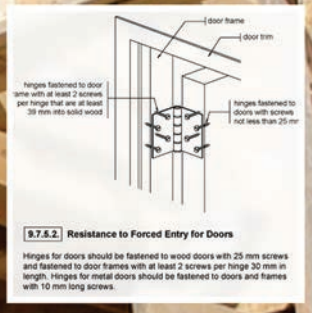
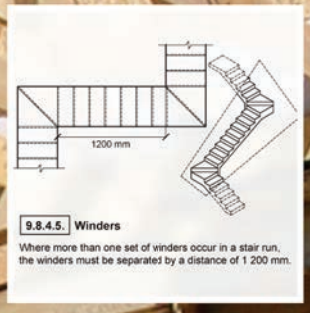
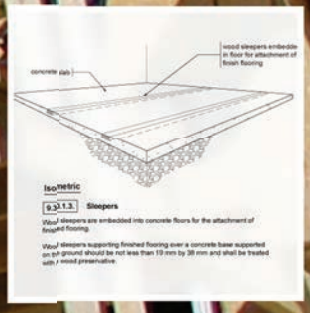
ILLUSTRATED CODE SERIES

HOUSING DESIGN

BASED ON THE ONTARIO BUILDING CODE 2012, O. REG. 332/12







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ORDERLINE

Tab Reference for Housing Design

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Preface

Guide for Users

This Guide is intended to assist the reader in understanding the requirements of the Ontario Building Code 2012 for the design of a house. It is intended to benefit designers, builders, inspectors, site superintendents, technology students and other industry stakeholders. It can also be used as a reference document to help prepare the reader for the Ministry of Municipal Affairs and Housing's House 2012 qualification examination.

This Guide outlines the Sections of the Ontario Building Code 2012 that apply to the design of a house with the aid of illustrations. The information focuses on the minimum requirements of Ontario Regulation 332/12 for housing design. The Guide is organized into sections which reflect the Sections in Part 9 of the Ontario Building Code 2012.

On the following page, a flow chart has been provided to show the reader how this Design Guide can be used to understand the requirements of the Ontario Building Code 2012.

Also included are a number of Appendices containing reference material for the reader, such as an explanation of the qualification requirements for designers.

The scope of this Guide is limited to detached houses, semi-detached houses and townhouses without shared exiting where there is no dwelling unit above another.

The content of this Guide is not meant to form a code of mandatory requirements. The mandatory language ("shall") that is used in the Ontario Building Code 2012 has not been used here. Care has been taken to ensure that the intent of the Ontario Building Code 2012 requirements is clear to the users of the Guide. However, users of the Guide must not, under any circumstances, rely on the Guide to determine the current requirements of the Ontario Building Code 2012.

As always, reference must be made to the Ontario Building Code 2012 itself and any amendments. Orderline and the authors do not assume responsibility for any errors or omissions resulting from the information contained in this Guide.

Administrative Requirements of the Building Code Act, 1992, and the Ontario Building Code 2012

Administrative Requirements of the Ontario Building Code 2012

In this Section:

- insight into the preliminary design and regulatory requirements of the Building Code Act and Regulation for a house
- requirements of the Building Code Act (BCA), regarding the following:
  - definitions of various terms in the Act
  - the roles and responsibilities of the various code practitioners
  - enforcement by municipalities
  - building by-laws enacted by municipalities
  - construction and demolition
  - qualifications
- organization of the Ontario Building Code 2012 focusing on the numbering system of the Code sections

A Brief History of the Ontario Building Code 2012

The Ontario Building Code 2012 is based on the 2010 National Building Code (NBC) and National Plumbing Code (NPC). The NBC and NPC are produced and owned by the National Research Council of Canada (NRC). In Canada, provincial and territorial governments have the authority to enact legislation that regulates building design and construction within their jurisdictions.

This legislation may include the adoption of the NBC without change or with modifications to suit local (provincial) needs, which is the case in Ontario. The provinces can also enact other laws to regulate building design and construction, including the requirements for professional involvement. In Ontario, designers are required to consult the Ontario Building Code 2012 for the design and construction of buildings.

The following is a list of some of the additional requirements that Ontario has included in the Ontario Building Code 2012 that are not part of the National Building Code:

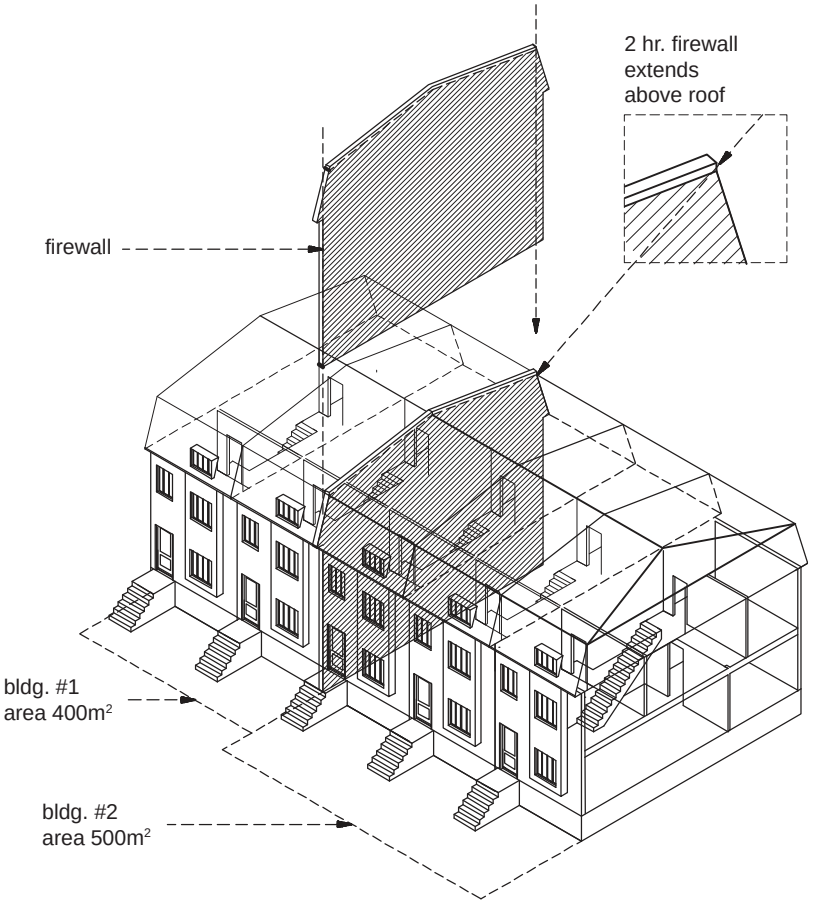
- water conservation
- energy efficiency
- renovation of existing buildings
- on-site sewage systems
- public pools and spas
- food premises
- private sewers and water supplies

9.1. Application

Article 1.1.3.1., Division A, Building Size Determination of Building Divided by Firewalls

Sentence 1.1.3.1.(1), Division A, states that where a building is divided by a firewall, each portion of the building divided by the firewall is considered as a separate building.

