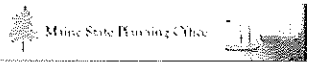



SPO  Maine State Planning Office

Residential Building Code

Michael Lessard



Agenda

- o Title 16 Department of Public Safety
- o 635 (new) Bureau of Building Codes and Standards
- o Course time 6 hours
- o Overview of the Residential Building Code
- o Certification Process
- o Timeline
- o Enforcement
- o Resources for Information
- o Navigating the Code
- o Revisions to the IRC

The New Standard

Title 16 Department of Public Safety
635 (new) Bureau of Building Codes and Standards -
Maine Uniform Building and Energy Code

Chapter 5 Residential Building Code for One and Two
Family Dwellings in Maine

Overview of the International Residential Code (IRC)

MUBEC?
Purpose and Scope
Authority
Incorporated by Reference
Excluded from Adoption
Codes that Continue in Effect

Residential Building Code

Establishes the Residential Building code component of the Maine Uniform Building and Energy Code (MUBEC)

The provisions of this chapter are based on a nationally recognized model building code published by the International Code Council, Inc., and is made part of the MUBEC through incorporation by reference.

This chapter also contains requirements for the enforcement of the Residential Building code by local building officials in municipalities with a population of more than 4,000 residents.

Purpose and Scope

- o All building construction in Maine, with some exceptions, is governed by the MUBEC, which is adopted by the Technical Building Codes and Standards Board pursuant to 10 M.R.S. Chapter 1103.

The primary objective of the Board is to establish a uniform building code throughout the State of Maine.

Purpose and Scope

- Chapter 5 sets forth the standards for residential construction for one and two-family dwellings that are part of the MUBEC.

It applies to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures.

Authority

- The authority for this Chapter is 10 M.R.S. 9722, which provides that the Maine Technical Building Codes and Standards Board shall promulgate rules which adopt, amend, and maintain the Maine Uniform Building and Energy Code.

Adopted Codes and Standards

The Residential Building Code for one and Two Family Dwellings in Maine has adopted the following:


- International Residential Code – 2009 (in part – details to follow)

To download rules that detail the amendments to the code, go to www.maine.gov/dps/bbcs

Incorporation by Reference

The following Chapters of the 2009 International Residential Code, published by the International Code Council, Inc., are hereby adopted and incorporated by reference:


- Chapter 1 Scope and Administration
- Chapter 2 Definitions
- Chapter 3 Building Planning
- Chapter 4 Foundations
- Chapter 5 Floors
- Chapter 6 Wall Construction
- Chapter 7 Wall Covering
- Chapter 8 Roof - Ceiling Construction
- Chapter 9 Roof Assemblies
- Chapter 10 Chimneys and Fireplaces



Incorporation by Reference

The following Chapters of the 2009 International Residential Code, published by the International Code Council, Inc., are hereby adopted and incorporated by reference:


- Chapter 12 Mechanical Administration
- Chapter 13 General Mechanical System Requirements
- Chapter 14 Heating and Cooling Equipment
- Chapter 15 Exhaust Systems
- Chapter 16 Duct Systems
- Chapter 17 Combustion Air
- Chapter 18 Chimneys and Vents
- Chapter 19 Special Fuel Burning Equipment



Incorporation by Reference


The following Chapters of the 2009 International Residential Code, published by the International Code Council, Inc., are hereby adopted and incorporated by reference:

- Chapter 23 Solar Systems
- Chapter 41 Appliance Installation
- Chapter 42 Swimming Pools
- Chapter 44 Referenced Standards




Excluded from Adoption

- Chapter 11 Energy Efficiency
- Chapter 20 Boilers and Water Heaters
- Chapter 21 Hydronic Piping
- Chapter 22 Special Piping and Storage Systems
- Chapter 24 Fuel Gas
- Chapter 25 Plumbing Administration
- Chapter 26 General Plumbing Requirements
- Chapter 27 Plumbing Fixtures
- Chapter 28 Water Heaters
- Chapter 29 Water Supply and Distribution
- Chapter 30 Sanitary Drainage
- Chapter 31 Vents



Excluded from Adoption

- Chapter 32 Traps
- Chapter 33 Storm Drainage
- Chapter 34 General Requirements
- Chapter 35 Electrical Definitions
- Chapter 36 Services
- Chapter 37 Branch Circuit and Feeder Requirements
- Chapter 38 Wiring Methods
- Chapter 39 Power and Lighting Distribution
- Chapter 40 Devices and Luminaires
- Chapter 43 Class 2 Remote-Control, Signaling and Power Limited Circuits
- Appendix A - Q



Codes that Continue in Effect

The following codes, standards, rules and their amendments, listed in this section, shall remain in full force and effect in their entirety and are not affected by the operation of this Code.

