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Introduction

Why an Illustrated Code?

Illustrations assist in the interpretation and application of the Building Code for the design, construction and inspection of Part 9 housing and small buildings. The illustrations or diagrams in this book are intended to illustrate or exemplify a correlation with the Articles of the Building Code so that any stakeholder in the building industry will have a better understanding of the Article. However, the illustrations are not to be interpreted as the only means by which compliance with the Building Code provisions can be attained.

Designers

Designers have the legal responsibility for ensuring there designs conform to the requirements of the Building Code. Correct interpretation of the Building Code is necessary to achieve this responsibility and this guide will assist in this manner. In additions, correct interpretations will ensure designs submitted for building permit applications are expedited. Code compliant designs remove a large portion of risk for a designer prior to and during the construction of their project. This guide provides designers with the knowledge to help manage their risk in designing buildings in conformance with the Building Code.

Builders and Contractors

During construction builders and contractors have a legal responsibility to construct in accordance with;

- Building permit documents,
- Building Code and,
- Building Code Act

There are other documents that a builder must adhere to or follow during construction such as contracts, equipment manufacturer’s instructions and health and safety policies and procedures. Adherence with the building permit documents is mandatory, but the drawings and specifications cannot always anticipate every detail of construction. During construction situations arise where a conflict with the Building Code is not easy identified or understood. This guide provides builders and contractors with straight forward illustrations to help explain or interpret the Building Code requirements for constructing houses and small commercial, industrial and residential buildings. Having a good understanding of the Building Code should result in fewer deficiencies and violations.
9.3.1. Concrete

Where nominally reinforced and unreinforced concrete is not designed, mixed, placed and cured in accordance with the CSA A23.1 standard, but is site batched, Articles 9.3.1.2. to 9.3.1.9. of the Ontario Building Code should be followed. Conforming to these articles, concrete will achieve sufficient strength and durability.
9.5.9. Bathrooms and Water Closet Rooms

Denotes required doors for a dwelling unit.

9.5.9.1. Space to Accommodate Fixtures

9.7.2.1. Entrance Doors

A door should be provided to each room containing a water closet within a dwelling unit.

A door should be provided at each entrance to a dwelling unit.

Main entrance doors to dwelling units should be provided with,
  • a door viewer or transparent glazing in the door, or
  • a sidelight.
9.5.10. Hallways

Hallways widths in houses are required to be a minimum of 860 mm wide. A lesser width of 710 mm is permitted as indicated in Figures 710 mm Hallway, option A and option B.
9.7.6. Installation

The proper installation of windows, doors and skylights include the following:
- Fastening of their frames to the structure
- Fastening of combination units
- Correct use of fasteners

Therefore, the installation of windows, doors and skylights should conform to CAN/CSA-A440.4, "Window, Door and Skylight Installation", except that,
- shims used to support windows, doors and skylights are permitted to be of treated plywood and
- protection from precipitation for walls incorporating windows or doors and for roofs incorporating skylights and the interfaces of these walls with windows or doors and of roofs with skylights, should conform to Section 9.27.

The proper installation of windows, doors, and skylights will ensure the performance requirements are met. As a result, the installation of manufactured window and door combination units should conform to the manufacturer’s instructions.

In addition to the above requirements for ensuring the performance requirements are met with regard to the installation of windows, doors and skylights, in order to limit the likelihood of unrestrained air leakage and vapour diffusion between the walls and windows and doors and the connecting of ceiling and skylights, all windows, doors and skylights should be sealed to air barrier and vapour barriers.

**Exterior**

**Elevation**

9.7.6.1 Installation of Windows, Doors and Skylights

The proper installation of windows, doors and skylights include the following:
- Fastening of their frames to the structure
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9.8.3. Stair Configurations

9.8.3.1. Straight and Curved Runs in Stairs

Stairs in a house must be installed in a) straight-runs, b) curved-runs, c) straight-runs with winders, or d) straight-runs with curved-runs.
9.9.4. Fire Protection of Exits

Building should be designed to prohibit the spread of fire into an exit which could delay the occupants. Exits should not contribute to the spread of fire from one floor area to another floor area.
9.9.9. Egress from Dwelling Units

9.9.9.1. Travel Limit to Exits or Egress Doors

In this diagram the third storey is more than one storey above the exit. When this occurs a window on the third floor may be used as an escape as long as its still not more than 7 m above the exterior grade. The window opening cannot be less than 550 mm wide and 1 000 mm in height.
9.10.15. Spatial Separation Between Houses

a) Unprotected openings.

b) Exposing building face.

c) Limiting distance.