Therefore, when a firewall is introduced in a row townhouse, it separates the townhouses into multiple buildings. In order to keep the townhouses under Part 9, Division B, firewalls can be strategically placed in the row of townhouses to divide them into areas of less than 600 m². See Figure 9.1 – 1.



1.1.3.1.

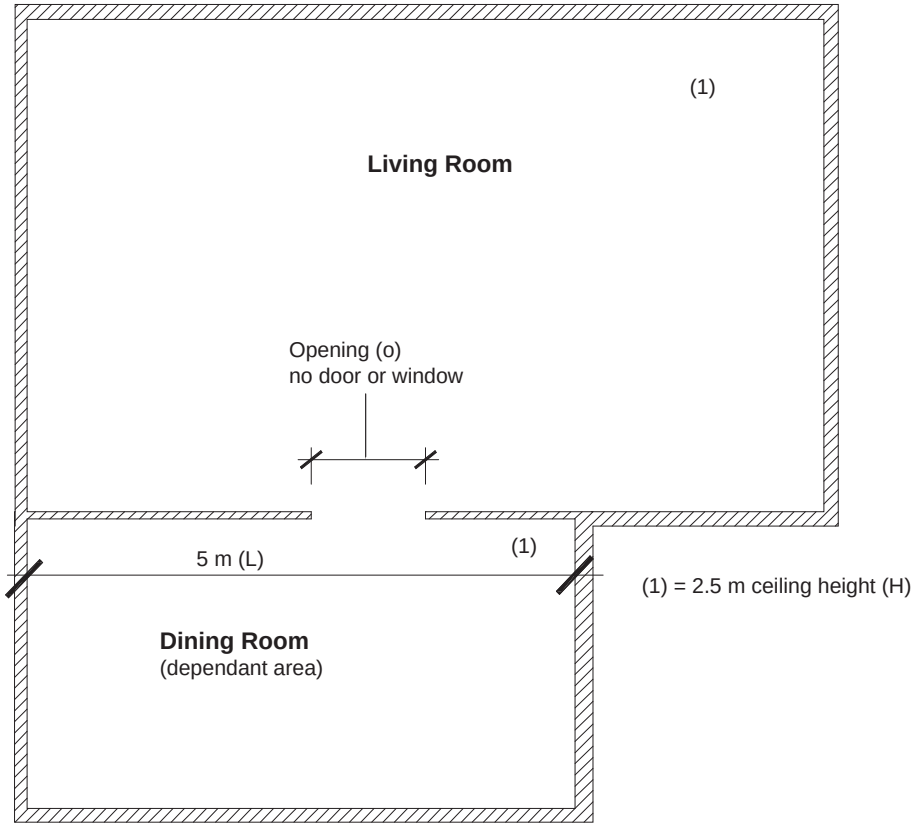
In this diagram the townhouse units are divided by a 2 hour fire rated firewall creating two seperate buildings less than 600m² to keep the townhouses under Part 9.

Figure 9.1 – 1

9.5. Design of Areas and Spaces

9.5.1.4. Combination Rooms

Two rooms are permitted to be considered as a combination room, like a living room/ dining room, where the opening between the rooms is at least 3 m^2 or 40% of the separation between the rooms. See Figure 9.5 – 1.



Calculate the minimum area of the opening between rooms, being the larger of A or B
Area (A) o = minimum 3 m^2
or
Area (B) o = minimum of 40% of wall on dependent area.
= 5 m (L) * 2.5 m (H) = 12.5 m^2
= 12.5 m * 40% = 5 m^2
Therefore 5 m^2 (B) > 3 m^2 (A)
Opening between areas must be a minimum of 5 m^2.

9.5.1.4. Combination Rooms

Two or more areas may be considered as a combination room if the opening between the areas occupies the larger of 3 m^2 or 40% or more of the wall measured on the side of the dependent area. Where the dependent area is a bedroom, direct passage should be provided between the two areas. The opening should not contain doors or windows.

Figure 9.5 – 1

9.7. Windows, Doors and Skylights

9.7.1.1. Application

Section 9.7. of the Ontario Building Code 2012 applies to windows, doors, skylights and main entrance doors that separate conditioned space from unconditioned space.

9.7.2.1. Entrance Doors

A door is required to be provided at each entrance to a dwelling unit. Main entrance doors to a dwelling unit are required to be provided with a door viewer or transparent glazing in the door, or a sidelight.

9.7.2.2. Other Requirements for Windows, Doors and Skylights

This Article lists a number of additional Articles that are applicable to windows, doors and skylights with respect to houses:

a) Article 9.8.8.1. refers to the protection of windows and door openings against persons falling through them.

b) Subsection 9.9.10. refers to providing a means of egress from bedrooms for emergency escape purposes.

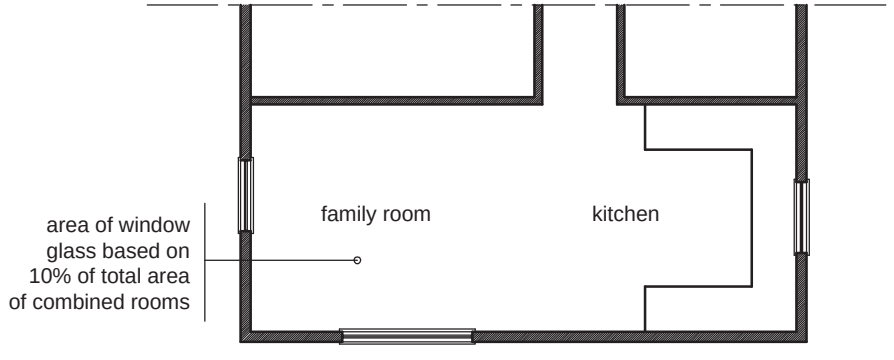
c) Subsection 9.10.12. refers to the protection of windows, doors and skylights in order to control the spread of fire from one fire compartment to another (between semi-detached and townhouse units).

d) Article 9.10.13.15. regulates doors between dwelling units and attached garages.

e) Article 9.32.2.1. refers to non-heating season ventilation in a dwelling.

9.7.2.3. Minimum Window Areas

Windows in a house are required to be sized in relation to the area of the rooms that they serve. The minimum window glass areas for rooms in a house are required to conform to Table 9.7.2.3. Where rooms with different requirements are combined, such as a combined kitchen and family room, the more restrictive requirement of 10% governs as per Table 9.7.2.3. See Figure 9.7 – 1



9.7.2.3. Minimum Window Areas

Where rooms with different requirements for window glass area are combined as described in Sentence 9.5.1.4.(1), the more restrictive requirement should govern.

