

BY-LAW NO. ____

**By-law to amend the Building By-law No. 12511
regarding rainwater management regulations**

THE COUNCIL OF THE CITY OF VANCOUVER, in public meeting, enacts as follows:

1. This by-law amends the indicated provisions of Building By-law No. 12511.
2. In Article 11.2.1.1. of Book I, Division B, Council adds the following new Sentence:

“**2)** An *alteration* to an *existing building* shall not trigger upgrading of the *existing building* to meet the rainwater management requirements described in Article 2.4.2.5. of Division B of Book II (Plumbing Systems) of this By-law.”
3. In Clause 1.2.1.1.(1)(b) of Division A, in Books I and II, Council adds “and Sentence 3.3.1.3.(1) of Division C” after “except as required by Sentence (3)”.
4. In Article 1.5.2.10. of Division C, in Books I and II, Council adds a new Sentence:

“**2)** The *Chief Building Official* may relax the rainwater management requirements of Division B, Sentences 2.4.2.5.(2) and (3) of Book II (Plumbing Systems) of this By-law as provided in Division B, Sentence 2.4.2.5.(7) of Book II (Plumbing Systems) of this By-law.”
5. In Section 2.3 of Division C, in Books I and II, Council:
 - (a) strikes Clause 2.3.1.1.(1)(a) and substitutes:

“a) except as permitted by Sentence 3.3.1.3.(1), the measure will achieve at least the level of performance required by Clause 1.2.1.1.(1)(b) of Division A, and”; and
 - (b) strikes Sentence 2.3.1.2.(1) and substitutes:

“**1)** Except as required by Sentence 3.3.1.3.(2), the *Chief Building Official* may require a person requesting the use of an alternative solution to provide documentation to demonstrate that the proposed alternative solution will achieve at least the level of performance required by Clause 1.2.1.1.(1)(b) of Division A.”
6. In Section 3.3 of Division C, in Books I and II, Council adds a new Article:

“**3.3.1.3. Rainwater Management Regulation Transition**

1) An alternative solution accepted by the *Chief Building Official* under Section 2.3 may achieve less than the minimum level of performance required by Division B, Article 2.4.2.5. of Book II (Plumbing Systems) of the

Building By-law in the areas defined by the objectives and functional statements attributed to the applicable acceptable solutions.

2) A person requesting an alternative solution under Sentence (1) shall file an application in the form prescribed by the *Chief Building Official*.

3) The application referred to in Sentence (2) shall include

- a) documentation that the *owner* applied to the *City*, prior to January 1, 2024, for a rezoning application or a development permit application pertaining to the *building*,
- b) documentation that the *owner* has not been required to provide rainwater management for the development, or that the *City* has agreed to other rainwater management requirements for the development, and
- c) information about the qualifications, experience and background of the person or persons taking responsibility for the design.”

7. In Sentence 1.4.1.2.(1) of Book II, Division A, Council adds the following new definitions in the correct alphabetical order:

- (a) “**Rainwater** means rainfall and other natural precipitation, and includes *storm water*.”; and
- (b) “**Subsurface investigation*** means the appraisal of the general subsurface conditions at a *building* site by analysis of information gained by such methods as geological surveys, in situ testing, sampling, visual inspection, laboratory testing of samples of the subsurface materials and *groundwater* observations and measurements.”

8. In Sentence 1.4.1.2.(1) of Book II, Division A, in the definition for “Alternate water source system,” Council strikes out “4 *principal dwelling units*” and substitutes “8 *principal dwelling units*”.

9. In Sentence 1.4.2.1.(1) of Book II, Division A, Council adds the following to the list of symbols and other abbreviations in the correct alphabetical order:

“**IDF** Intensity-Duration-Frequency”.

10. In Table 1.3.1.2. of Book II, Division B, Council adds the following new row in the correct alphabetical order:

“

CoV		Engineering Design Manual ⁽⁴⁾	2.4.2.5.(3)
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11. In Section 2.2 of Book II, Division B, Council adds the following new Article:

“2.2.1.9. Operating Manuals

1) When an operating manual is required by Book II (Plumbing Systems) of this By-law, it shall include

