39% of 154 buildings with a building permit). The number of new green roofs is expected to grow with Council's expansion of rainwater management requirements as of January 1, 2024 ([RTS 15424](#)).



Figure 1. Simplified schematic of private-property rainwater management strategies

This report supports the increase in vegetated roof assemblies with clarified regulations, complements the City's climate adaptation efforts, and is congruent with Council's unanimous July 2018 motion regarding green roofs ([meeting minutes](#)). Hindrances to green roof adoption may nevertheless still exist in some developments, due to competition for roof-top space, cost, structural engineering implications, insurance availability, owner experience and perceptions, and maintenance requirements. In parallel with this Council Report, staff in Planning, Urban Design and Sustainability are leading the development of a *Green Roof Best Practices Guide* to assist local industry, promote increased adoption and help improve lifecycle quality assurance.

⁴ There is no standard test protocol for the rainwater runoff performance of vegetated roof assemblies (Dabas and Molleti (2024), doi.org/10.3390/w16050706). In this context and balancing Council's objectives, the Building By-law offers a generous, administratively straight-forward allowance for vegetated roof assemblies based on storage potential in the growing medium. It is acknowledged that this overlooks important influences on rainwater management by green roofs, such as rainfall amount and intensity, temperature, soil moisture content and antecedent wet days. Vancouver's climate has asynchronous peaks of rainfall and evapotranspiration, and "if rainfall occurs on saturated soil, there is no space for water storage and thus runoff is immediately generated" (Cristiano *et al.* (2022), doi.org/10.1080/1573062X.2022.2155849). This results in pronounced seasonal performance for green roofs in Vancouver (Roehr and Kong (2010), doi.org/10.4296/cwrj3501053).

Financial Implications

There are no financial implications associated with this report's recommendations.

Legal Implications

There are no legal implications associated with this report's recommendations.

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APPENDIX A**DRAFT By-law to amend Building By-law No. 12511
Regarding Roofing-Related Requirements**

Note: An amending by-law will be prepared generally in accordance with the provisions listed below, subject to change and refinement prior to posting.

1. This by-law amends the indicated provisions of Building By-law No. 12511.
2. In Article 1.4.1.1. of Book I, Division A, Council adds “(See Note A-1.4.1.1.)” immediately below the existing Article title “Non-defined Terms”.
3. In Sentence 1.4.1.2.(1) of Book I, Division A, Council:
 - (a) strikes out the existing definitions for “Green roof” and “Green roof assembly”; and
 - (b) adds the following new definitions in the correct alphabetical order:
 - (i) “**Building drain** means the lowest horizontal piping, including any vertical offset, that conducts sewage, clear-water waste or storm water by gravity to a building sewer. (See Book II, Division A, Figure A-1.4.1.2.(1)-F in Note A-1.4.1.2.(1).)”;
 - (ii) “**Building sewer** means a pipe that is connected to a building drain 1 m outside a wall of a building and that leads to a public sewer or private sewage disposal system.”;
 - (iii) “**Leader** means a pipe that is installed to carry storm water from a roof to a storm building drain or sewer or other place of disposal.”;
 - (iv) “**Offset** means the piping that connects the ends of 2 pipes that are parallel. (See Book II, Division A, Figure A-1.4.1.2.(1)-K in Note A-1.4.1.2.(1).)”;
 - (v) “**Roof drain** means a fitting or device that is installed in the roof to permit storm water to discharge into a leader.”;
 - (vi) “**Storm building drain** means a building drain that conducts storm water and is connected at its upstream end to a leader, sump or catch basin, and at its downstream end to a building sewer or a designated storm water disposal location.”;
 - (vii) “**Storm drainage system** means a drainage system that conveys storm water.”; and
 - (viii) “**Vegetated roof assembly** (“green roof”) means a vegetated roof system (a functional arrangement of interacting components, inclusive of vegetation) that is combined with a roof assembly, is intended to both grow and flourish, and may be installed on a roof to control the rate of rainwater discharged through a storm drainage system. (See Note A-1.4.1.1.)”.