- A. Electrical standards adopted pursuant to 32 M.R.S. 1153-
- B. The plumbing code adopted pursuant to 32 M.R.S. 3403-B.
- C. Oil and solid fuel burning equipment standards adopted pursuant to 32 M.R.S. 2353.
- D. Propane and natural gas equipment standards adopted pursuant to 32 M.R.S. 14804.
- E. Boiler and pressure vessel standards adopted pursuant to 32 M.R.S. 15104-A.
- F. Elevator standards adopted pursuant to 32 M.R.S. 15206.
- G. Fire safety codes and standards adopted pursuant to 25 M.R.S. 2452 and 2465.

Certification Standards

Certification Standards

For Building Officials and Third Party Inspectors

The training and certification committee of the Technical Building Codes and Standards Board shall determine the standards for certifying building officials and third-party inspectors.

Standards shall enumerate the knowledge and training required to ensure that building officials and third-party inspectors have the basic understanding needed to apply the MUBEC and the ongoing education needed to stay current with code changes and amendments.

Certification Standards

There are six new standards in which building officials may be certified.

- o International Residential Code
- o International Building Code
- o Residential Energy Code
- o Commercial Energy Code
- o Residential Ventilation Code
- o Commercial Ventilation Code

- o Radon – Registration now required

Advisory Rulings and Technical Support

The interpretation and enforcement of this Code are the responsibility of the local municipality.

However, the Bureau is available to provide advisory rulings and technical support for the administration of this Code, amendments, conflict resolutions, and interpretations. This support includes but is not limited to:

Advisory Rulings and Technical Support

Written Request

Upon written request of any interested person or entity, the Bureau may provide a nonbinding advisory interpretation with respect to the applicability of any statute, rule or code administered by the Bureau, on that person or entity, or the property of that person or entity, or actual state of facts.

The written request shall be made on the official Bureau form and shall include the following information:

Written Request Shall Include:

- o Specific identification of the subject code or codes with a description of the questioned application or perceived conflict.
- o Relevant construction documents to fully illustrate the issue upon which an advisory interpretation is sought.
- o The Bureau may request additional documentation or information required to issue an advisory interpretation or to provide technical support. All requested information shall be provided within 30 days of request, or the request for advisory interpretation or support may be deemed abandoned.

Advisory Rulings and Technical Support

The technical support shall also include:

Written, non binding advisory interpretation

Other Considerations

- o Procedure for code amendment
- o Procedures for identifying and resolving conflicts between this Code and the Fire Safety Codes and standards.
- o Experimental buildings
- o Native lumber

MUBEC does not apply to

- o Log homes or manufactured homes defined in Chapter 951.
- o Post and beam or timber frame construction.
- o Warehouses or silos used to store crops.
- o Seasonally restricted cottages.

Timeline

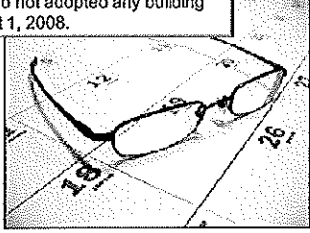
Timeline

On December 1, 2010, this code shall be applicable statewide.

No later than December 1, 2010, this Code must be enforced in a municipality with a population of 4,000 residents or more that had previously adopted any building code on or before August 1, 2008.

Timeline

No later than July 1, 2012, this Code must be enforced in a municipality with a population of 4,000 residents or more that had not adopted any building code on or before August 1, 2008.



Timeline

All provisions of the MUBEC are applicable in a municipality with a population of less than 2,000 residents, but municipal enforcement of the MUBEC is voluntary. However, a municipality may voluntarily elect to enforce the MUBEC provisions herein.

Timeline

The provisions of the MUBEC do not apply to municipalities with a population of less than 4,000 residents, except to the extent that the municipality has adopted that code.

MUBEC Components

Maine Uniform Building Code – That portion of the MUBEC that does not contain energy code requirements as determined by the board pursuant to section 9722, subsection 6, paragraph L.

Maine Uniform Energy Code – That portion of the MUBEC that contains only energy code requirements as determined by the board pursuant to section 9722, subsection 6, paragraph L.

Municipalities Under 4,000

Effective September 2011, all towns under 4,000 in population have the following options:

1. Choose to adopt and enforce the MUBEC.
2. Choose to adopt and enforce MUBC only.
3. Choose to adopt and enforce MUEC only.
4. Choose to have no code.

Timeline

Effective December 1, 2010, except as provided in 10 M.R.S. 9724(4) and 9725, any ordinance regarding any building code of any political subdivision of the State that is inconsistent with the MUBEC is void, with the following exception:

This provision does not apply to any adopted fire & life safety code, fire safety ordinance or any land use ordinance, including Land Use Regulatory Commission rules.

Enforcement

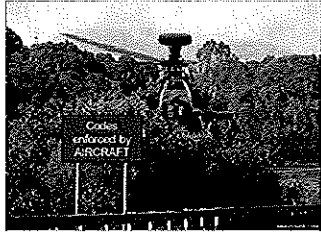
Enforcement

Pursuant to 25 M.R.S. 2373, in municipalities with a population over 4,000, enforcement of the provisions of the MUBEC shall be the responsibility of the municipality and shall be accomplished by one or more of the following means:

Enforcement

Building Officials

Inspections performed by building officials certified pursuant to 30-A.M.R.S. 4451.