- a) the address and location of the system or equipment for which the operating manual is required,
 - b) contact details for the system or equipment designer,
 - c) a simplified process flow diagram,
 - d) a schematic of the system or equipment showing the locations of all substantial components,
 - e) instructions on operating, maintaining, and inspecting the system or equipment,
 - f) required frequency of maintenance and inspections,
 - g) instructions on deactivating and restarting the system or equipment for repair or other purposes,
 - h) safety data sheets, and
 - i) for *alternate water source systems*, details on the corrective action that shall be taken if the water quality fails to meet the standards set out in Table 2.7.7.1.
- 2) The operating manual described in Sentence (1) shall be
- a) supplied to the *owner* or representative of the *owner*, and
 - b) made available on such request to the *Chief Building Official*.”;
12. In Article 2.4.2.4. of Book II, Division B, Council, strikes out “rainwater or *storm water*” wherever it appears, and substitutes “*rainwater*”.
13. In Section 2.4 of Book II, Division B, Council adds the following new Article:
- “2.4.2.5. Rainwater Management**
- 1) This Article shall apply to all *buildings*, except
- a) *float homes*,
 - b) *marinas*,
 - c) retaining structures,
 - d) those to which Part 9 applies, as described in Sentence 1.3.3.3.(1) of Division A of Book I (General) of this By-law, and
 - e) those *buildings* used exclusively for *residential occupancy* containing no more than 8 principal *dwelling units*.
- 2) Except as provided by Sentences (6) and (7), the first 24 mm of *rainwater* in a 24 hour period from the site area shall be detained, and the detention volume requirement
- a) shall be calculated as the volume of water that would be present if water 24 mm deep covered the entire site, and
 - b) may be reduced by any combination of the retention or other practices listed in Table 2.4.2.5., by the amounts in Column C of Table 2.4.2.5.

Table 2.4.2.5.
Permitted Reductions to the Detention Volume Requirement
 Forming Part of Sentence 2.4.2.5.(2)

Retention or Other Practice	Reduction to the Detention Volume Requirement		
	Maximum Permitted Reduction Column A	Limit to Permitted Reduction Column B	Permitted Reduction Column C
Landscape feature ⁽¹⁾	Area of, and area routed to, the landscape feature multiplied by 24 mm	<i>Rainwater</i> capture potential, calculated as <i>rainwater</i> storage potential in the growing medium (%) multiplied by the growing medium volume, plus as applicable the storage volume within a subsurface reservoir layer and the volume infiltrated into the subgrade during a 24 hour period. ⁽³⁾	The lesser of Columns A and B
Green roof ⁽²⁾	Area of, and area routed to, the green roof multiplied by 24 mm		The lesser of Columns A and B ⁽⁴⁾
<i>Alternate water source system</i>	Area routed to the <i>alternate water source system</i> multiplied by 24 mm	Storage volume of the <i>alternate water source system</i>	The lesser of Columns A and B

Notes to Table 2.4.2.5.:

- (1) Or other *acceptable* ground-level or subsurface based practice, such as permeable pavement or an infiltration tank.
- (2) Or other *acceptable* roof-top based practice. For green roofs, see Article 3.1.14.4. of Division B of Book I (General) of this By-law.
- (3) "*Rainwater* storage potential in the growing medium", "volume infiltrated into the subgrade during a 24 hour period" and "storage volume within a subsurface reservoir layer" shall be demonstrated by *acceptable* data or references.
- (4) For a green roof from which the runoff is directed to an *alternate water source system*, the permitted reduction in the volume requirement shall equal Column A.

3) Except as provided by Sentences (6) and (7), the peak flow rate discharged to the *combined sewer* or *storm sewer* under post-development conditions shall not be greater than the peak flow rate discharged to the *combined sewer* or *storm sewer* under pre-development conditions, and shall be calculated using

- a) the Rational Method,
- b) the IDF curves in the City of Vancouver Engineering Design Manual, applying
 - i) for pre-development, the IDF curve prepared for pre-development estimates with a 5 year return period,
 - ii) for post-development, the 2100 IDF curve with a 10 year return period, and
 - iii) the inlet time specified in the City of Vancouver Engineering Design Manual, and

