

No. B24-02

March 08, 2024

## **Delay period for seismic (earthquake) requirements in the British Columbia Building Code 2024**

This bulletin provides information about the delayed effective date for seismic design of buildings in the British Columbia Building Code (Building Code) 2024 during the delay period of March 08, 2024, until March 9, 2025 as stated by [Ministerial Order No. BA 2023 10](#). Seismic structural design is affected during the delay period, all other structural design requirements, such as those for wind, snow, and live loads, are required to be in accordance with BCBC 2024. Effective March 10, 2025, projects for which building permits are applied for will be required to comply with the Building Code 2024 seismic (earthquake) requirements. This bulletin applies to design to Part 4 as well as Part 9 of Division B of the Building Code.

### **Why did the Province defer the effective date?**

The Province recognizes that the effective date of the BC Codes (Building, Plumbing, and Fire) represents a point-in-time for building projects that can be many years in the making. Providing industry a reasonable transition period to new requirements helps minimize construction delays and cost increases for in-stream projects. During a delay period, training and education on the new requirements builds knowledge and capacity before the new requirements come into force. Construction timelines and costs are most effectively managed at the initial planning stages of any construction project.

### **Higher seismicity in British Columbia's earthquake zones**

A major update of the seismic hazard information in the Building Code 2024 was undertaken to incorporate current knowledge on seismicity and to establish compatibility with modern seismic hazard maps used in building codes in other jurisdictions such as the United States of America. This update is essential to ensure that the occupants of a building designed in accordance with the Building Code 2024 are not exposed to an unacceptable risk of injury or death, and the building is not exposed to an unacceptable risk of damage or loss of use due to structural failure or lack of structural serviceability. The increase in seismic hazard is the result of new knowledge about active faults near Victoria, B.C. (Leech River), new data on past Cascadia great earthquakes, and new ground motion models for the four tectonic environments (seismic sources) in Canada (subduction interface, in-slab, western crustal, and eastern crustal).

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## **Part 4 Structural Design, Subsection 4.1.8. Earthquake Load and Effects**

Adopted in the Building Code 2024 are new Part 4 requirements for the seismic design of buildings taken from the National Building Code of Canada 2020. These new requirements are non-mandatory in B.C. during the delay period, when at the end of that time, the new requirements become mandatory for compliance.

Until the end of the delay period, Subsection 4.1.8. of the Building Code 2018 will be mandatory for Code conformance along with Appendix C of Division B Table C-3 Seismic Design Data for Selected Locations in British Columbia in accordance with Division B Article 1.1.3.1. as adopted in the 2018 edition.

Material codes and performance standards that are adopted by reference in the Building Code 2018 are to be used with Subsection 4.1.8. of the 2018 edition, being: CSA S16-14, CSA A23.3-14, CSA O86-19, CSA S304-14, CSA S136-12.

During the delay period, the use of the non-mandatory Building Code 2024 Part 4 Subsection 4.1.8. is permitted for use by Registered Professionals who are prepared to design buildings conforming to these new requirements. The Building Code 2024 no longer provides seismic design data tables of for Subsection 4.1.8., as there is now a [2020 National Building Code of Canada Seismic Hazard Tool](#) provided in accordance with Article 1.1.3.1. of Division B of the Building Code 2024. When designing to Subsection 4.1.8. of the Building Code 2024 during the delay period and beyond, Appendix C of Division B Table C-3 Seismic Design Data for Selected Locations in British Columbia in accordance with Division B Article 1.1.3.1. and material codes and performance standards (CSA S16:19, CSA A23.3:19, CSA O86:19, CSA S304-14, CSA S136-16) that are adopted by reference in the Building Code 2024 are to be used.

## **Part 9 Housing and Small Buildings, Section 9.23 Wood-Frame Construction**

Adopted in the Building Code 2024 are new Part 9 requirements for wood frame construction taken from national code development for the National Building Code of Canada. These new requirements are non-mandatory in BC during the delay period. The new requirements become mandatory for compliance for building projects for which building permits are applied for on and after March 10, 2025.

Until the end of the delay period, Section 9.23. of Division B of the Building Code 2018 remains mandatory for compliance, along with Appendix C of Division B Table C-3 Seismic Design Data of Sa(0.2) in the 2018 edition. See Article 1.1.3.1. and Note A-1.1.3.1.(1) of Division B.

