Ontario's Building Code Technical Bulletin: Highlights of Amendments to Part 4 of Ontario's 2012 Building Code

Ontario Regulation 88/19, amending Ontario's 2012 Building Code, was filed on May 2, 2019.

This bulletin provides general information on certain amendments that have been made to Part 4 of Division B in the Building Code (Structural Design), including the relevant new or affected sections of the Building Code.

Unless otherwise noted, the in-effect date for the amendments described below is January 1, 2020.

For the full range of changes, code users are advised to consult the official source documents, including:

- The Building Code Act, 1992; and
- The 2012 Building Code (O. Reg. 332/12) as amended, and
- Ontario Regulation 88/19

The above documents are available on the Government of Ontario's e-laws site.

Limit States Design (Tables 4.1.3.2.A. and B.)

A change was made to increase the companion load factor for live loads plus snow loads.

Guards Design (4.1.5.14.)

Note: All amendments related to stairs, guards and handrails provisions will come into force on January 1, 2022.

A change was made to the existing provision that clarifies where point loads for guards are applied. The design must take into account the points of application that produce the most critical effect.

Changes were also made to establish deflection limits for guard pickets as well as to clarify that guard loads do not need to be applied concurrently with vehicle guardrail loads.

Relocation of Loads on Handrails from Part 3 to Part 4 (relocated to 4.1.5.14.)

Note: All amendments related to stairs, guards and handrails provisions will come into force on January 1, 2022.

Loading requirements for handrails have been moved from Part 3 to Part 4.

Snow Loads (4.1.6.)

Guidance on snow loads previously provided in the Part 4 Structural Commentary to the National Building Code has been transferred into Part 4 of Division B. Provisions for snow loads have also been updated, including the calculation of the basic roof snow load factor, specific weight of snow, calculation of the accumulation factor, and the calculation for loads due to sliding snow.

Wind Loads (4.1.7.)

Guidance on wind loads previously provided in the Part 4 Structural Commentary to the National Building Code has been transferred into Part 4 of Division B. Provisions for wind loads have also been updated, including the introduction of a separate topographic factor and the introduction of specific requirements for wind tunnel testing.

Earthquake Load and Effects: Low Hazard Zones (4.1.8.1.)

Requirements that consider earthquake forces and effects have been extended to all locations in the province. A separate simple and easily applied methodology has also been provided for low hazard earthquake zones.

Earthquake Load and Effects: Seismicity (4.1.8.2., 4.1.8.4., 4.1.8.18. and Supplementary Standard SB-1)

Values of seismic hazard in the seismic hazard model have been updated for various locations, and period-based foundation factors have been introduced.

The method for the determination of design spectral acceleration has been revised such that the higher mode factors conform to the new hazard model. The hazard cap was also revised for both the static procedure and the dynamic procedure.

Earthquake Loads and Effects: Structural Systems (Table 4.1.8.9.)

Structural systems have been updated to be compatible with the material design standard referenced in Section 4.3. of Part 4 and the height restrictions for the seismic-force resisting systems (SFRS) in buildings have been clarified.

Earthquake Load and Effects: Inclined Columns (4.1.8.10.(5) and Table 4.1.8.6.)

New provisions have been added identifying buildings with inclined columns that are subjected to gravity-induced lateral demands as being structurally irregular buildings.

Earthquake Loads and Effects: Single Storey Buildings with Steel or Wood Diaphragms (4.1.8.11.(4))

New provisions have been added related to time period and diaphragm forces for single storey buildings with steel or wood roof diaphragms.

Earthquake Loads and Effects: Foundation Provisions (4.1.8.16.)

A new requirement has been added to the calculation of displacements to include increases due to foundation movements.

Earthquake Loads and Effects: Elevators, Escalators and Racking Storage Systems (Table 4.1.8.18.)

New requirements have been added for anchorage design for elevators, escalators and steel pallet storage racks accounting for the seismic loads and effects.

Earthquake Load and Effects: Seismically Isolated Structures (4.1.8.19. and 4.1.8.20.)

New requirements have been added for structures with seismically isolated structures (sometimes also referred to as base isolated structures).

Earthquake Load and Effects: Supplemental Energy Dissipation (4.1.8.21. and 4.1.8.22.)

New Requirements have been added for structures with supplementary energy dissipation systems (also referred to as supplemental damping).

Structural Glass Design (4.3.6.1.)

Specific requirements on structural glass design are added including reference to ASTM E1300, “Practice for Determining Load Resistance of Glass in Buildings”.