Figure 9.7 – 1

9.9. Means of Egress

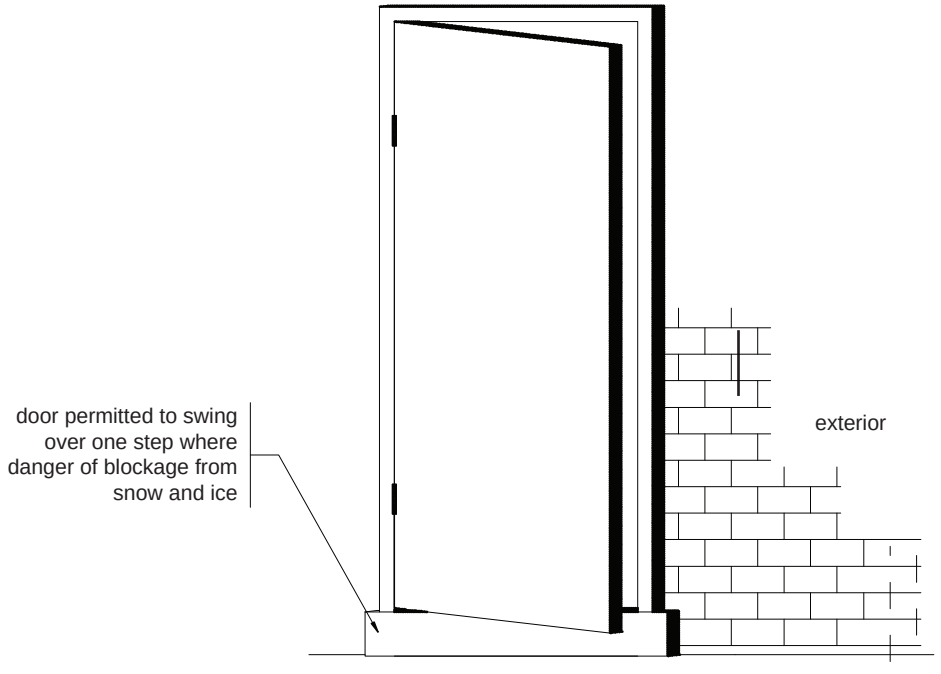
9.9.2.1. Types of Exits

One of the primary requirements of the Ontario Building Code 2012 is to provide persons with an unrestricted route for exiting from buildings in the normal use of the building and in emergency situations.

At least one exit is required from every house. Access to this exit is achieved by regulating the design of the house with respect to the number of storeys a person has to travel to exit the house.

9.9.6.6. Proximity of Doors to Stairs

Where there is a danger of snow and ice blocking an exit door from a house, the door is permitted to swing out over not more than one step. See Figure 9.9 – 1.



Elevation

9.9.6.6. **Proximity of Doors to Stairs**

Where there is a danger of blockage from snow and ice a door is permitted to swing over one step.

Figure 9.9 – 1

9.9.6.7. Door Latching, Locking and Opening Mechanisms

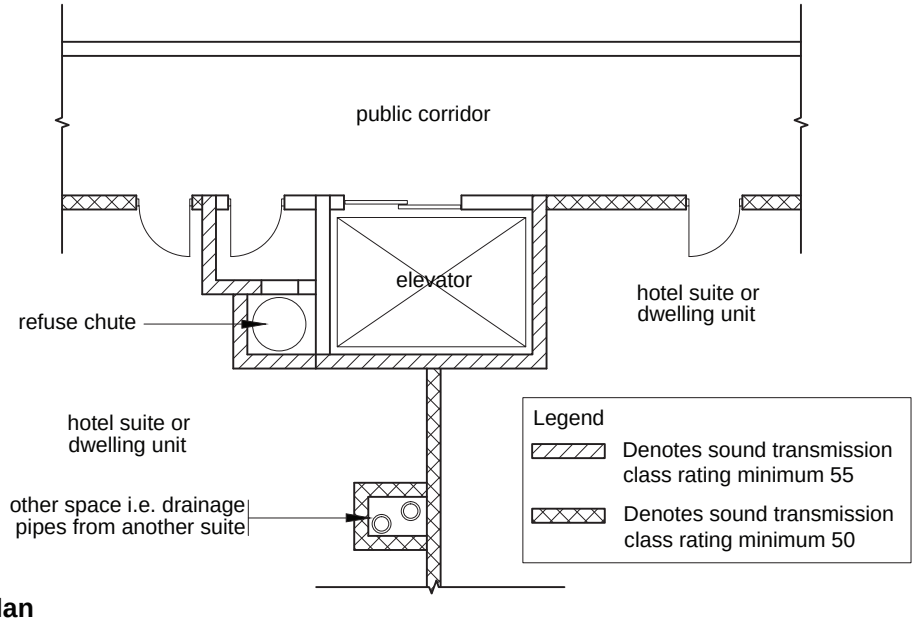
The Ontario Building Code 2012 also states that these exit doors must be openable from the inside without keys, special devices, or specialized knowledge in order to permit the occupants of the house to exit the house in an unrestricted manner.

9.11. Sound Control

9.11.2.1. Minimum Sound Transmission Class Rating

Sound transmission class (STC) is a rating that is assigned to wall and ceiling assemblies that measures the ability of the assembly to reduce airborne sound from transmitting through the assembly. The STC rating required of the fire separation between semi-detached and townhouse units is 50.

When selecting a wall assembly between semi-detached and townhouse units, the designer must select a wall assembly that will provide this minimum STC of 50. Some of the wall assemblies listed in Table 1, Volume 2, of the MMAH Supplementary Standard SB-3 of the Consolidated Building Code, provide the minimum STC of 50. See Figure 9.11 – 1.



Plan

9.11.2.1. **Minimum Sound Transmission Class Ratings**

Every dwelling unit and every suite in hotels should be separated from every other space in a building in which noise may be generated by construction providing a sound transmission class rating of at least 50, measured in accordance with Subsection 9.11.1. or as listed in Tables 1 and 2 of Supplementary Standard SB-3.

Where a dwelling unit or suite in a hotel is adjacent to an elevator shaft of a refuse chute, the separating construction should have a sound transmission class rating of at least 55, measured in accordance with Subsection 9.11.1. or as listed in Tables 1 and 2 of Supplementary Standard SB-3

Figure 9.11 – 1

9.13. Dampproofing, Waterproofing and Soil Gas Control

9.13.1.1. Application

As a rule-of-thumb, all concrete or masonry construction in contact with the ground and enclosing a space must be provided with dampproofing or waterproofing. The Ontario Building Code 2012 requires designs to control moisture and soil gas ingress through walls, floors and roofs in contact with the ground.

9.13.2.1. Dampproofing

Dampproofing is provided on foundation walls to control the entry of water and water vapour into the finished building space. The entry of water into the building can cause moisture related problems, such as high humidity, causing condensation on walls and windows and wood decay.

The exterior surfaces of foundation walls below ground level should be provided with dampproofing where the exterior finished ground level is at a higher elevation than the ground level inside the foundation walls. Dampproofing may be omitted where the exterior surfaces of the foundation walls below ground level are waterproofed. See Figure 9.13 – 1.