4. In Sentence 1.4.1.2.(1) of Book II, Division A, Council:
- (a) adds the following new definition in the correct alphabetical order:

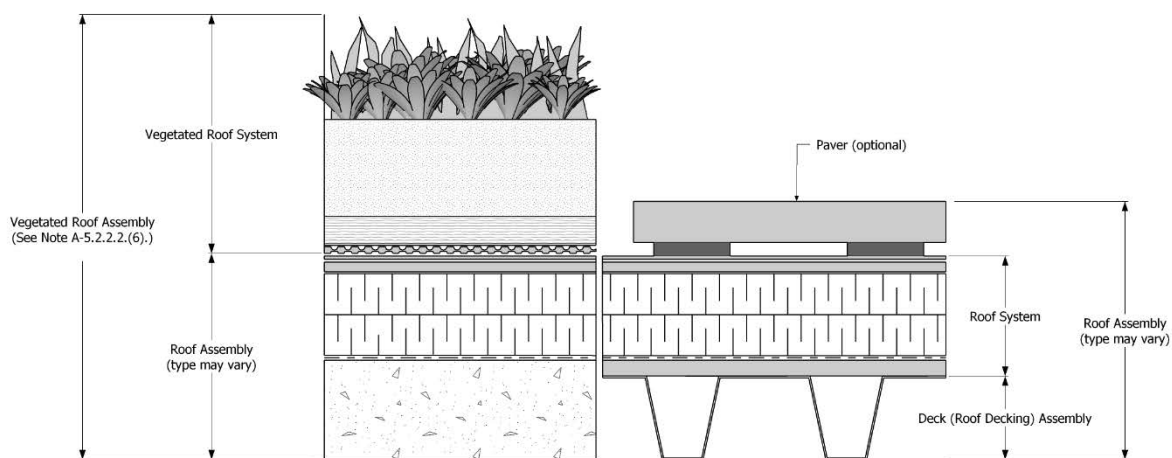
“Vegetated roof assembly* (“green roof”) means a vegetated roof system (a functional arrangement of interacting components, inclusive of vegetation) that is combined with a roof assembly, is intended to both grow and flourish, and may be installed on a roof to control the rate of rainwater discharged through a *storm drainage system*. (See Book I, Division A, Note A-1.4.1.1.); and

- (b) removes the asterisk from the definitions of “Clear-water waste”, “Drainage system”, “Floor drain”, “Storm building drain”, “Storm water”, “Subsoil drainage pipe”, “Sump”, “Trap”, “Venting system”, “Water distribution system” and “Water service pipe”.
5. In the Notes to Part 1 of Book I, Division A, Council adds a new note:

“A-1.4.1.1. Non-defined Terms.

Roof terminology

Where the By-law addresses the separation of environments (Part 5 and Part 9), various terms refer to the assembly on top of a building that protects the building interior from the weather. In general terms, that assembly is called a “roof assembly” (or more simply, a “roof”). A roof comprises two integrated parts: the “deck assembly” (a structural element of a building, also referred to as the “roof decking assembly”), and the “roof system” (Figure A-1.4.1.1.). The requirements of this By-law generally refer to the “roof assembly” and not the “roof system”; for example, the “roof assembly” must resist wind load (see Article 5.2.2.2. of Division B).



Note: The illustration is representative and does not convey every possible assembly or roof slope. Not to scale. Image created by Roofing Contractors Association of British Columbia and is reproduced here with its consent.

Figure A-1.4.1.1. Roof terminology

When materials that seal the roof to resist the transmission of liquid water into a building are constructed on a roof deck — including water under some hydrostatic pressure — they form a waterproofing roof assembly. Waterproofing materials are usually manufactured as rolled sheet goods or as liquids; installation methods are specified by the manufacturer and often governed by published standards (for example, standards by ASTM and the Roofing Contractors Association of British Columbia). Waterproofing roof assemblies can be constructed on any slope but are generally intended for horizontal or near-horizontal applications. Roofs constructed with rolled sheet membranes are those referred to in Sentence 5.2.2.2.(4) of Division B.