- c) a composite runoff based on the percentages of different surfaces of the site area, applying the runoff coefficients from the City of Vancouver Engineering Design Manual. (See Note A-2.4.2.5.(3).)
- 4) An operating manual conforming to Article 2.2.1.9. is required for each of the *rainwater* management practices employed to satisfy the requirements of Sentences (2) and (3).
- 5) The *Chief Building Official* shall be provided with a document summarising the *rainwater* management practices employed to satisfy the requirements of Sentences (2) and (3), in the form prescribed by the *Chief Building Official*.
- 6) When there is an *existing building* on the same property, the site area used in Clauses (2)(a) and (3)(c) may be reduced to be proportional to the ratio of the *buildings'* greatest horizontal area within the outside surface of exterior walls.
- 7) The *Chief Building Official* may, in consultation with the *City Engineer*, relax the requirements of Sentences (2) or (3) in accordance with Sentence 1.5.2.10.(2) of Division C if
- a) the *owner* demonstrates to the satisfaction of the *Chief Building Official* by a *subsurface investigation* that excavation is precluded or limited by soil contamination or other factors, and
 - b) it is impractical, in the opinion of the *Chief Building Official*, to meet the rainwater management requirements of Sentences (2) or (3)."
14. In Section 2.7 of Book II, Division B, Council strikes out Article 2.7.1.2. and substitutes:
- "2.7.1.2. Non-Potable Water Sources**
- 1) Except as prohibited by Sentence (2), a non-*potable water system* shall collect only
 - a) *rainwater*,
 - b) *clear-water waste*, or
 - c) a combination thereof.
 - 2) A non-*potable water system* shall not collect
 - a) runoff from a public road,
 - b) runoff from an area on which fertilizer is used or stored,
 - c) *groundwater*,
 - d) *perimeter drainage water*,
 - e) *greywater*, or
 - f) *blackwater*."
15. In Table 2.7.1.3. of Book II, Division B, Council:
- (a) strikes out "Rainwater as specified by Clause 2.7.1.2.(1)(a)" and substitutes "*Rainwater*"; and
 - (b) deletes the row for "*Storm water*".
16. In Article 2.7.1.3. of Book II, Division B, Council:

(a) in Sentence (1) strikes out “Except as provided in Sentence (2)” and substitutes “Except as provided in Sentences (2) and (5)”; and

(b) adds the following new Sentence:

“**5)** *Non-potable water systems* shall not be used to supply *fixtures* in healthcare facilities.”.

17. In Article 2.7.5.1. of Book II, Division B, Council adds the following new Sentences:

“**2)** After an *alternate water source system* has been commissioned, the requirements of Subsections 2.7.7. and 2.7.8. shall be met.

3) An *alternate water source system* shall be considered commissioned on the date that the final water sample was collected to fulfill the requirements of Article 2.7.5.2.”.

18. In Article 2.7.6.3. of Book II, Division B, Council strikes out Sentence (2) and substitutes:

“**2)** Where a *non-potable water system* is supplied by a *potable water system*, the *potable water system* shall be protected in accordance with Article 2.6.2.1.”

19. In Table 2.7.7.1. of Book II, Division B, Council adds the following new rows to the bottom of the table:

“

<i>Rainwater</i> from surfaces that allow the passage of vehicular traffic or where hydrocarbon-based fuels or hazardous materials are stored	Benzene	< 0.005 mg/L	1 sample tested every 2 calendar months with not more than 63 days between samples	All laboratory tests
	Toluene	< 0.024 mg/L		
	Ethylbenzene	< 0.0016 mg/L		
	Xylenes (total)	< 0.02 mg/L		
	Total suspended solids	< 20 mg/L		

”.

20. In Table 2.7.7.3. of Book II, Division B, Council:

(a) adds the following new row immediately above the row for “*E. coli*”:

“

Total suspended solids	Between 20 and 45 mg/L	Take the appropriate corrective action as set out in the operating manual.
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”;

and

(b) adds the following new rows to the bottom of the table:

“

Benzene	> 0.005 mg/L	1. Immediately, supply the <i>alternate water source system</i> with <i>potable</i> water only;
Toluene	> 0.024 mg/L	2. Within 24 hours, give notice to the <i>Chief Building Official</i> and the <i>owner</i> ;
Ethylbenzene	> 0.0016 mg/L	3. Take the appropriate corrective action as set out in the operating manual; and
Xylenes (total)	> 0.02 mg/L	4. Within 3 days of the corrective action, perform a test for benzene, toluene, ethylbenzene and xylenes (total).
Total suspended solids	> 45 mg/L	1. Immediately, supply the <i>alternate water source system</i> with <i>potable</i> water only; 2. Within 24 hours, give notice to the <i>Chief Building Official</i> and the <i>owner</i> ; 3. Take the appropriate corrective action as set out in the operating manual; and 4. Within 3 days of the corrective action, perform a test for total suspended solids.

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21. In Section 2.7 of Book II, Division B, Council strikes out Article 2.7.8.1. and substitutes:

“2.7.8.1. Operating Manual

1) An operating manual conforming to Article 2.2.1.9. is required for an *alternate water source system*, and shall be sealed by a *registered professional of record*.”.

22. In Table 2.8.1.1. of Book II, Division B, Council adds in correct numerical order:

(a) the following new rows:

“2.4.2.5. Rainwater Management

(2) [F40,F62,F80,F81-OP5,OE1.2]

(3) [F40,F62,F80,F81-OP5]

(4) [F80,F81,F82-OP5,OS3.4]”;

(b) under “2.7.1.3. Non-*potable* Water Uses” the following new row:

“(5) [F40-OH2.2]”; and

(c) under “2.7.5.1. Occupancy” the following new row:

