Building Standards Advisory

Promoting construction of safe, healthy, habitable buildings

Adoption of the 2015 Codes

Question

"When will Saskatchewan adopt the National Building Code of Canada 2015 and the National Fire Code of Canada 2015?"

Answer

Saskatchewan will adopt the model national codes based on the following plan.

National Building Code

- All parts except Section 9.36 Energy Efficiency, in force date of January 1, 2018.
- Section 9.36 Energy Efficiency, in force date of January 1, 2019.

National Fire Code

- All parts, targeted in force date of January 1, 2018.

National Energy Code for Buildings

- All parts, in force date of January 1, 2019.

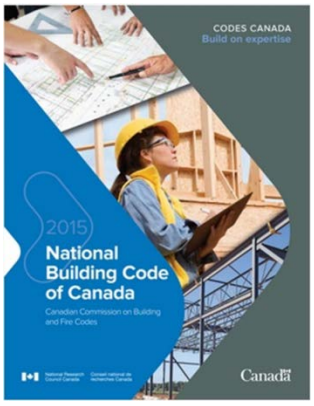
Background

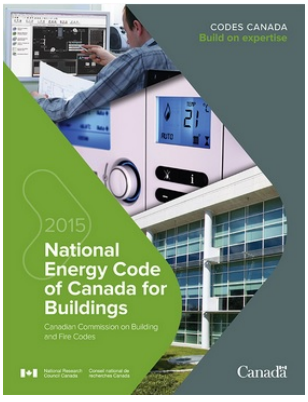
Saskatchewan adopts the National Building Code of Canada (NBC) with amendments as the minimum standard for the construction, renovation, repair, use, and occupancy of buildings.

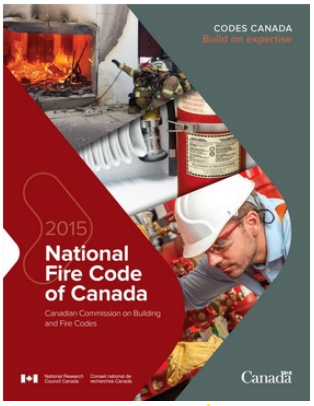
Saskatchewan also adopts the National Fire Code of Canada (NFC) with amendments as the minimum standard for the continued fire safe operation of buildings and facilities. Both codes apply province-wide and are administered and enforced by the local authority (municipality).

In early 2016, the National Research Council under direction from the Canadian Commission on Building and Fire Codes (CCBFC) published the 2015 editions of both the NBC and the NFC. They are intended to replace the current versions of the codes currently in force throughout Saskatchewan.

This document provides information about the significant changes made to both the NBC 2015, the NFC 2015 and the codes adoption in Saskatchewan.







The NBC is adopted by regulation under *The Uniform Building and Accessibility Standards Act*. A limited number of amendments are made to the NBC to:

- meet specific public policy requirements.
- align with programs from other ministries.
- improve safety outcomes where the NBC is silent.

The NFC is adopted by regulation under *The Fire Safety Act*. A limited number of amendments are made to the NFC in support of amendments made to the NBC.

Codes Canada 2015 Significant Technical Changes

The National Model Construction Codes, now collectively called Codes Canada 2015, contain almost 600 technical changes approved by the CCBFC. These changes make the provisions in the four model codes clearer and easier to apply while introducing new concepts and expanding the codes to new areas. The Saskatchewan Ministry of Government Relations is responsible, by legislation, for development, adoption, and implementation of the NBC and the NFC. This guide provides details on the significant changes found in the NBC 2015 and NFC 2015.

NATIONAL BUILDING CODE OF CANADA 2015

PART 3: FIRE PROTECTION, OCCUPANT SAFETY AND ACCESSIBILITY

Six-Storey Wood Frame Construction:

The 2015 edition of the NBC allows the construction of six-storey wood frame buildings. They are limited to residential, and business and personal services major occupancies only. Using traditional combustible construction materials, the changes to Part 3 address the objectives of safety, fire, and structural protection of buildings applied to this new category of wood frame buildings.

Fire Protection:

Minimum Fire Rating of Cables in Air Plenums
The minimum rating increases for optical fibre cables and electrical wires, and cables used for the transmission of voice, sound, or data installed in a plenum providing consistency whether in combustible or noncombustible construction.

Penetration by Electrical and Non-Electrical Outlet Boxes
Clarified the conditions that permit an electrical outlet box to penetrate a fire separation, or a membrane forming part of an assembly required to have a fire-resistance rating, without the need for a fire stop.