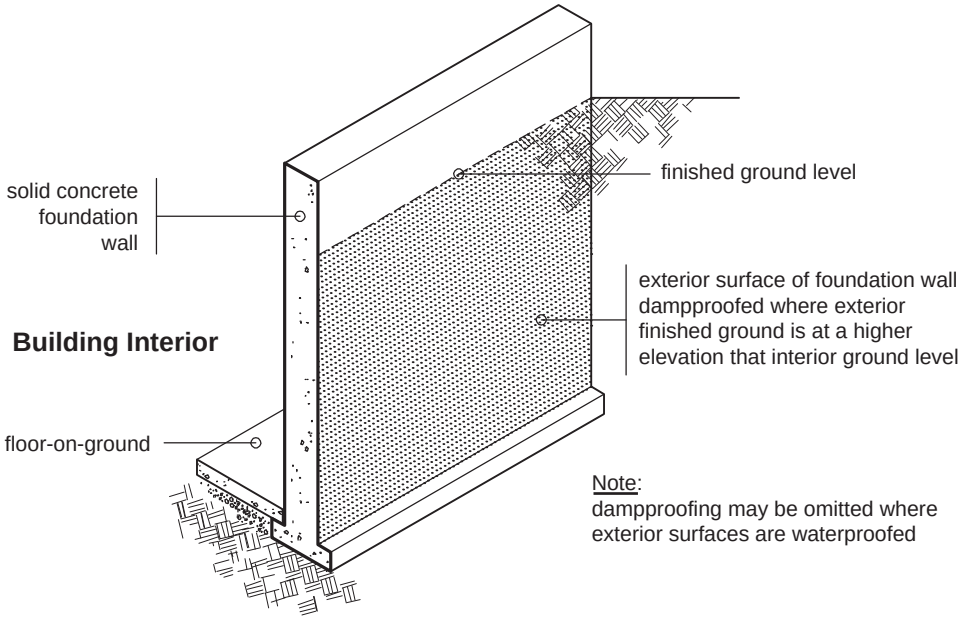


Figure 9.13 – 1

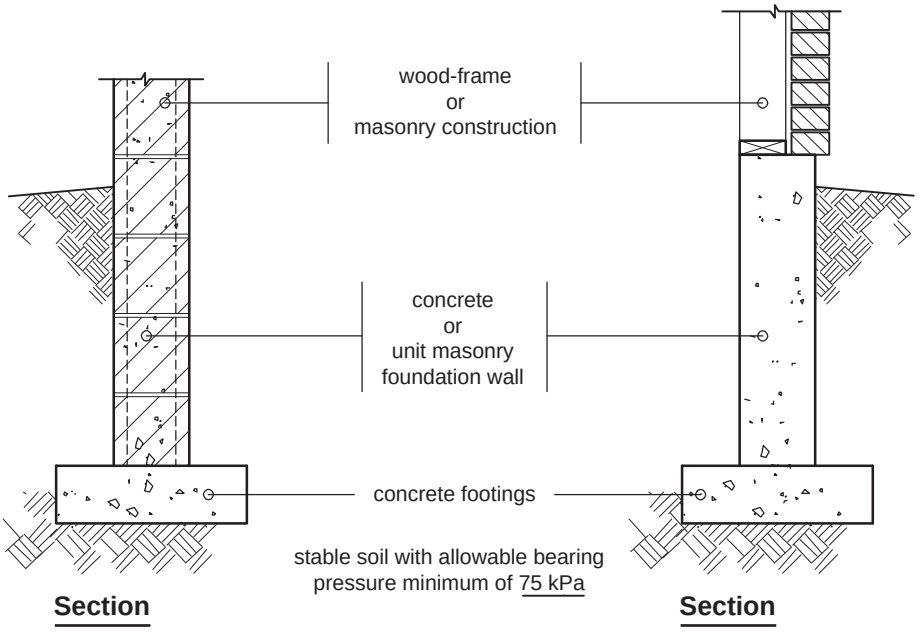
9.15. Footings and Foundations

9.15.1.1. General

This design guide for footings and foundations is applicable to the following:

- Concrete, unit masonry foundation walls and concrete footings that are not subject to surcharge and designed for stable soils with an allowable bearing pressure of 75 kPa (10.9 psi) or greater, and buildings of wood frame or masonry construction.
- Wood frame foundation walls and wood or concrete footings that are not subject to surcharge and designed for stable soils with an allowable bearing pressure of 75 kpa (10.9 psi) or greater, and for buildings of wood frame construction.
- Flat insulating concrete form foundation walls and concrete footings that are not subject to surcharge and designed for stable soils with an allowable bearing pressure of 75 kPa (10.9 psi) or greater, and for buildings of light frame or flat insulated concrete form construction that are not more than two storeys in building height, with a maximum floor to floor height of 3 m (9 ft. 10 in.), and containing only a single dwelling unit.

Foundations for applications other than as described above should be designed in accordance with Section 9.4. of the Ontario Building Code 2012. Where a foundation is proposed to be erected on filled ground, peat or sensitive clay, the footing sizes should be designed in conformance with Section 4.2. Sensitive clay, including leda clay, is considered having a grain size where the majority of the particles are smaller than 0.002 mm (0.08 mil.). The foundations of buildings proposed to be erected on permafrost should be designed by a designer competent in this field in accordance with the appropriate requirements of Part 4. See Figure 9.15 – 1, Figure 9.15 – 2, Figure 9.15 – 3 and Figure 9.15 – 4.



9.15.1.1. General

Application of Section 9.15. Footings and Foundations.