Enforcement

Inspections by Virtue of Inter-local Agreements

Inspections performed by virtue of inter-local agreements with other municipalities, that share the use of building officials, certified in building standards pursuant to 30-A M.R.S. 4451.

Enforcement

Contractual Agreements

Inspections performed by virtue of contractual agreements with one or more municipalities, or county or regional authorities, that share the use of building officials certified in building standards pursuant to 10 M.R.S. 9723.

Enforcement

Third Party Inspection by Report

Inspections performed and verified by reports from a TPI, certified pursuant to 10 M.R.S. 9723.

Enforcement

If the municipality does not elect one or more of the four options listed above, then the applicant shall elect to have an inspection performed by a TPI at their own cost.

Required Inspections

- 109.1.1 Foundation
- 109.1.2 Plumbing, Mechanical, Gas, Electrical
- 109.1.3 Floodplain
- 109.1.4 Frame and Masonry
- 109.1.5 Other Inspections
- 109.1.5.1 Fire-Resistance-Rated Construction
- 109.1.6 Final Inspection

Required Inspections

109.2 Inspection Agencies

The building official is authorized to accept reports of approved agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

Required Inspections

109.3 Inspection Requests

It shall be the duty of the permit holder or their agent to notify the building official that such work is ready for inspection.

It shall be the duty of the person requesting any inspections required by this code to provide access to and means for inspection of such work.

Required Inspections

109.4 Approval Required

Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the building official.

Resources for Information

Resources for Information

International Code Council

The International Residential Code (IRC), 2009 edition.
500 New Jersey Avenue, NW, 6th Floor
Washington, DC 20001
1-888-ICC-SAFE (422-7233)

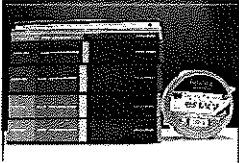
www.iccsafe.org

Navigating the Code

Using the 2009 IRC Code Book
Commentary
Important Considerations

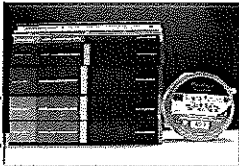
Navigating the Code

The ICC codes and ASHRAE standards contain a substantial amount of information and updates for the new building code program.



Navigating the Code

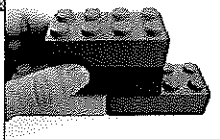
International Residential Code



Clearly, we won't be able to reach you all of the IRC today, however.

Navigating the Code

We can break it down into manageable parts, and show you how to find the information that you need.



Quickly!
QUICKLY!

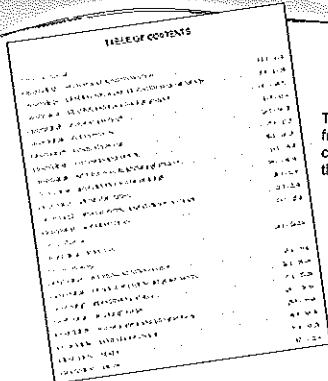
The Parts

The book is broken down into Parts to outline major categories of information

Part 1	Administrative	<input type="radio"/>	All Chapters Used
Part 2	Definitions	<input type="radio"/>	All Chapters Used
Part 3	Building Planning and Construction	<input type="radio"/>	All Chapters Used
Part 5	Mechanical	<input checked="" type="radio"/>	Not Used
Part 8	Electrical	<input type="radio"/>	Some Chapters Used
Part 9	Referenced Standards	<input type="radio"/>	Some Chapters Used

Chapters

Parts are further broken down into Chapters to discuss sub categories of information



To save lot's of time in the future, you should highlight the chapters that are included in the MUBEC

General Comments

Part 1—Administrative

Chapter 1: Scope and Administration

General Comments

Each chapter starts with some general comments about the material that will be covered.

This information can be helpful to when interpreting code or trying to explain details to others.

General Comments

Part 1—Administrative

Chapter 1: Scope and Administration

The comments also provide a briefing on each section in the chapter.

This gives you a speedy snapshot of what is covered in each section.

General Comments

Part - Administrative

Chapter 1: Scope and Administration

Finally, a purpose statement is provided to give specific meaning and importance of the chapter

Sections

Sections are further broken down into sub-sections, according to more specific topics

Commentary

The commentary follows many of the code references

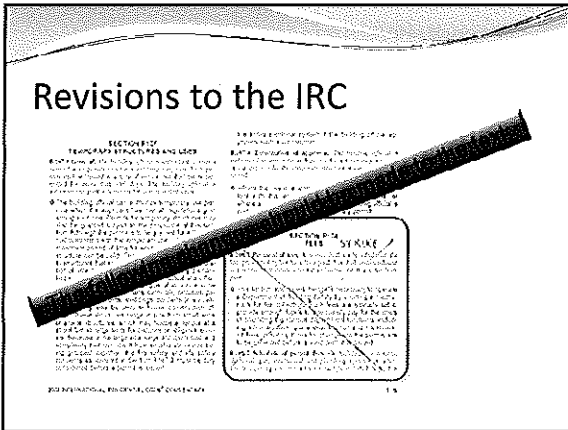
It serves as a statement of its objective and intent, and discusses why the requirement commands the conditions set forth

Commentary

The commentary is advisory only!
Only the code is enforceable

Revisions to the IRC

Not all of the text in all sections are adopted by the State of Maine.