Self-Service Storage Buildings
Fire protection requirements for self-service storage buildings not more than one-storey in building height, with external access only.

Protection of Foamed Plastics
Clarifies the differentiation between foamed plastic insulation material, while retaining the same protection requirements in both combustible and noncombustible construction.

Hold-Open Devices
Clarification of provisions to facilitate better understanding, and application of hold-open devices found on closures in fire separations.

Combustible Components for Exterior Walls
The requirements for protection of combustible cladding permitted on an exterior wall assembly in a building required to be of noncombustible construction are clarified to account for various cladding materials and the use of combustible components. New requirements confirm that the fire exposure to the exterior wall assembly comes from within the building and that the thermal barrier is required to protect exposed combustible insulation within the building. The referenced standard measuring the flame spread along the

exterior face of the tested wall assembly applies to any exterior wall assembly in a building required to be of noncombustible construction, including Exterior Insulation Finishing System.

Installation of Smoke Dampers
To reduce the likelihood of smoke spreading into egress paths, smoke dampers or combination fire/smoke dampers are now required in ducts or air-transfer openings when, in specific locations, they penetrate an assembly required to be a fire separation.

Installation of Closures
Installation of a leakage-rated door assembly is now required in fire separations that protect or separate specific areas.

Use and Egress:

Mezzanines and Openings through Floor Assemblies – Construction Requirements
The limitation of noncombustible construction in interconnected floor space is removed.

Exit Width of Principal Entrances
The principal entrance serving a bar or nightclub that is not sprinklered throughout must account for at least one half of the required occupant load.

Handrails for Aisles with Steps
Handrails are now required in assembly occupancies in locations where aisles incorporate steps.

Emergency Crossover Access to Floor Areas and Distance Between Exterior Discharges of Exits
Updated provisions added on the distance between exterior discharges of exits. Stairs, ramps, handrails, and guards, and dimensions of tapered treads in a curved flight requirements for the construction of tapered treads are introduced for stairs other than required exit stairs in Part 3 and Part 9 buildings and the terminology is updated for consistency.

Stairs, Ramps, Handrails and Guards Fall Protection – Design to Limit Climbing:

Parameters for designs that limit climbing are relaxed to increase design choices. The notion of a "graspable portion" for handrails with a non-circular cross-section is removed; the height of guards serving a flight of exit stairs is harmonized between Part 3 and Part 9 and a unique guard height is established for Part 3 buildings; and the use of open risers in public stairs is prohibited.

Accessibility:

Many design requirements on accessibility are updated. Many requirements of CSA B651, "Accessible Design for the Built Environment", are permitted to be used as an alternative to Section 3.8.3. of the NBC.

PART 4: STRUCTURAL DESIGN

Limit States Design: Live plus Snow Combination:

The live load plus snow load combination is modified.

Loads on Guards:

Loads on Guards are modified including loads on walls acting as guards and loads on vehicle guardrails.

Snow Loads:

Information previously provided in the Commentary is transferred to the body of the Code. Provisions for snow loads are updated, including 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:

Information previously provided in the Commentary is transferred to the body of the Code. Provisions for wind loads are updated, including the introduction of a separate topographic factor and the introduction of specific requirements for wind tunnel testing in accordance with ASCE/SEI-49, "Wind Tunnel Testing for Buildings and Other Structures". Reference dimensions used for determination of loads on cladding have been redefined irrespective of wind direction. Additionally, a procedure is introduced for exterior ornamentation, equipment, and appendages.

Structural Glass Design:

New requirements on structural glass design including reference to ASTM E1300, "Practice for Determining Load Resistance of Glass in Buildings". Specific requirements for repair garages and seismically isolated structures requirements are added.

Earthquake Load and Effects:

Supplemental Energy Dissipation
Requirements are added for structures with supplementary energy dissipation systems (also referred to as supplemental damping).

Low-Hazard Zones
Requirements that consider earthquake forces and effects are extended to all locations in Canada. A separate simple and easily applied methodology is provided.

Inclined Columns
Requirements for determination of seismic loads and their effects are added for buildings with gravity-induced lateral demands on the structural system.

Seismicity
Values of seismic hazard in the seismic hazard model are updated for various locations and period based foundation factors are introduced. The method for determination of design spectral acceleration is revised such that the higher mode factors conform to the new hazard. The hazard cap is revised for both the static procedure and the dynamic procedure.

Single-storey Buildings with Steel or Wood Diaphragms
Time period and diaphragm forces provisions are added for single-storey buildings with steel or wood roof diaphragms.