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The redesign of Section 9.23. is substantially changed throughout to accommodate higher seismicity, mainly Subsection 9.23.13. Bracing to Resist Lateral Loads Due to Wind and Earthquake. Within the Province of B.C. are the highest seismic hazard values in all of Canada. It was determined that the increase in seismicity warranted a redesign of the methods for resisting lateral loads.

During the delay period, the Ministry of Housing will continue work with industry partners and Codes Canada to develop a new illustrated guide for lateral load design. Other partners are producing additional learning materials. The current Illustrated Guide - Seismic Bracing Requirements BC Building Code Part 9 is still valid, but for use only with the 2018 edition of Section 9.23. To access the guide, use the following link: <https://research-library.bchousing.org/Home/ResearchItemDetails/2002>.

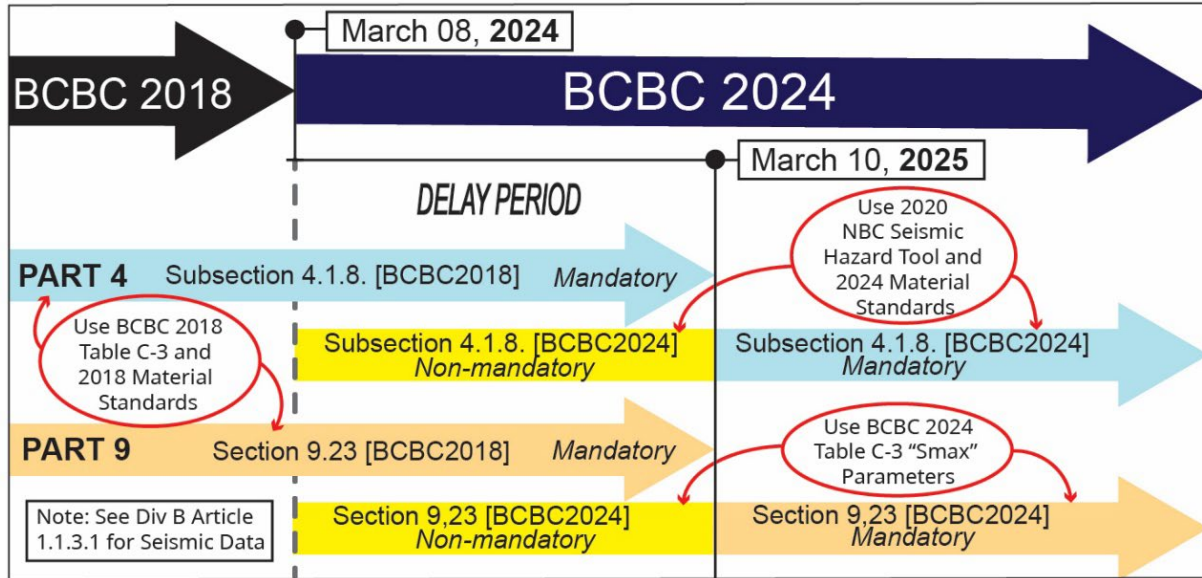
Within Section 9.23. there are new requirements not related to lateral load changes in Articles 9.23.2.4., 9.23.14.8., and 9.23.14.11. These changes are permitted to be used for compliance with the Building Code 2024.

For service water heaters and other equipment in Articles 9.31.6.2. and 9.33.4.7., the Building Code 2024 references " $S_{max}$  for Site Class C is greater than 0.37", it is permitted to use the Building Code 2018 seismic design data " $S_a(0.2)$ , is greater than 0.55" during the delay period.

Designers may be interested in applying the Building Code 2024 Part 9 seismic provisions ahead of March 10, 2025, as there may practical and/or economical reasons for incorporating the new requirements ahead of effective date. Designers are encouraged to work with the local authority on proposed solutions that differ from Section 9.23. of the Building Code 2018. Although the Building Code 2024 provisions were developed based on recent data and analysis and represent current policy intent, any alternative solution proposal to the 2018 acceptable solutions is to follow the evaluation procedure described in Division C.

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## Delay Period Timeline



- Building Code 2018 Part 4, Subsection 4.1.8. USE: [Building Code 2018 Table C-3](#)
- Building Code 2018 Part 9, Section 9.23. USE: [Building Code 2018 Table C-3](#)
- Building Code 2024 Part 4, Subsection 4.1.8. USE: [2020 NBC Seismic Hazard Tool](#)
- Building Code 2024 Part 9, Section 9.23. USE: [Smax Table C-3](#)

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