Generally, waterproofing roof assemblies can be configured in one of two ways. “Conventionally insulated” roof assemblies (also referred to as “compact roofs”) are constructed with the weatherproofing material (membrane) on top of the assembly. The membrane therefore shields the insulation and all other assembly components from the weather. In “protected” roof assemblies, the membrane is located immediately above the roof deck and is therefore protected by insulation and other roofing components that are made to be exposed to weather. The configuration of the roof assembly determines the appropriate selection of its materials, including the membrane. A third, “hybrid configuration” (sometimes called a “modified protected” roof assembly) is less common and combines a protected system on top of a conventional assembly, to utilize the benefits of each.

Many waterproofing roof assemblies provide a suitable platform for rooftop amenities, a vegetated roof system, or other types of overburdens. Careful consideration must be given to superimposed loads, to avoid compression and distortion of the roofing materials, which can compromise the waterproofing. Where any overburden is intended for sloped applications, the design must incorporate anti-shear measures.

Water-shedding roof assemblies are typically constructed with a slope equal to or greater than 1:4 (3” in 12”), include curved or barreled forms, and are designed and constructed with weatherproofing materials that interlock or overlap, relying on gravity and slope to shed water away from a building, usually into an arrangement of gutters. These assemblies may be insulated, when configured appropriately for ventilation. In Vancouver, most water-shedding roofs are built with asphalt shingles, cedar shingles or shakes, or metal panels.

More information on roofing materials, installation, and maintenance is available through the Roofing Contractors Association of British Columbia, including the “Roofing Practices Manual.”.

6. In Table 1.3.1.2. of Book I, Division B, Council:

(a) adds the following new rows in correct alphabetical order:

(i)

ASTM	E 2397/E 2397M-19	Standard Practice for Determination of Dead Loads and Live Loads Associated with Vegetative (Green) Roof Systems	5.6.1.2.(2) Table 5.9.1.1.
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”.

(ii)

CRCA	Technical Bulletin 35 (1988)	Ballast For Protected Membrane Roofing	A-5.2.2.2.(4)
CRCA	Technical Bulletin 40 (1993)	Design of Loose-Laid Gravel Stone Ballasted Roofs	A-5.2.2.2.(4)

”;

(iii)

CSA	CAN/CSA-A123.24:21	Standard test method for wind resistance of vegetated roof assembly	5.2.2.2.(6) A-5.2.2.2.(6) Table 5.9.1.1.
CSA	CAN/CSA-A123.26:21	Performance requirements for climate resilience of low slope membrane roofing systems	A-5.6.2.2.(5)

”;

(iv)

RCABC	2023	Roofing Practices Manual	A-1.4.1.1.(1) A-5.6.1.2.(2) A-5.6.2.1. A-5.6.2.2.(5)
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”; and

(v)

SPRI	ANSI/SPRI RP-4 2022	Wind Design Standard for Ballasted Single-ply Roofing Systems	A-5.2.2.2.(4)
SPRI	ANSI/SPRI VF-1 2023	External Fire Design Standard for Vegetative Roofs	3.1.14.4.(1)

”;

(b) strikes out the row for “CSA / CAN/CSA-A123.21-10” and substitutes:

“

CSA	CAN/CSA-A123.21:20	Standard test method for the dynamic wind uplift resistance of membrane-roofing systems	5.2.2.2.(4) A-5.2.2.2.(4) A-5.2.2.2.(6) Table 5.9.1.1.
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”;

(c) strikes out the row for “NRCA / 2nd Edition, 2009” and substitutes:

“

NRCA	3rd Edition, 2017	The NRCA Vegetative Roof Systems Manual	A-5.6.1.2.(2)
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”;

- (d) strikes out the row for “SPRI / ANSI/GRHC/SPRI VR-1-2011” and substitutes:

“

SPRI	ANSI/SPRI VR-1-2018	Procedure for Investigating Resistance to Root or Rhizome Penetration on Vegetative Roofs	5.6.1.2.(2) Table 5.9.1.1.
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”; and

- (e) strikes out the row for “SPRI / ANSI/SPRI WD-1-2008” and substitutes:

“

SPRI	ANSI/SPRI WD-1-2020	Wind Design Standard Practice for Roofing Assemblies	A-5.2.2.2.(4)
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”

7. In Sentence 1.3.2.1.(1) of Book I, Division B, Council adds the following in correct alphabetical order:

“**RCABC** Roofing Contractors Association of British Columbia (www.rcabc.org)”.