Elevators and Racking Storage Systems
Requirements are added to account for the seismic effects and anchorage of elevators, escalators, and steel pallet storage racks.

Glass Glazing Systems in Buildings
Provisions are added to account for effects of lateral displacements of a building's glazing systems in an earthquake.

Foundation Provisions
Updated requirements related to foundation displacements and overturning resistance.

Six-Storey Wood Frame Construction:

Changes to Part 4 address the seismic force resisting systems that apply to five and six-storey wood frame construction.

PART 5: ENVIRONMENTAL SEPARATION

Curtain Walls, Window Walls, Storefronts, and Glazed Architectural Structures:

Minimum performance requirements, as well as laboratory and in-situ testing procedures are established. Guidance on how to properly identify these products and their applications are provided in the Notes to Part 5.

Exterior Insulation and Finishing System (EIFS):

A new subsection in the Notes to Part 5 addresses EIFS and provides guidance on EIFS design and construction.

Wind Uplift Resistance of Membrane Roofing Assemblies:

A testing requirement is provided for the evaluation of dynamic wind uplifts resistance of membrane-roofing systems by adding reference to CSA A123.21 "Dynamic Wind Uplift Resistance of Membrane-Roofing Systems". Part 5 Notes detail the applicability of the standard and its limitations, as well as an engineering approach to extrapolate test data.

Vegetated Roofing Systems:

Testing requirements of assemblies for resistance to root and rhizome penetration is provided by adding reference to ANSI/GRHC/SPRI VR-1 "Procedure for Investigating Resistance to Root Penetration on Vegetative Roofs".

Sound Transmission:

The Apparent Sound Transmission Class (ASTC) is introduced to take into account flanking sound transmission in addition to the direct sound transmission. This includes three compliance paths, one of which is a new calculation method with the option of either a detailed or a simplified method for calculating the ASTC rating.

Surface and Ground Water:

Sections on surface water and moisture in the ground are combined and applications clarified for waterproofing and damp proofing. In addition, some outdated material standards are replaced with more current ASTM standards while outdated installation/application standards are deleted.

PART 6: HEATING, VENTILATING AND AIR-CONDITIONING

Reorganization:

The provisions in Part 6 are reorganized into a more logical sequence and divided according to major mechanical elements. To facilitate access to information, general provisions are now grouped at the front end, followed by system-specific provisions.

Outdoor Design Conditions:

Measures to reduce the level of the air contaminants present in the outdoor air used for ventilation purposes are clarified. Source data for outdoor air quality for ventilation are updated to reflect new maximum acceptable levels.

Cleaning Devices:

New requirement that incorporates measures to reduce the level of air contaminants present in the outdoor air of the local area of the building site, transferred into the indoor environment through the ventilation system.

Drain Pans:

New requirement requires the installation of an adequate drain pan where condensate may be present.

Separation Distances of Exhausts and Outdoor Air Intakes:

New minimum distances for outdoor air intakes from sources of contaminants and discharge of vented products of combustion from the building.

PART 7: PLUMBING SERVICES

No changes.

PART 8: SAFETY MEASURES AT CONSTRUCTION AND DEMOLITION SITES

No changes.

PART 9: HOUSING AND SMALL BUILDINGS

New Residential Fire Warning Systems (ULC-S 540):

ULC-S 560 “Residential Fire and Life Safety Warning Systems: Installation, Inspection, Testing and Maintenance” is introduced.

Stairs, Ramps, Handrails and Guards:

Run of Stairs Serving Single Dwelling Units
The dimension of the run in stairs serving single-dwelling units is increased.

Continuity of Handrails
Parameters, for designs that limit climbing, are relaxed to increase design choices. The notion of a "graspable portion" for handrails with a non-circular cross-section is removed. The continuity for handrails throughout the length of a ramp or flight of stairs is clarified.

Exterior Insulation and Finishing System (EIFS):

A new subsection to address material and installation of EIFS is added and further guidance on EIFS design and construction is provided in the Notes to Part 9.

Referenced Standards for Roofing, Dampproofing, Waterproofing Materials and Installation:

Several out of date standards have been replaced with current, more applicable standards covering a variety of material types and applications.

Sound Transmission:

The Apparent Sound Transmission Class (ASTC) is introduced to take into account flanking sound transmission in addition to the direct sound transmission. This includes three compliance paths, one of which is an enhanced prescriptive method that uses existing STC ratings and additional prescriptive requirements to reduce noise transferred through flanking wall and floor assemblies.