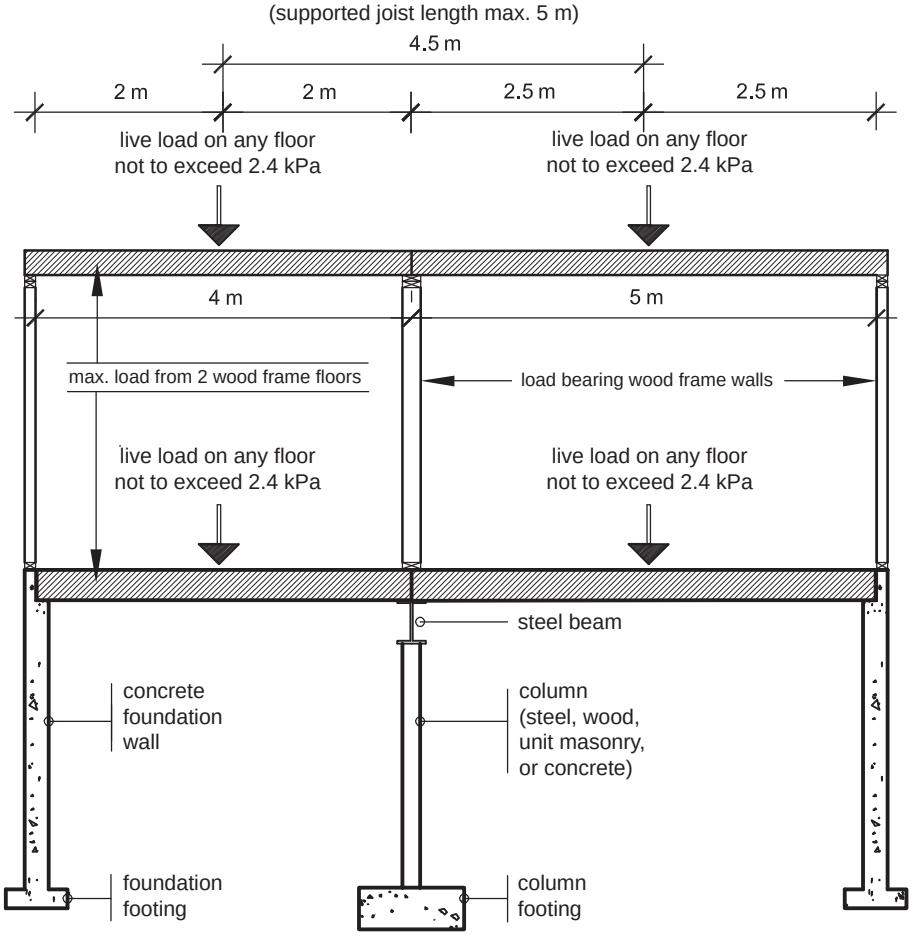
Figure 9.15 – 1

9.17. Columns

9.17.1.1. Application

This design guide for columns is applicable to;

(1) beams carrying loads from not more than two wood frame floors where (see Figure 9.17 – 1),



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.

Figure 9.17 – 1

(a) the supported length of joists bearing on such beams does not exceed 5 m (16 ft. 5 in.), and

(b) the live load on any floor does not exceed 2.4 kPa (50 psf), or

(2) beams or header joists carrying loads from not more than two levels of wood frame balconies, decks or other accessible exterior platforms, or one level and the roof (see Figure 9.17 – 2), where,

9.19. Roof Spaces

9.19.1.1. Required Venting

Venting the attic or roof space limits the probability of condensation, moisture, and the development of ice dams. Extreme cases of winter condensation can cause leakage of water into the building space when the ice melts. Where insulation is installed between a ceiling and the underside of the roof sheathing, a space should be provided between the insulation and the sheathing, and vents should be installed to permit the movement of air from the space to the exterior.

Factory-built structures are not required to have a vented space above the insulation as they have extraordinarily airtight ceiling envelopes. See Figure 9.19 – 1.

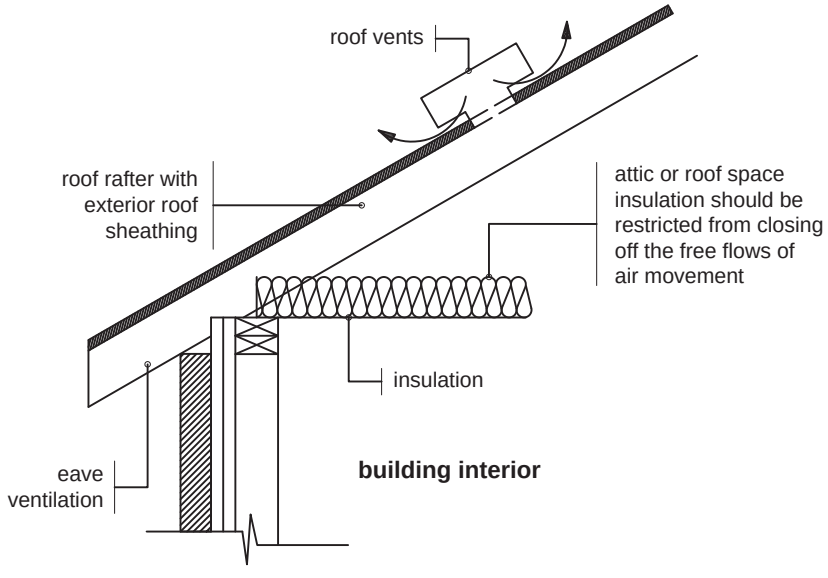
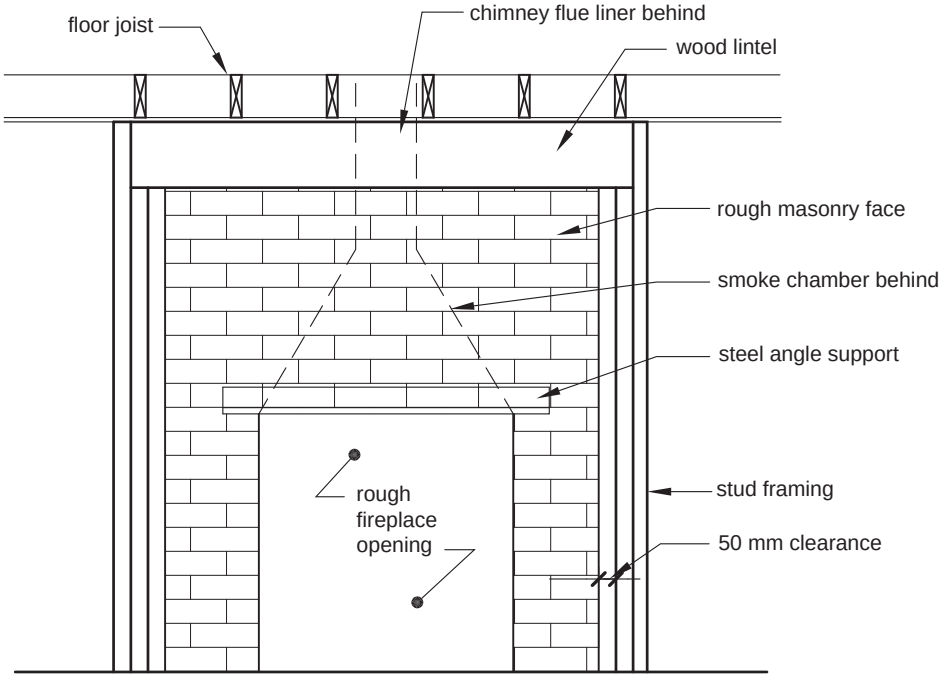


Figure 9.19 – 1

9.22 Fireplaces

9.22.1.1. Application

This Section applies to masonry fireplaces that are constructed on-site. The designer should provide a design drawing that shows the fireplace in cross section to indicate the required dimensions, materials and clearances. See Figure 9.22 – 1.



Elevation

9.22.1.1. Application

Rough-in fireplace with smoke chamber, chimney flue liner and rough masonry facing.

Figure 9.22 – 1

9.22.1.2. Masonry and Concrete

Masonry and concrete used in the construction of masonry fireplace is required to comply with Section 9.20. for masonry and Section 9.3. for concrete of the Ontario Building Code.

9.22.1.3. Footings

Footings that support a masonry fireplace are required to comply with Section 9.15. of the Ontario Building Code.