8. In Book I, Division B, Council strikes out Article 3.1.14.4. and substitutes:

“3.1.14.4. Vegetated Roof Assemblies

- 1) A *vegetated roof assembly* is permitted in *combustible* and *noncombustible construction* if
- the *vegetated roof assembly* is designed and constructed in conformance with ANSI/SPRI VF-1 “External Fire Design Standard for Vegetative Roofs”,
 - the *vegetated roof assembly* conforms to the requirements in Part 5, and
 - except for *buildings* to which Part 9 applies as described in Sentence 1.3.3.3.(1) of Division A, the roof covering conforms with Subsection 3.1.15.”.

9. In Subsection 3.1.15. of Book I, Division B, Council adds “(See Note A-1.4.1.1. of Division A concerning roof terminology)” immediately below the existing Subsection title “Roof Covering”.

10. In Table 3.10.1.1. of Book I, Division B, Council strikes out the row “3.1.14.4. Green Roof Assembly” and substitutes “3.1.14.4. Vegetated Roof Assemblies”.

11. In Article 5.2.2.2. of Book I, Division B, Council:

- (a) strikes Sentence (4) and substitutes:

“4) Except as provided in Sentences (5) and (6), the wind uplift resistance of membrane roofing assemblies shall be determined in accordance with the requirements of CAN/CSA-A123.21, “Standard test method for the dynamic wind uplift resistance of membrane-roofing systems.” (See Note A-5.2.2.2.(4).)”; and

- (b) adds a new Sentence (6):

“6) The wind resistance of *vegetated roof assemblies* shall be determined in accordance with the requirements of CAN/CSA-A123.24, “Standard test method for wind resistance of vegetated roof assembly.” (See Note A-5.2.2.2.(6).)”.

12. In Clause 5.3.1.2.(1)(d) of Book I, Division B, Council strikes out “sloped” and substitutes “water-shedding”.

13. In Article 5.6.1.2. of Book I, Division B, Council:

- (a) in Sentence (1) strikes out “Where” and substitutes “Except as required by Sentences (2) and (4), where”;

- (b) strikes out Sentence (2) and substitutes:

“2) A *vegetated roof assembly* shall be permitted if

a) the *vegetated roof assembly* conforms to the requirements of Article 3.1.14.4.,

b) gravity loads on the *building* structure are determined by ASTM E 2397/E 2397M-19 “Standard Practice for Determination of Dead Loads and Live Loads Associated with Vegetative (Green) Roof Systems”,

c) the roof that supports the vegetated roof system is waterproof (see Note A-1.4.1.1. of Division A),

d) the *vegetated roof assembly* is designed and constructed with a root barrier, or the roofing membrane is resistant to root and rhizome penetration when tested in accordance with ANSI/SPRI VR-1, “Procedure for Investigating Resistance to Root or Rhizome Penetration on Vegetative Roofs”, and

e) the *vegetated roof assembly* is designed and constructed with water retention materials to support vegetative growth, and with drainage materials to convey water to *roof drains*. (See Note A-5.6.1.2.(2).)”; and

- (c) adds a new Sentence (4), (5) and (6):

“4) A roof assembly shall resist the entry of water into the *building*, and where the roof assembly incorporates a membrane, the roof assembly shall be designed and constructed to conform to the requirements of Article 5.2.2.2.

5) Each material, component, or assembly, including electrical services, that penetrates through a roof assembly shall pass through a flashing that can be sealed against both air leakage and the weather, and which is suitable for its purpose.

6) Ballasted membrane roofs not subject to the requirements in Sentence 5.2.2.2.(4) shall be designed and constructed to resist wind loads.”.