9.10.15.2 Area and Location of Exposing Building Face

Unprotected openings, exposing building face and limiting distance.
9.10.16. Fire Blocks

Section

9.10.16.1. Required Fire Blocks in Concealed Spaces

Firestopping should be provided to block off concealed spaces in interior wall to attic and roof spaces.
9.14.2. Foundation Drainage

9.14.2.1. Foundation Wall Drainage

Unless it can be shown to be unnecessary, drainage should be provided at the bottom of every foundation wall that contains the building interior.
9.15.2. General

Concrete block masonry units should have necessary compressive strength to resist lateral and compressive loads. Their durability for use in foundation walls should be consistent with the life expectancy of the dwelling.
9.17.1. Scope

Section

9.17.1.1. Application

This pre-examination workbook is applicable to beams carrying loads from not more than two wood frame floors where the supported length of joists bearing on such beams does not exceed 5 m and the live load on any floor does not exceed 2.4 kPa.
9.19.1. Venting

Section

9.19.1.1. Required Venting

Required venting of roof spaces to limit probability of condensation, moisture, and the development of ice dams.
9.23.1. Application

9.23.1.1. Limitations

Section 9.23. of the Building Code is based on conditions as illustrated in the above figure. Where the requirements in Part 9 are not sufficient, designers are directed to other parts of the Building Code for structural requirements, thereby avoiding the possibility of structural failure when loading exceeds Part 9. Where the above conditions are exceeded for wood construction the design of the framing and fastening shall conform to subsection 4.3.1.
9.23.2. General

The design of all members should be performed to maintain their structural or strength and rigidity by being framed, anchored, tied and braced.

9.23.2.1. Strength and Rigidity

The design of all members should be performed to maintain their structural or strength and rigidity by being framed, anchored, tied and braced.
9.25.2. Thermal Insulation

Elevation/Section

9.25.2.1. Required Insulation

Locations required to be insulated.

All walls, ceilings and floors separating heated space from unheated space, the exterior air or the exterior soil should be provided with thermal insulation in conformance with Section 12.2. to prevent moisture condensation on their room side during the winter and to ensure comfortable conditions for the occupants.
9.26.4. Flashing at Intersections

Section

9.26.4.1. Required Flashing at Intersections

Flashing is required where a roof intersects with an exterior wall where there is a living space below.
9.27.1. General

Where cladding materials other than those described in 9.27.1.1. Sentences (1) to (4) are installed, or where these are installed on substrates other than those identified in 9.27.1.1. Sentences (1) to (4), the materials and installation should comply with Part 5 or other approval such as BMEC or CCMC.
9.27.2. Required Protection from Precipitation

Section

9.27.2.1. Minimizing and Preventing Ingress and Damage

Materials used in the design of exterior walls must prohibit unacceptable levels of precipitation or snow-melt from ingressing the assembly or creating condensation within the assembly.
9.31.2. General

Elevations

9.31.2.3. Grab Bars

The design for the anchorage of grab bars shall be adequate for the anticipated horizontal and vertical loads.
9.32.1. General

Plan

9.32.1.3. Ventilation of Rooms and Spaces

As an alternative, where a room or space is not provided with natural ventilation, mechanical ventilation shall be provided to exhaust inside air from or to introduce outside air to that room or space.
Primary to understanding of the mechanical ventilation requirements is knowing how combustion appliances affect or cause a House Type categorization. This diagram contains the most common House Types, I, II, III. Type IV is not shown, which is an electrically heated dwelling.

**House Type I** includes this combustion appliance

**House Type II** includes House Type I and this combustion appliance

**House Type III** includes mechanically vented (side-wall vented) fireplace and this combustion appliance

**Appliance Type:**
- direct vent or mechanically vented induced draft
- solid fuel appliance (wood stove)
- natural draft non-solid fuel appliance (gas or oil)

**Elevations**

**9.32.3.1. General (Mechanical Ventilation)**

- intake from exterior or intake from exterior
- exhaust to exterior
- B vent or connected to chimney