9.23. Wood-Frame Construction

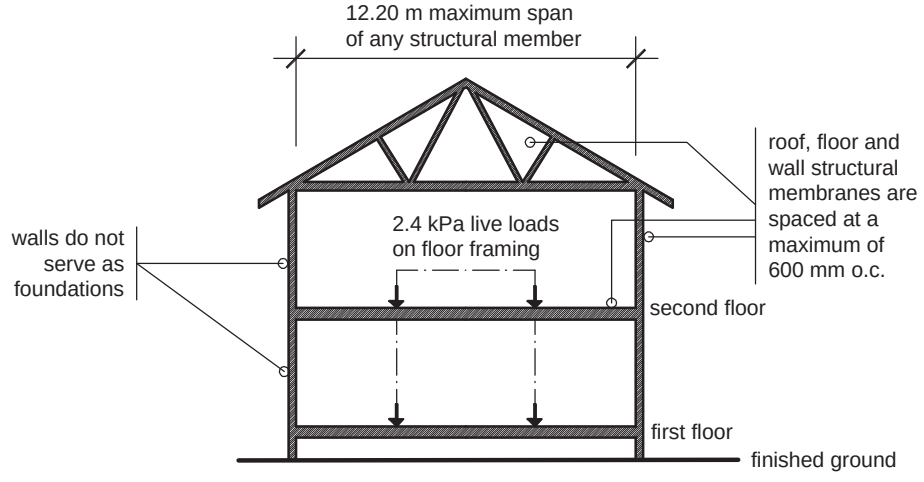
9.23.1.1. Limitations

Many requirements of Section 9.23. of the Ontario Building Code 2012 are largely based on past experience. However, there are other requirements that are based on assumed loads, occupancy types and building sizes. Where the requirements in Part 9 are not sufficient, designers are directed to other Parts of the Ontario Building Code for structural requirements, thereby avoiding the possibility of structural failure when loading exceeds Part 9.

Section 9.23. of the Ontario Building Code 2012 has the following conditions as applied to wall, floor and roof planes that are generally comprised of lumber frames of small repetitive structural members or engineered components, and where:

- Roof and wall are clad, sheathed or braced on at least one side.
- The small repetitive structural members are spaced not more than 600 mm (23 5/8 in.) o.c.
- The walls do not serve as foundations.
- The specified live loads on supported subfloors and floor framing do not exceed 2.4 kPa (50 psf).
- The span of any structural member does not exceed 12.20 m (40 ft.).

Where the above conditions are exceeded for wood construction, the design of the framing and fastening should conform to Subsection 4.3.1. See Figure 9.23 – 1.



Elevation

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.

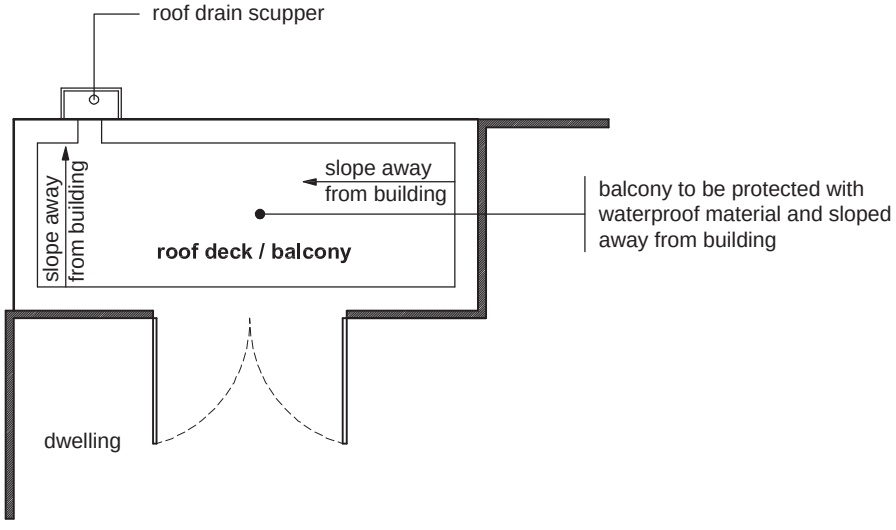
Figure 9.23 – 1

9.26. Roofing

9.26.1.1. Purpose of Roofing

The Ontario Building Code 2012 requires that roofs be protected with a material that will shed rain effectively and prevent water leakage caused by ice damming from entering the roof and ultimately entering the interior of the house.

Furthermore, any roofs that are used as platforms or balconies that have living space beneath them are required to be protected with a material that will shed rain effectively. See Figure 9.26 – 1.



Plan

9.26.1.1. **Purpose of Roofing**

Roofs that are used as platforms or balconies with living space below, must be protected with material that will shed rain and sloped away from building.

Figure 9.26 – 1

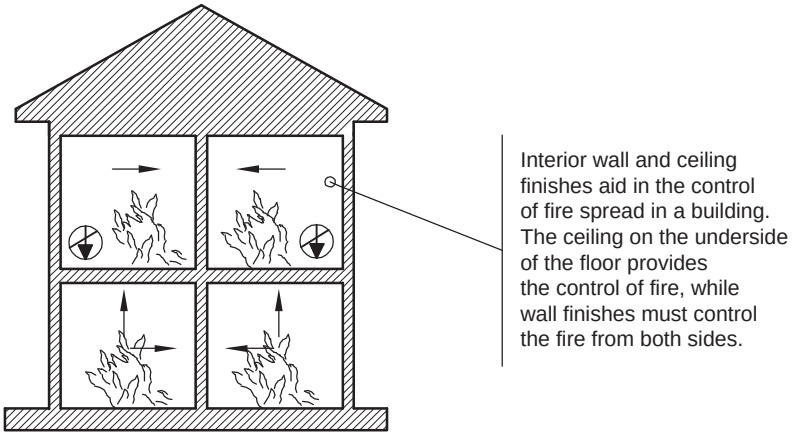
9.26.1.3. Solar Collector Systems

Where solar collectors are installed on a roof, they are required to be installed above roofing materials that conform to Sentence 9.26.2.1.

9.29. Interior Wall and Ceiling Finishes

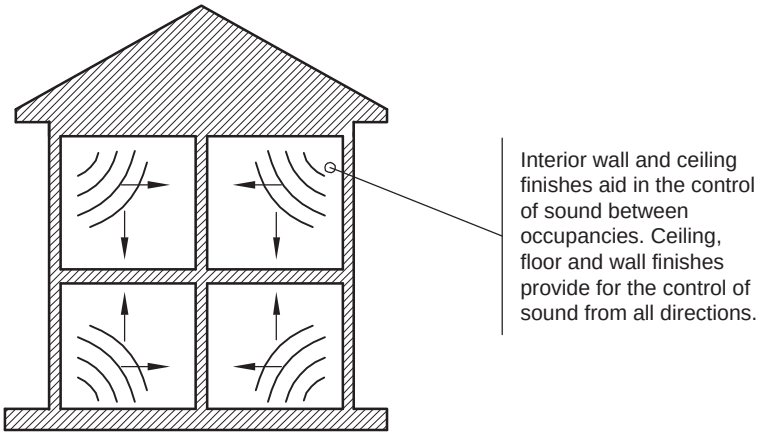
9.29.1.1. Fire Protection and Sound Control

Interior wall and ceiling finishes are required to control the spread of fire in a building. The finishes should be designed with the required maximum flame-spread ratings. Wall and ceiling finishes also play a role in providing sound control designs between occupancies. A wall or ceiling finish should conform to the appropriate requirements in Sections 9.10 and 9.11 in addition to the requirements in Section 9.29. See Figure 9.29 – 1.



fire control

Elevation



sound control

Elevation

9.29.1.1. Fire Protection and Sound Control

Interior wall and ceiling finishes are required to control the spread of fires in buildings. In buildings with more than one dwelling unit sound control is required.