14. In Sentence 5.6.2.1.(1) of Book I, Division B, Council strikes Clause (a) and substitutes:

“a) designed to shed precipitation or, where a waterproofing roof assembly is concerned, sealed to prevent ingress of precipitation, and”.

15. In Article 5.6.2.2. of Book I, Division B, Council adds a new Sentence (6):

“6) Where *roof drains* connected to a *drainage system* are used to satisfy the requirements in this Section, they shall be suitable for the type of roof assembly and shall be sealed against the weather following the requirements of Article 5.6.1.2.”.

16. In Table 5.9.1.1. of Book I, Division B, Council adds the following new rows in correct alphabetical order:

(a) “

ASTM	E 2397/E 2397M	“Standard Practice for Determination of Dead Loads and Live Loads Associated with Vegetative (Green) Roof Systems”
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”.

(b) “

CSA	CAN/CSA-A123.21	“Standard test method for the dynamic wind uplift resistance of membrane-roofing systems”
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”.

(c) “

CSA	CAN/CSA-A123.24	“Standard test method for wind resistance of vegetated roof assembly”
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”; and

(d) “

SPRI	ANSI/SPRI VR-1	“Procedure for Investigating Resistance to Root or Rhizome Penetration on Vegetative Roofs”
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17. In Table 5.10.1.1. of Book I, Division B, Council:

(a) under “5.2.2.2. Determination of Wind Load”, adds the following row in correct numerical order:

“

(6)	[F20,F55,F61-OH1.1,OH1.2,OH1.3]
	[F20,F55,F61-OS2.1,OS2.3]

”.

- (b) under “5.6.1.2. Installation of Protective Materials”, strikes out row (2) and substitutes:

“

(2)	[F20,F55,F61-OH1.1,OH1.2,OH1.3]
	[F20,F55,F61-OS2.1,OS2.3]
(4)	[F61-OH1.1,OH1.2,OH1.3]
	[F61-OS2.3]
(5)	[F61-OH1.1,OH1.2,OH1.3]
	[F61-OS2.3]
(6)	[F20,F55,F61-OH1.1,OH1.2,OH1.3]
	[F20,F55,F61-OS2.1,OS2.3]

”; and

- (c) under “5.6.2.2. Accumulation and Disposal”, adds the following row in correct numerical order:

“

(6)	[F61-OH1.1,OH1.2,OH1.3]
	[F61-OS2.3]

”.

18. In the Notes to Part 5 of Book I, Division B, Council:

- (a) strikes out Note A-5.2.2.2.(4) and substitutes:

“A-5.2.2.2.(4) Membrane Roofing Systems. Wind loads for sheet membrane roofing systems must be calculated in accordance with Part 4 (see Note A-1.4.1.1. of Division A concerning roof terminology). The tested uplift resistance and factored load should satisfy the requirements of the Commentary entitled Limit States Design in the “Structural Commentaries (User’s Guide – NBC 2020: Part 4 of Division B).”

The test method described in CAN/CSA-A123.21, “Standard test method for the dynamic wind uplift resistance of membrane-roofing systems,” applies only to sheet membrane roofing systems whose components’ resistance to wind uplift is achieved by fasteners or adhesives. It does not apply to liquid-applied membranes or to membrane roofing systems that use ballasts, such as gravel or pavers, to secure the membrane against wind uplift.

In the case of sheet membrane roofing systems in which the waterproof membrane is attached to the structural deck using mechanical fasteners, the wind-induced forces and the roofing system’s response are time- and space-dependent and, thus, dynamic in nature. Further information on the design and evaluation of such systems can be found in “A Guide for the Wind Design of Mechanically Attached Flexible Membrane Roofs,” published by NRC.

The wind uplift resistance obtained from the test method in CAN/CSA-A123.21 is limited to configurations with specific fastener or adhesive patterns. To extrapolate the test data to non-tested configurations, refer to ANSI/SPRI WD-1, “Wind Design

Standard Practice for Roofing Assemblies,” for a rational calculation procedure. However, in using this extrapolation procedure, wind loads should be calculated in accordance with the By-Law. NRC’s guide for wind design referenced above provides further guidance and examples of wind load calculations.