Revisions to the IRC

The following additions, insertions, deletions, and other changes are hereby made to the 2009 International Residential Code:

Generally all sections
 Delete "International Mechanical Code"
 Insert "applicable state codes and statutes"

Section R101.1
 Delete (NAME OF JURISDICTION); and
 Insert "State of Maine" in its place.

Revisions to the IRC

Section R102.2.1
 Insert: No provisions of the MUBEC shall be construed to prohibit the adoption or enforcement of an ordinance of any political subdivision that sets forth provisions for local enforcement of building codes. Such ordinances may include items such as permits, permit fees, boards of appeals and violations.

Revisions to the IRC

Section R102.7
 Delete "International Property Maintenance Code or the International Fire Code"; and insert "NAFPA #1; Fire and Safety Codes and standards adopted pursuant to Title 25, 2452 and 2465" in its place.

Section R103
 Delete Section R103 'Department of Building Safety' in its entirety, without substitution.

Revisions to the IRC

Sections R104, R105, R106, R107, R109, R110, R111, and R114 and any amendments thereto shall only be applicable:

A. In a municipality with a population of 4,000 or more residents, beginning:

- (1) No later than December 1, 2010, if the municipality had previously adopted any building code on or before August 1, 2008; or
- (2) No later than July 1, 2012, if the municipality had not adopted any building code on or before August 1, 2008.

B. In a municipality with a population of less than 4,000 residents, if the municipality voluntarily elects to enforce the MUBEC.

Revisions to the IRC

Section R104.8
 Delete all language in Section 104.8
 Insert: "See 14 MRSA L 8101" in its place

Revisions to the IRC

Section R105.1
 Insert "where required by municipal ordinance." at the end of the paragraph.

Section R105.2
 Insert "Structures exempt from permits shall be located in compliance with zoning and floodplain regulations." at the end of the paragraph.

Revisions to the IRC

Section R105.3
 Delete "department of building safety" in the first paragraph; and insert "municipality" in its place.

Section R105.3.1
 Delete "within a reasonable time after filing"
 Insert "in accordance with 30A MRSA L.4103"

Revisions to the IRC

Section R105.3.1.1
 Delete: "finding shall be provided to the board of appeals for a determination of substantial damage. Applications determined by the bar of appeals to constitute substantial improvement or substantial damage"; and
 Insert: "Building Official" in its place

Section 108
 Delete Section 108 "Fees" in its entirety without substitution

Revisions to the IRC

Sections R112 and R113
 Delete Section R112 "Board of Appeals" and Section R113 "Violations" in their entirety, without substitution.

Revisions to the IRC

Section R202
 Delete "Conditioned space: For energy purposes, space within a building that is provided with heating and/or cooling equipment or systems capable of maintaining, through design or heat loss/gain 50 F (10 C) during the heating season and 85 F (29 C) during the cooling season, or communicates directly with a conditioned space. For mechanical purposes, an area, room or space being heated or cooled by any equipment or appliance"; and insert "An area or room within a building being heated or cooled, containing un-insulated ducts, or with a fixed opening directly into an adjacent conditioned space." in its place.

Revisions to the IRC

Section R310.1, First Exception
 Insert "if the dwelling unit is protected throughout by an approved automatic sprinkler system in accordance with R313." at the end of the first exception.

Section R310.1.1
 Delete "Exception: Grade floor openings shall have a minimum net clear opening of 5 square feet (0.465 m2)."

Revisions to the IRC

Section 313.2
Delete Section 313.2 in it's entirety.

Insert as follows:

R501.3 Fire protection of floors.

Floor assemblies, not required elsewhere in this code to be fire resistance rated, shall be provided with a 1/2 inch gypsum wallboard membrane, 5/8 inch wood structural panel membrane, or equivalent on the underside of the floor framing member.

Exceptions:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.

Continued

Exceptions: (Continued)

3. Portions of floor assemblies can be unprotected when complying with the following:
 - 3.1 The aggregate area of the unprotected portions shall not exceed 80 square feet per story.
 - 3.2 Fire blocking in accordance with Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

Revisions to the IRC

Section: Table M1507.3
Delete Table M1507.3; and insert See ASHRAE 62.2 – 2007 edition; Table 5.1 and 5.2

Tables and Figures

SECTION	DESCRIPTION	REVISION
313.2

There are many tables and figures, conveniently numbered by the sub-sections that they apply to

Some tables contain numerous notes and conditions which must be considered to arrive at an accurate determination of the data

Be careful and sure to apply all notes and conditions as required!