Figure 9.29 – 1

9.32. Ventilation

9.32.1.1. Application

In the interest of providing a healthy atmosphere within the house, houses are required to be provided with natural and mechanical ventilation in order to ensure that fresh air is brought into the house while exhausting stale air out.

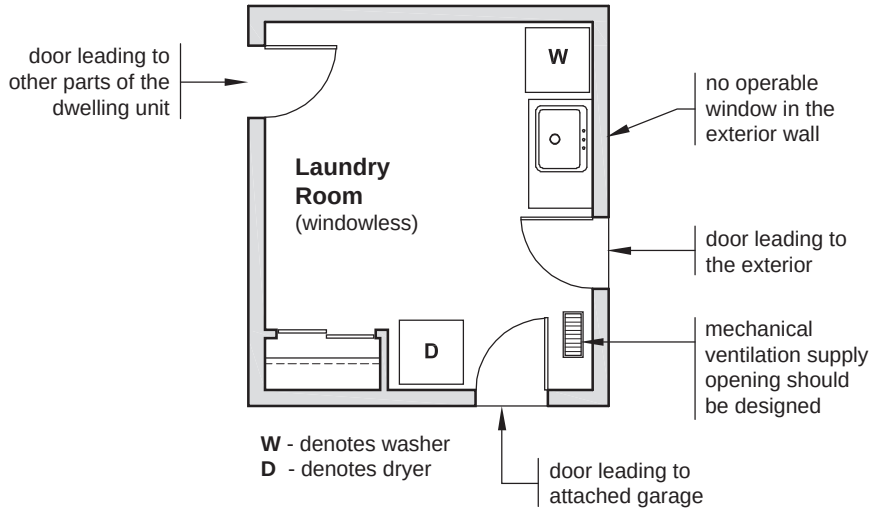
9.32.1.2. Mechanical Ventilation for Dwellings

Houses that are supplied with electrical power require a mechanical ventilation system in accordance with Subsection 9.32.3.

9.32.1.3. Ventilation of Rooms and Spaces

Rooms and spaces in a house are required to be ventilated by natural means in accordance with Subsection 9.32.2., through windows and vents.

As an alternative, where natural ventilation is not practicable, mechanical ventilation can be utilized. See Figure 9.32 – 1



Plan

9.32.1.3. Ventilation of Rooms and Spaces

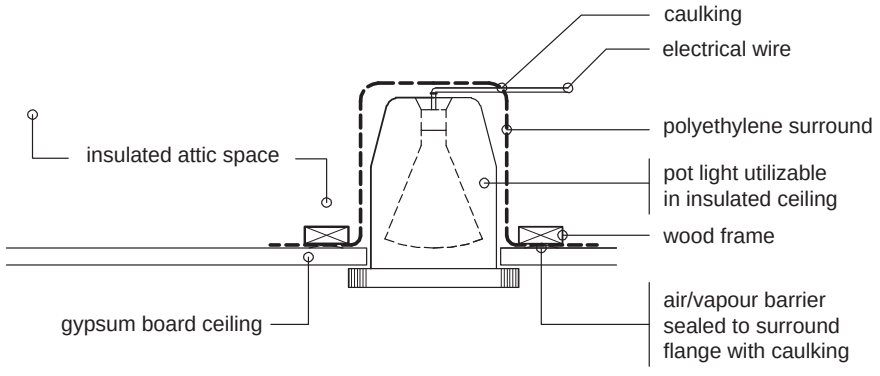
As an alternative, where a room or space is not provided with natural ventilation, mechanical ventilation shall be provided to exhaust inside air from or to introduce outside air to that room or space.

Figure 9.32 – 1

9.34. Electrical

9.34.1.4. Recessed Lighting Fixtures

The type of recessed light fixture should be designed for the area within the building for which it will be installed. They should not be located in insulated ceilings unless the fixtures are designed for such purposes. Heat from a recessed light fixture not specifically designed for use in an insulated ceiling can ignite combustible elements surrounding the fixture. See Figure 9.34 – 1.



Section

9.34.1.4. Recessed Lighting Fixtures

Penetrations caused by recessed light fixtures, commonly referred to as “pot lights” of the attic air/vapour barrier in a dwelling represent a potential source of air leakage. Air leakage into a roof attic or air space above an insulated ceiling can result in serious condensation problems.

In recent years, manufacturers have developed a variety of specialty prodcuts designed to make air sealing around a pot light easier and more effective. A rigid polyethylene surround is one product that is widely available and can be installed following these steps:

1. Pot lights that are approved for use in insulated ceilings, are inserted into the air/vapour barrier surrounds.
2. The pot light is fastened to the framing of the building.
3. The main attic air/vapour barrier is sealed to the flange of the surround.

The melting point of the polyethylene surround must be compatible with the type of pot light being used. The illustration above depicts a typical installation.

Figure 9.34 – 1

9.34.2.1. Lighting of Entrances

The entrance to a building during the evening or night without proper lighting can cause accidental falls by persons entering or exiting the dwelling. The lack of lighting can also promote forced entry by intruders. An exterior lighting outlet with the fixture controlled by a wall switch located within the building should be provided at every entrance. The switch location is important to ensure occupants can conveniently turn on the lighting fixture before leaving the dwelling. See Figure 9.34 – 2.

Appendix A

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the Building Code Act.

For use by Principal Authority	
Application number:	Permit number (if different):
Date received:	Roll number:

Application submitted to: _____
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name		Unit number	Lot/con.
Municipality	Postal code	Plan number/other description	
Project value est. $		Area of work (m^2)	

B. Purpose of application

❑ New construction ❑ Addition to an existing building ❑ Alteration/repair ❑ Demolition ❑ Conditional Permit

Proposed use of building	Current use of building
Description of proposed work	

C. Applicant Applicant is: ❑ Owner or ❑ Authorized agent of owner

Last name	First name	Corporation or partnership	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

Application for a Permit to Construct or Demolish – Effective January 1, 2011

Appendix B

Qualification Requirements for Designers, Chief Building Officials and Inspectors

Designers

Subsection 15.11 (5) of the Building Code Act requires that any person who prepares a design or gives information concerning whether a building or part of a building complies with the Ontario Building Code 2006 with respect to:

a) an application for a permit,

b) a request for change to permit information, or

c) a general review report required by Div. C, Subsection 1.2.2.,

must have the qualifications as established by the Ontario Building Code 2006 in order provide their services to the public, an employer, or a builder.