Wind resistance of ballasted roofs may be calculated using ANSI/SPRI RP-4, “Wind Design Standard for Ballasted Single-ply Roofing Systems”. However, its methods are based on wind speeds, not wind pressures. Conversely, wind pressures, not wind speeds, are used in Appendix C of this By-law. Therefore, a registered professional skilled in the work of Part 4 should use the ANSI/SPRI standard in conjunction with wind speeds listed in Table C-1, applying wind loads calculated in accordance with Subsection 4.1.7. of Division B (see the commentary on Wind Effects in Appendix C of Division B). Where ballast is used to resist other structural loads in a building, a registered professional is responsible to review these, particularly in replacement roofing.

Technical Bulletin Volume 40 “Design of Loose-Laid Gravel Stone Ballasted Roofs” published by the Canadian Roofing Contractors Association (CRCA) provides some guidance for using the ANSI/SPRI standard to determine ballast requirements. Note that the exposure categories are different from those used in this By-law. A registered professional may select the appropriate ballast size and weight guidelines based on roof zones and zone dimensions.

The ballast values published in CRCA Technical Bulletin Volume 40 are minimum values that will address many roof designs where the roof deck is air-impermeable. If the roof deck is air-permeable, or if flow control drains are present (these may retain water on the roof, thereby introducing added buoyancy), the design may require higher ballast weights (and correspondingly higher volumes). A registered professional should ensure that the structural design of the building can accommodate the necessary ballast weight, together with anticipated live loads including those loads imposed on the building during construction.

While gravel ballast is commonly used on protected membrane roof systems, wind scour can dislodge rocks from the roof, rendering them a public safety hazard. Consequently, a roof may need to be designed with higher parapets or with a different ballast material, such as concrete pavers. See also CRCA Technical Bulletin Volume 35 “Ballast For Protected Membrane Roofing” on ballast design requirements for protected membrane roofs.”;

- (b) adds a new Note A-5.2.2.2.(6):

“A-5.2.2.2.(6) Vegetated Roof Assemblies. When a vegetated system is added on the top of a membrane roofing assembly, a *vegetated roof assembly* is formed. The test methods described in CAN/CSA-A123.24, “Standard test method for wind resistance of vegetated roof assembly,” determine both the wind uplift resistance and the wind flow resistance of the *vegetated roof assembly*. If the wind uplift resistance of the membrane roofing assembly used in the *vegetated roof assembly* has already been determined in accordance with the requirements of CAN/CSA-A123.21, “Standard test method for the dynamic wind uplift resistance of membrane-roofing systems,” as required by Sentence 5.2.2.2.(4), then this resistance can be used as an acceptable conservative wind uplift resistance of the *vegetated roof assembly*; in such cases, only the wind flow resistance of the

vegetated roof assembly has to be determined in accordance with CAN/CSA-A123.24. If, however, any variations in the components or methods of construction of the membrane roofing assembly used in the *vegetated roof assembly* are made after the wind uplift resistance was determined in accordance with the requirements of CAN/CSA-A123.21, then the wind uplift resistance of the *vegetated roof assembly* must be determined in accordance with CAN/CSA-A123.24.”;

- (c) in Note A-5.6.1.2.(1), strikes out “sloped” and substitutes “water-shedding”;
- (d) in Note A-5.6.1.2.(2):
 - (i) strikes out “Vegetated Roofing Systems” and substitutes “Integrity and Performance of Vegetated Roof Assemblies”; and
 - (ii) strikes out “Vegetative Roof Systems Manual.” and substitutes:

““The NRCA Vegetative Roof Systems Manual” and in the standards published in the “Roofing Practices Manual” by the Roofing Contractors Association of British Columbia.