Using Tables and Figures

Let's take a look at Table R602.3(5)

- o The (5) indicates that the table is the fifth table in the R602.3 sub-section.

1. What is the maximum allowable stud spacing when framing with 2 x 3 studs?
2. How about when the wall is an exterior wall?

Using Tables and Figures

Let's take a look at Table R602.3(5)

1. The applicant is building a house with a finished attic. The roof span is 34 feet. What is the maximum allowable stud spacing for a 2 x 4 load bearing wall?
2. What would be the maximum allowable 2 x 6 stud spacing in a structure that is supporting two floors, plus a roof and ceiling assembly?

Using Tables and Figures

Let's take a look at Table R602.3(5)

1. What is the maximum allowable height of a laterally unsupported 2 x 4 framed wall?
2. What is the maximum allowable stud spacing for a 2 x 3 exterior wall?

OK... Got the hang of it?

Let's do an overview of the code

Chapter 1 Overview

Scope and Administration

Chapter 1 Scope and Administration

Chapter 1 is largely concerned with maintaining due process of law in enforcing the performance criteria contained in the body of the code.

The provisions of this chapter are also important to design professionals, contractors and building owners as it establishes the rights and privileges of all.

Chapter 1 Scope and Administration

The Building Official charged with the administration and enforcement of construction regulations has a great responsibility.

A responsibility that will impact the buildings and citizens long after the Code Official is gone!

Chapter 1 Scope and Administration

The Building Official has the responsibility to establish that the homes in which the citizens of the community reside, and the buildings in which they work are designed and constructed to be structurally stable with adequate means of egress, light and ventilation.

This code establishes a minimum acceptable level of safety

Chapter 1 Scope and Administration

The successful outcome of the project requires all parties to work in a partnership to protect health, safety and welfare of building owners and the public.

The Position of the Building Official – is to review the proposed and completed work to determine whether the structure conforms to the code requirements

The Design Professional – is responsible for appropriate design of the structure

The Contractor – is responsible for constructing the building in strict accordance with code and approved documents

Chapter 1 Scope and Administration

~~SECTION 101~~ Title, Scope and Purpose of the Document

~~SECTION 102~~ Applicability of the Code

~~SECTION 103~~ Establishes Department of Building Safety

~~SECTION 104~~ Duties and Powers of the Building Official

~~SECTION 105~~ Requirements for Permits

~~SECTION 106~~ Requirements for Construction Documents

~~SECTION 107~~ Requirements for Construction Documents

Chapter 1 Scope and Administration

~~SECTION 108~~ Fees. *No more fees!*

~~SECTION 109~~ Inspection Requirements


~~SECTION 110~~ Requirements for Occupancy

~~SECTION 111~~ Utility Connections

~~SECTION 112~~ Board of Appeals.

~~SECTION 113~~ Violations of the Code.

~~SECTION 114~~ Stop Work Orders



Just kidding!

Quiz

True or False?

An addition to an existing structure shall conform to the requirements of a new structure.


Quiz

With regards to a Certificate of Occupancy,

- A. The Building Official may issue a Conditional Certificate of Occupancy while prior code violations are being corrected.
- B. The certificate shall not be construed as an approval of a violation of the provisions of the code.
- C. All accessory and incidental buildings shall comply with the requirements for Certificates of Occupancy.

Chapter 1 Scope and Administration

**Questions?
Comments?
Discussion?**



Chapter 2 Overview

Definitions

Chapter 2 Definitions

Definitions are essential to the correct interpretation of the code

The user may not be aware that a particular term encountered in the text has a special definition found herein...

Or a term commonly used in the field has a different meaning in this code!

Chapter 2 Definitions

SECTION 201 Describes how the definitions work, as well as their interchangeability.

It also addresses terms defined in other codes, and terms not defined at all.

SECTION 202 Lists the definitions themselves


Quiz

The officer or other designated authority charged with the administration and enforcement of this code is known as the

- A. Code Enforcement Officer
- B. Municipal Inspector
- C. Building Official

Chapter 2 Definition

**Questions?
Comments?
Discussion?**



Chapter 3 Overview

Building Planning

Chapter 3 Building Planning

Chapter 3 is a compilation of the code requirements specific to the building planning sector of the design and construction process.

Some of the items addressed in this part are:

- o Material limitations
- o Snow, wind and seismic design
- o Flood resistance
- o Fire resistance
- o Emergency egress and rescue openings
- o Smoke alarms
- o Use of foam plastics and other insulating materials

Chapter 3 Building Planning

This chapter also sets forth requirements dealing with:

- o Light
- o Ventilation
- o Sanitation
- o Room size
- o Ceiling height
- o Environmental comfort
- o Use of foam plastics and other insulating materials

Chapter 3 Building Planning

Some of the life safety provisions included here are:

- o Limitations on glazing in hazardous areas
- o Use of guards at elevated surfaces
- o Basic rules for egress systems

Chapter 3 Building Planning

To sum it all up, Chapter 3 provides guidelines for a minimum level of structural integrity, life safety, fire safety, and livability for inhabitants of dwelling units regulated by the code.