APPENDIX C: CLIMATIC AND SEISMIC INFORMATION FOR BUILDING DESIGN IN CANADA

Snow:

Updates to the ground snow load values, Ss, resulted in no change for about 84% of the locations, while it increased in 11% of the locations, and decreased in 4%. The greatest proportion of increases is for locations in the Yukon, Northwest Territories, and Nunavut.

Revisions to Appendix C and Table C-3 – Seismic Design Data for Selected Locations in Canada:

As a result of new Ground Motion Prediction Equations (GMPE), seismic hazard values in NBC 2015 are updated for most locations in Canada. The Cascadia subduction source probabilistic model is added to seismic hazard for areas of western Canada. Fault sources, such as those in Haida Gwaii and the Yukon, are explicitly included. Updated values for Seismic Data in Proposed Table C-3, Design Values, are provided for selected locations in Canada.

APPENDIX D: FIRE-PERFORMANCE RATINGS

Wood and Steel Framed Walls, Floors and Roofs Fire: Component Additive Method – Resistance Rating:

The application of the current tables found in Appendix D-2.3. are expanded, with new materials and assemblies of materials, including structural members.

NATIONAL FIRE CODE OF CANADA 2015

PART 2: BUILDING AND OCCUPANT FIRE SAFETY

Limited Changes.

PART 3: INDOOR AND OUTDOOR STORAGE

Dangerous Goods Classification:

The NFC now harmonizes the dangerous goods classification system with the Globally Harmonized System (GHS) of classification, and introduces the Workplace Hazardous Materials Information System (WHMIS) into the NFC's dangerous goods section. The new harmonized system of classification in the NFC categorizes dangerous goods by types of hazards, harmonizing communications, labelling, and material safety data sheets. This substantial change improves the availability of information on physical hazards, compatibility, and toxicity from chemicals in order to enhance the protection of human health, fire safety, and the environment during the handling, transport, and use of these chemicals. These new requirements set the precedence of dangerous goods classes and provide a description of the GHS classification system. Placards conforming to Transport of Dangerous Goods (TDG) regulations can once again be used to identify the hazards associated with the product classified under WHMIS.

Indoor and Outdoor Storage of Dangerous Goods:

Updated table for storage of small quantities and new standards.

Placard Use in Laboratories:

Requirements are clarified for placards that identify the presence of dangerous goods in laboratories

PART 4: FLAMMABLE AND COMBUSTIBLE LIQUIDS

Storage Tank Repair and Refurbishment:

References to withdrawn certification programs (ULC-S601(A), ULC-S603(A), ULC-S615(A), ULC-S630(A)) are removed and references to new standards are added for reusing and refurbishing storage tanks.

Storage Limit of Flammable and Combustible Liquid in Self-Service Storage Buildings:

The maximum quantities, for flammable and combustible liquids permitted to be stored in self-service storage buildings, are defined.

PART 5: HAZARDOUS PROCESSES AND OPERATIONS

Six-Storey Combustible Construction:

New subsection, with additional requirements for construction of five and six-storey wood frame construction.

Laboratories:

Interlocking of the Enclosure Exhaust Ventilation System with the Fire Alarm System
The enclosure exhaust ventilation system must not be interlocked with fire detection, fire alarm, or makeup air system.

Dangerous Goods Maximum Quantities
The quantities of all dangerous goods stored in a laboratory are limited, including the quantities 'in use' during normal operations.

Containers in Laboratories
Containers used for the storage of or processing of flammable or combustible liquids in a laboratory should conform to Subsection 4.2.3. requirements, Containers and Portable Tanks, of Division B of the NFC.

Hot Works: Location of Operations:

Guidance for the use of high- and low-tech inspection methods is provided, along with alternatives to the final inspection four hours following hot works. The protection of bitumen kettles during roofing applications is further refined.

PART 6: FIRE PROTECTION EQUIPMENT

Inspection of Exit Signs:

Established inspection cycles to confirm illumination on failure of primary power system.

Integrated Fire Protection and Life Safety Systems:

CAN/ULC-S1001 "Integrated Systems Testing of Fire Protection and Life Safety Systems" added to ensure all fire protection and life safety systems are tested and maintained.

PART 7: FIRE EMERGENCY SYSTEMS IN HIGH BUILDINGS

No Changes.

Additional information on both the NBC and the NFC can be found at the following websites:

www.saskatchewan.ca/buildingstandards

www.codescanada.ca

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