A vegetated roof assembly is intended to both grow and flourish, and is often used to control the rate of rainwater discharged through a *storm drainage system*. Maintenance of a *vegetated roof assembly* is necessary. This includes removal of dead vegetation that does not compost quickly, to reduce fire risk, and regular removal of biomass from around roof drains, to prevent clogging and ponding.”;

- (iii) in Note A-5.6.2.1., under “• Roofing Specifications, Canadian Roofing Contractors’ Association”, adds “• Standards in the “Roofing Practices Manual,” Roofing Contractors Association of British Columbia”; and
- (iv) in Note A-5.6.2.2.(5), adds the following to the end of the note:

“Refer also to Division B of Book II (Plumbing Systems), Sentence 2.4.10.4.(2). (For climate resiliency requirements see CAN/CSA-A123.26, “Performance requirements for climate resilience of low slope membrane roofing systems”, together with the Standards published in the “Roofing Practices Manual” by the Roofing Contractors Association of British Columbia.)”.

19. In Clause 2.2.4.3.(1)(e) of Book I, Division C, Council:

- (a) strikes out “design” and substitutes “design and construction”; and
- (b) strikes out “cladding.” and substitutes “cladding, including the roof assembly.”.

20. In Note A-2.2.6.2.(1) of the Notes to Part 2 of Book I, Division C, Council:

- (a) strikes out “air-conditioning systems are:” and substitutes “air-conditioning systems, and building enclosure assemblies are:”;

- (b) in point (n), strikes out “, and” and substitutes “,”;
- (c) in point (o), strikes out “.” and substitutes “, and”; and
- (d) adds a new point (p):

“(p) the dimensions of the edge, field and corner zones of the roof, and load values for each affected area of a wall and roof assembly (see Figures 4.1.7.6.-A through 4.1.7.6.-C in Article 4.1.7.6. of Division B).”.

21. In the Notes to Part 2 of Book II, Division C, Council strikes out Note A-2.2.6.2.(1).

22. In Table 2.4.2.5. of Book II, Division B, Council:

- (a) strikes out “green roof” wherever it appears and substitutes “*vegetated roof assembly*”;
- (b) strikes out “green roofs” wherever it appears and substitutes “*vegetated roof assemblies*”; and
- (c) in Note (2) of the Notes to Table 2.4.2.5., strikes “Article 3.1.14.4.” and substitutes “Article 3.1.14.4. and Article 5.6.1.2.”.

23. A decision by a court that any part of this by-law is illegal, void, or unenforceable severs that part from this by-law, and is not to affect the balance of this by-law.

24. This By-law comes into force and takes effect on July 1, 2024.

ENACTED by Council this day of , 2024

Mayor

City Clerk

APPENDIX B

Letter of Support



9734-201 Street, Langley, BC V1M 3E8
Tel 604 882 9734

April 11, 2024

City of Vancouver
453 West 12th Avenue
Vancouver, BC V5Y 1V4

Attention: Mayor and City Council

RE: Council Report RTS 16161 – Improvements to Roofing Installation Requirements

I write on behalf of the Roofing Contractors Association of British Columbia (RCABC) to offer our support for proposed changes to the Vancouver Building By-law, to improve roofing installation requirements.

These proposed changes are the fruit of months of collaborative work between the City of Vancouver and the RCABC and will bring needed clarity. It is our hope some of these changes will also position the City of Vancouver to manage stormwater more effectively, particularly as developers and builders turn to green roofs to comply with the By-law. We are pleased to have partnered with the City of Vancouver to see these changes enacted by the Mayor and Council.

Some of the proposed changes will also provide much needed clarity for designers, builders, and roofing contractors, particularly where design responsibility is concerned. We appreciate the City’s leadership on this front and know that it will improve permitting and construction efficiency and ensure that public safety is protected.

The RCABC represents both our members and the broader roofing industry, and we are committed to helping the City of Vancouver set a higher standard for roofing. Thank you for your commitment to build a better, more resilient, and sustainable city.

Yours sincerely,

Roofing Contractors Association of British Columbia

A handwritten signature in black ink, appearing to read "Bryan Wallner".

Bryan Wallner,
CEO, Roofing Contractors Association of British Columbia
bwallner@rcabc.org