Chapter 3 Building Planning

So let's take a look at how we find our way around this extensive chapter.

Chapter 3 Building Planning

- SECTION 301** Loads -- dead, live, roof, floor, snow, wind, seismic
- SECTION 302** Fire resistance
- SECTION 303** Light, ventilation, heating requirements
- SECTION 304** Minimum room areas
- SECTION 305** Ceiling heights
- SECTION 306** Sanitation
- SECTION 307** Toilet, bath, and shower spaces

Chapter 3 Building Planning

- SECTION 308** Glazing, site built windows, skylights
- SECTION 309** Garages and carports
- SECTION 310** Emergency escape and rescue openings
- SECTION 311** Means of egress, hallways, stairs, and ramps
- SECTION 312** Guards
- SECTION 313** Automatic sprinkler systems
- SECTION 314** Smoke alarms

Chapter 3 Building Planning

- SECTION 315** Carbon monoxide (CO) alarms
- SECTION 316** Use of foam plastic
- SECTION 317** Decay protection for wood products
- SECTION 318** Termite protection
- SECTION 319** Premise identification
- SECTION 320** Accessibility requirements
- SECTION 321** Elevators and platform lifts

Chapter 3 Building Planning

- SECTION 322** Flood resistant construction
- SECTION 323** Storm shelters

Quiz

Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of...

Quiz


For new construction, an approved carbon monoxide alarm shall be installed...

Quiz

When floor assemblies are required to be fire resistance rated in accordance with R302.3, the supporting construction...

Chapter 3 Building Planning

**Questions?
Comments?
Discussion?**



Chapter 4 Overview

Foundations

Chapter 4 Foundations

This chapter provides prescriptive requirements for constructing footings and walls for foundations of wood, masonry, concrete, and precast concrete.

In addition to the foundations ability to support the design loads, this chapter addresses several other factors that can affect foundation performance.

Chapter 4 Foundations

These include:

- o Controlling surface water and subsurface drainage
- o Requiring soil tests where conditions warrant
- o Evaluating proximity to slopes
- o Minimum depth requirements

Chapter 4 Foundations

Chapter 4 also provides requirements to minimize adverse effects of moisture, decay and pests in basements and crawl spaces.

Chapter 4 Foundations

- SECTION 401** Scope and applicability
- SECTION 402** Material requirements
- SECTION 403** Footings
- SECTION 404** Foundation walls

Chapter 4 Foundations

- SECTION 405** Drainage
- SECTION 406** Protecting below grade spaces from moisture
- SECTION 407** Under floor areas and protecting columns
- SECTION 408** Ventilation, access, debris and flood resistance

Quiz

A construction project is proposed in an area that is known to have expansive soils comprising sedimentary and foliated rock. The presumptive load bearing value of this soil composition is

- A. 12,000 pounds per square foot
- B. 4,000 pounds per square foot
- C. 3,000 pounds per square foot

Quiz


Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of...

Quiz

Does section 408 require that all spaces between the bottom of floor joists and the earth under any building have ventilation openings?

Chapter 4 Foundations

**Questions?
Comments?
Discussion?**



Chapter 5 Overview

Floors

Chapter 5 Floors

This chapter covers four different types of floors.

- o Wood floor framing
- o Wood floors on the ground
- o Steel floor framing
- o Concrete slabs on the ground

Chapter 5 Floors

Allowable span tables are provided to simplify the determination of joist, girder and sheathing sizes for raised wood and steel floors

Chapter 5 also contains prescriptive requirements for attaching a deck to the main building

Chapter 5 Floors

The primary considerations of this chapter are

- o The structural integrity of the floor system
- o Fire resistance of floors that separate dwelling units in multi-family buildings

Chapter 5 Floors

The floor must also serve as a diaphragm to resist lateral loads from earthquakes or wind

Floors that are designed and constructed IAW this chapter will perform that function

Chapter 5 Floors

- SECTION 501** Performance requirements of floor systems
- SECTION 502** Wood floor framing
- SECTION 503** Floor sheathing
- SECTION 504** Wood floors on ground
- SECTION 505** Steel floor framing
- SECTION 506** Concrete slab-on-ground floors

Quiz

Where positive connection of a deck to the primary building structure cannot be verified during inspection, decks shall be...


Quiz

The maximum allowable span for a cold-formed steel joist (single span, designation 1000S162-97) that must support a 40 psf live load at 16 inches on center spacing is

- A. 21 feet, 10 inches
- B. 24 feet, 1 inch
- C. 13 feet, 4 inches

Chapter 5 Floors

Questions? Comments? Discussion?



Chapter 6 Overview

Wall Construction

Chapter 6 Wall Construction

This chapter covers five different types of wall construction.