Chief Building Officials and Inspectors

Subsections 15.11 (1) to (3) of the Building Code Act requires that all chief building officials and inspectors have the minimum qualifications as established by the Ontario Building Code 2006 in order to be appointed by a municipality.

Inspectors that have partial qualifications may be appointed if enrolled in an internship program approved by the Minister of Municipal Affairs and Housing as permitted in Div. C, Article 3.1.4.2.

Professional Engineers and Architects

On May 17, 2007 the Divisional Court of the Ontario Superior Court of Justice ruled that that Subsection 15.11 (5) in the Building Code Act, is not applicable to a licensed Professional Engineer or Architect and therefore these professionals are not required to obtain their qualifications as set out in the Ontario Building Code 2006.

Technical Categories of Qualifications and Legal/Process Qualification

The following are the twelve technical qualifications that are classified by building type:

1. House
2. Small Buildings
3. Large Buildings
4. Complex Buildings
5. Plumbing-House
6. Plumbing – All Buildings
7. HVAC – House
8. Building Services
9. Building Structural
10. On-site Sewage Systems
11. Detection, Lighting and Power
12. Fire Protection

Appendix C

Part 9 Housing Checklist – 2012 Ontario Building Code

No.	ITEM	OBC Reference
1.	Building Information	
	a) Building Height (maximum 3 storeys)	Div. A 1.1.2.4.
	b) Building Area (maximum 600 m²)	Div. A 1.1.2.4.
2.	Spatial Separation	
	a) Maximum % of glazing	9.10.15.2. to 9.10.15.4.
	b) Construction of exposing building face	9.10.15.5. & Table 9.10.15.4.
3.	Fire Protection	
	a) Fire blocks	9.10.16.1. & 9.10.16.2.
	b) Maximum travel distance to a single exit	9.9.9.1.
	c) Openable window each level at bedrooms	9.9.10.1. & 9.9.9.1.(2)
	d) Smoke alarms	9.10.19.3.
4.	Footing and Foundations	
	a) Soil bearing capacity	9.4.4.1., Table 9.4.4.1.
	b) Size of footing	9.15.3.4., Table 9.15.3.4.
	c) Frost protection	9.12.2.2., Table 9.12.2.2.
	d) Maximum foundation wall height	9.15.4.2., Table 9.15.4.2.A
	e) Angle of repose	Div.C, 1.2.2.1.(5)
	f) Height above grade	9.15.4.6.
	g) Reduced thickness	9.15.4.7.
	h) Capping and parging	9.15.5.1. & 9.15.6.1.
	i) Damproofing	9.13.2.1.
	j) Step footing	9.15.3.9.
	k) Sill plate anchorage and leveling	9.23.6.1. & 9.23.7.2.
5.	Drainage	
	a) Drainage tile and stone cover	9.14.2.1. & 9.14.3.2.
	b) Surface drainage	9.14.6.1.
	c) Floor drain	9.31.4.4.
6.	Waterproofing, Dampproofing and Soil Gas Control	
	a) Waterproofing of walls	9.13.3.
	b) Dampproofing of walls	9.13.2.1.
	c) Dampproofing of slabs	9.13.2.7.
	d) Soil gas control	9.13.4.
7.	Concrete Slabs	
	a) Concrete strength	9.3.1.6.
	b) Concrete slab on grade	9.16.1.3.
	c) Garage floor	9.35.2.2.
	d) Reinforced concrete slabs	9.40.
8.	Beams and Columns	
	a) Lintels for masonry	Tables 9.20.5.2.A & B
	b) Wood lintels	9.23.12.3. Tables A-12 to A-16
	c) Steel Beams	Table 9.23.4.3.
	d) Steel columns	9.17.3.1.to 9.17.3.4.
	e) Wood columns	9.17.4.1. to 9.17.4.4
	f) Masonry/Concrete columns	9.17.5. & 9.17.6.

Appendix D

Guide to the Energy Efficiency Design Summary Form (Part 9 Residential)

The Energy Efficiency Design Summary form summarizes the compliance path used by a house designer to comply with energy efficiency requirements of the Ontario Building Code. This form must accompany the building permit application. The information on this form MUST reflect the drawings and specifications being submitted, or the building permit may be refused. Refer to Supplementary Standard SB-12 for details about Building Code compliance requirements. Further information about energy efficiency requirements for new buildings is available from the provincial building code website at www.mah.gov.on.ca, or the municipal building department.

Beginning January 1, 2012, a house designer must use one of four energy efficiency compliance options in the Ontario Building Code:

1) Comply with the SB-12 Prescriptive design tables,
2) use the SB-12 Performance compliance method, and model the design against the prescriptive standards,
3) design to ENERGY STAR standards, or
4) evaluate the design according to EnerGuide technical procedures and achieve a rating of 80 or more.

COMPLETING THE FORM

B. Compliance Options

Indicate the compliance option being used:

- SB-12 Prescriptive requires that the building conforms to a package of thermal insulation, window and mechanical system efficiency requirements set out in Subsection 2.1.1. of SB-12. Energy efficiency design modeling and testing of the building is not required under this option.
- SB-12 Performance refers to the alternative method of compliance set out in Subsection 2.1.2. of SB-12. Using this approach the designer must use recognized energy simulation software (such as HOT2000 V9.34c1.2 or newer), and submit documents which show that the annual energy use of the building is equal to a prescriptive package.
- ENERGY STAR qualified houses must be designed to ENERGY STAR for *New Homes* technical specifications and be labelled on completion by EnerQuality or other agency. The ENERGY STAR BOP form must be submitted with the permit documents.
- EnerGuide80 houses are validated by NRCan authorized energy advisors and must achieve a rating of 80 or more when evaluated in accordance with EnerGuide administrative and technical procedures.

C. Project Design Conditions

Climatic Zone: The number of degree days for Ontario cities is contained in Supplementary Standard SB-1 *Windows, Skylights and Glass Doors*: If the ratio of the total gross area of windows, sidelights, skylights and glass doors to the total gross area of walls is more than 17%, higher efficiency glazing is required. If the ratio is more than 22% the SB-12 Prescriptive option may not be used. The total area is the sum of all the structural rough openings. Some exceptions apply. Refer to 2.1.1.1. of SB-12 for further details.

Fuel Source and Heating Equipment Efficiency: The fuel source and efficiency of the proposed heating equipment must be specified in order to determine which SB-12 Prescriptive compliance package table applies.

Other Building Conditions: These construction conditions affect SB-12 Prescriptive compliance requirements.

D. Building Specifications

Thermal Insulation: Indicate the RSI or R-value being proposed where they apply to the house design. Under the SB-12 Prescriptive option, RSI 3.52 wall insulation is permitted in certain conditions where other design elements meet higher standards. Refer to SB-12 for further details.