- o Wood framed
- o Steel framed
- o Masonry
- o Concrete
- o Structural Insulated Panels (SIPs)

Chapter 6 Wall Construction

This primary concerns of this chapter are

- o Structural integrity
- o Transfer of loads to the supporting structure

Chapter 6 Wall Construction

There are two primary load categories that walls are exposed to

- o Vertical Loads
(Live loads, dead loads, and snow loads)
- o Lateral Loads
(Wind and seismic loads)

Chapter 6 Wall Construction

Certain interior walls are designed to resist these lateral loads and are discussed in detail in this chapter.

Chapter 6 Wall Construction

Chapter 6 also contains

Requirements for vapor retarders to control moisture in walls;

Regulations and performance criteria for exterior windows and doors, and vehicle access doors.

Chapter 6 Wall Construction

SECTION 601 Scope, vapor retarders

SECTION 602 Wood wall framing

SECTION 603 Steel wall framing

SECTION 604 Wood structural panel sheathing

SECTION 605 Particle board used as sheathing

SECTION 606 Masonry wall construction

SECTION 607 Unit masonry walls

Chapter 6 Wall Construction

SECTION 608 Multiple-wythe masonry

SECTION 609 Grouted masonry

SECTION 610 Glass unit masonry

SECTION 611 Concrete stay-in-place or removable forms

SECTION 612 Exterior windows and doors

SECTION 613 Structural insulated panels (SIPs)

Quiz

A type of material that is acceptable as a Class III vapor retarder is


- A. Sheet polyethylene
- B. Kraft faced fiberglass batts
- C. Latex or enamel paint

Quiz

For a load-bearing wall, the maximum 2 x 4 stud spacing for a wall that is supporting one floor plus a roof-ceiling assembly is...

Chapter 6 Wall Construction

Questions? Comments? Discussion?



Chapter 7 Overview

Wall Coverings

Chapter 7 Wall Coverings

This chapter requirements for both interior and exterior wall coverings.

Interior wall coverings may serve simple aesthetic purposes to provide interior finish.

They may also protect the structure from impact or moisture damage.

Chapter 7 Wall Coverings

Exterior wall coverings provide the weather resistant shield that protects the building's interior construction.

New materials and methods are being introduced every day. These provide opportunities for improved insulating qualities, sound control and fire resistance, as well as offering new cosmetic appearances.

Chapter 7 Wall Coverings

The primary concerns of the code are to address not only structural integrity, but to assure that application methods of these material conform to the referenced standards.

Chapter 7 Wall Coverings

- SECTION 701** Scope, weather protection of wall coverings
- SECTION 702** Materials and application for interior walls
- SECTION 703** Exterior wall coverings and weather barriers

Quiz

True or False?

Staples are not permitted to be used as fasteners for attaching exterior wood shakes and shingles.

Quiz


The applicant wants to install an anchored masonry veneer siding with a nominal thickness of 2 inches thick directly to the exterior sheathing.

Is this permissible?

Yes or No?

Chapter 7 Wall Coverings

Questions?
Comments?
Discussion?



Chapter 8 Overview

Roof-ceiling Construction

Chapter 8 Roof-ceiling Construction

Roof structures must provide for the support of live loads and snow loads, as well as to provide transfer of these loads to the supporting walls.

Chapter 8 Roof-ceiling Construction

Ceilings not only support lateral loads, they must also support the weight of any construction placed on top of them, and any materials stored on them.

Chapter 8 Roof-ceiling Construction

Attics must be identified as "no storage" or "limited storage" zones so that ceiling joists can be appropriately sized.

Allowable span tables are provided in the code to simplify the selection of rafter and ceiling joist size for wood and steel framed structures.

Chapter 8 Roof-ceiling Construction

Roofs must also resist wind uplift. The code prescribes methods for to provide for this, including tie downs where necessary.

Sheathing is also addressed in the code, as it must resist lateral loads from wind and earthquakes.

Chapter 8 Roof-ceiling Construction

Finally, Chapter 8 provides requirements for ceiling finishes, ventilation of concealed spaces, unvented attic assemblies and attic access.

Chapter 8 Roof-ceiling Construction

- SECTION 801** Scope, roof-ceiling performance requirements
- SECTION 802** Wood roof-ceiling framing
- SECTION 803** Roof sheathing
- SECTION 804** Steel roof-ceiling framing
- SECTION 805** Ceiling finishes
- SECTION 806** Venting, and unvented attics
- SECTION 807** Attic access

Quiz

When attic access is required, the rough framed opening shall not be less than...


Quiz

Wood truss members shall not be cut, notches, drilled, spliced, or otherwise altered in any way without the approval of

- A. The Building Official
- B. A registered design professional
- C. The truss manufacturer

Chapter 8 Roof-ceiling Construction

**Questions?
Comments?
Discussion?**



Chapter 9 Overview

Roof Assemblies

Chapter 9 Roof Assemblies

Roof assemblies include the

- o Roof deck
- o Vapor retarder
- o Substrate or thermal barrier
- o Insulation
- o Roof covering

This chapter also provides for wind resistance

Chapter 9 Roof Assemblies

A small portion of this chapter regulates the fire classification of roof covering materials, however, the major emphasis is the materials and installation methods that will result in a weather tight exterior surface.

This chapter also provides for wind resistance.

Chapter 9 Roof Assemblies

Chapter 9 contains specific requirements for various types of roof covering materials.

These may place limitations on roof slope, identify proper attachment methods, mandate the use of underlayment and address flashing at appropriate points.

Chapter 9 Roof Assemblies

Roof drainage and reroofing operations are also addressed.

Chapter 9 Roof Assemblies

SECTION 901 Scope, materials and quality of construction
SECTION 902 Fire classifications
SECTION 903 Weather protection, flashing, drainage
SECTION 904 General requirements for roofing materials
SECTION 905 Regulations for specific materials
SECTION 906 Above deck thermal insulation
SECTION 907 Reroofing

Quiz

A double underlayment application is required


- A. When installing asphalt shingles on roofs with slopes between 2:12 and 4:12.
- B. When installing metal roof panels
- C. Never

Quiz

When recovering a roof that has two or more existing applications of any type of roof covering, the code requires...

Chapter 9 Roof Assemblies

Questions?
Comments?
Discussion?



Chapter 10 Overview

Chimneys and Fireplaces

Chapter 10 Chimneys and Fireplaces

Chapter 10 regulates two basic types of chimneys and fireplaces.

- o Factory built units
- o Those built on site of masonry and other approved materials

Chapter 10 Chimneys and Fireplaces

The chapter also contains provisions for unvented gas log heaters.

Chapter 10 Chimneys and Fireplaces

- SECTION 1001** Masonry fireplaces
- SECTION 1002** Masonry heaters
- SECTION 1003** Masonry chimneys
- SECTION 1004** Factory built fireplaces, unvented log heaters
- SECTION 1005** Factory built chimneys
- SECTION 1006** Exterior air supply for fireplaces

Quiz

Both factory built and masonry fireplaces shall be equipped with exterior air supply to assure proper fuel combustion unless the room is mechanically ventilated and controlled so that indoor pressure is neutral or positive.


True or False?

Quiz

Table 1003.15.2 is used to determine...

Chapter 10 Chimneys and Fireplaces

Questions?
Comments?
Discussion?



OK... Let's put this book to work!

What chapter will we use to answer questions about a radiant slab?

OK... Let's put this book to work!

When attaching plywood to the exterior side of below grade wall studs, what type of fasteners are required?

OK... Let's put this book to work!

What two directives must be followed when installing precast concrete foundation components?

OK... Let's put this book to work!

The under floor grade shall be cleaned of all vegetation and organic material. All wood forms for placing concrete shall be removed before a building is occupied or used for any purpose. All construction materials shall be removed before a building is occupied or used for any purpose.


WHY?

OK... Let's put this book to work!

How would I find out if lateral support is required for concrete foundation walls?

Navigating the Code

What is a Registered Design Professional?



Navigating the Code

What exactly does the code mean in the term, "Building Planning"?

Navigating the Code

Where in the code would you look to find design criteria with regards to snow loads and wind loads?

Navigating the Code

What is the requirement for fire stopping on a stairway?

Navigating the Code

On a building inspection, you observe electrical and plumbing penetrations through floors and ceilings which have not been sealed. The builder insists that they are not required to be sealed.

You make the call. Are they required to be sealed? If so, what code will you cite to prove your decision?

Navigating the Code

Is there a minimum required glazing area in each habitable room?

Navigating the Code

Every dwelling unit shall have at least one habitable room with a minimum floor area of at least 120 square feet.

TRUE OR FALSE?

Navigating the Code

What is the minimum ceiling height required in the portion of a basement area that does not contain habitable space, hallways, bathrooms or laundry rooms?

Navigating the Code

Multiple Choice

When a garage is attached to a dwelling unit,

- a. The garage must have at least one operable window
- b. The garage must not be airtight
- c. A carbon monoxide alarm must be installed in the dwelling unit

Navigating the Code

Work requiring a permit is being done in an existing dwelling. The dwelling has a fuel fired appliance. The work does not involve the fuel fired appliance in any way. As a result of this work, the dwelling must be fitted with a carbon monoxide detector.

True or False?

Navigating the Code

Where pressure treated wood is required for resistance to decay, any field cut ends, notches and drilled holes must be retreated.

True or False?

OK... Got it?

Now we'll step it up a notch!

Stepping it up!

A floor has a design live load of 40 psf and a dead load of 10 psf. The joist span is 14 feet, 0 inches. What is the minimum required joist size using #2 Douglas fir, and a joist spacing of 16 inches.

Stepping it up!

Facing materials for structural insulated panels shall be

- a. High density closed cell foam
- b. Wood structural panels
- c. 4 mil poly exterior and gypsum interior

Stepping it up!

Truss design drawings shall be _____

- a. provided to the building official and approved prior to installation.
- b. endorsed by a registered engineer
- c. maintained on file with the building

Stepping it up!

When two or more flues are located within the same chimney, _____ shall be built between adjacent flue linings.

This Time, You Get To Ask the Questions!

Questions?
Comments?
Discussion?

