

# CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS

## Policy Session Worksheet

**Presentation Date:** 11/5/19 **Approximate Start Time:** 2 pm **Approximate Length:** 30 min.

**Presentation Title:** Proposed Amendments to County Code Chapters 9.02 and 9.03

**Department:** Transportation & Development – Building Codes Division

**Presenters:** Cheryl Bell, *DTD Assistant Director*, Matt Rozzell, *Building Codes Administrator*

**Other Invitees:** Dan Johnson, *DTD Director*, Nathan Boderman, *Assistant County Counsel*; Elizabeth Bunga, *Deputy Building Codes Administrator*; Jennifer Hughes, *Planning Director*; Lindsey Nesbitt, *Current Planning Manager*

### WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?

Board approval to move forward with the process of adopting proposed amendments to County Code Chapter 9.02, *Application and Enforcement of the Clackamas County Building Code* (Attachment 2), and Chapter 9.03, *Excavation and Grading* (Attachment 3) to maintain the current level of service and consistency for our customers.

### EXECUTIVE SUMMARY:

The purpose of this policy session is to present to the Board proposed amendments to County Code Chapter 9.02, *Application and Enforcement of the Clackamas County Building Code* (Attachment 2), and Chapter 9.03, *Excavation and Grading* (Attachment 3).

The revisions to Chapter 9.02 are proposed to address critical changes made by the State Building Codes Division (State BCD) to *Chapter 1- Scope and Administration* (Chapter 1) of the commercial building code (Oregon Structural Specialty Code or OSSC) and the residential building code (Oregon Residential Specialty Code or ORSC).

Additionally, staff proposes minor updates to County Code Chapter 9.03, *Excavation and Grading*, to update language to correspond with the current State code.

### BACKGROUND

#### **The State Building Code**

As part of the Department of Transportation and Development's Land Use and Development line of business, Clackamas County administers a building codes program for unincorporated Clackamas County and, with intergovernmental agreements, select cities. The county is mandated to maintain a building code program by ORS 455.020, with the program delegated to the County from the State Building Codes Division (State BCD) through OAR 918-020.

On August 30, 2019 the State BCD issued a notice of rulemaking that revises the administrative provisions of the residential code, and in October 2019 State BCD adopted a new commercial code with the same changes included in the Code's scoping provisions.

## **New State Building Codes *Chapter 1 –Scope and Administration***

As presented to the Board in a policy session on Sept. 24, 2019, the extensive changes by the State BCD to the administrative provisions of the building codes, referred to as *Chapter 1- Scope and Administration* (Chapter 1), require action at the local level to maintain current interdisciplinary coordination, business practices and service levels.

The changes to Chapter 1 fall into three categories:

1. **Technical items** proposed to be excluded from the code (e.g., regulation on construction of new communication towers, retaining walls, and tanks not supported by buildings)
2. **Changes that revise the authority of the building code** when addressing code enforcement actions on building code violations; and
3. **Removal of the requirement to reference “other ordinances of the municipality”** when reviewing for issuance of permits or certificates of occupancy.

To keep these critical elements as part of the building codes program, and maintain building codes and permitting process as they have been since the development of the building code, local jurisdictions must adopt *Scope and Administration* provisions (language taken from the original Chapter 1) in their local codes.

While preparing the proposed amendments to County Code, staff also took the opportunity to make needed minor changes to Chapter 9.03, which covers the grading ordinance (outlined below in Category 4).

### **Proposed Amendments to County Code Chapters 9.02 and 9.03**

#### ***Categories 1 and 2: Reestablishing Technical Items and Code Enforcement Authority***

The revised state code Chapter 1 language changes the scope of the building code’s authority regarding technical items and code enforcement action that is a departure from practices in place since building codes were established in 1974.

The revisions are driven by the State’s desire to have the building code focus specifically and only on buildings under construction, or elements under construction that directly impact buildings. In doing this, the code removes regulation of items like new communications towers, retaining walls, private access bridges, and exterior tanks holding fuel, industrial chemicals, etc.

The building code’s change in focus also led to the removal of the right-of-entry provisions and removal of the clear authority to require that building code violations be abated. This weakens our ability to use building codes to obtain compliance of building code violations.

The proposed amendments to County Code Chapter 9.02 reestablish the technical elements to be consistent with model code, previous practice, and other metro area and state jurisdictions, providing important consistency for our customers. The proposed amendments also add back model code language to allow for right-of-entry and authority for building code enforcement related to code violations.

#### ***Category 3: Reestablishing the Tie between Permits, Occupancy Certificates and Other Ordinances***

In model code and previous versions of the state building codes, the sections governing the issuance of permits and certificates of occupancy included language noting that issuance can be conditional based upon consideration of "other ordinances of the municipality."

The State's revisions to Chapter 1 remove all references to these other requirements, making issuance of permits and occupancy certificates *contingent only upon the requirements of the building code*. This would decouple the current, long-standing process where approval of issuance is tied to a variety of reviews, including:

- Zoning and development code,
- Roadway standards governing site development and site access,
- Adequate connection to septic or sanitary systems,
- Health Department permitting and inspections; and
- Payment of SDC fees.

The proposed Chapter 9.02 amendments maintain the tie between issuance of permits and certificates of occupancy and compliance with other ordinances. Not re-establishing this pairing could force staff to issue permits in violation of other important land use, zoning, access, roadway and health safety provisions. This could result in having to put properties that do not meet these other ordinances immediately into code enforcement action, rather than working with customers so they can come into compliance during permitting and plan review.

This forced path to code enforcement would increase costs, increase staff time and provide poor consultation and service to our customers. In addition, it could place properties in an expensive or dangerous position of having permits or certificates of occupancy issued when important land use, zoning, and other safety provisions are not included or provided in the project scope.

There could also be significant financial impacts, as outlined in the financial section of this worksheet.

#### ***Addressing Category 4: Minor Changes***

- **Grading ordinance.** When Chapter 9.03 was written, the text of an optional building code appendix was put directly into County Code. The proposed changes to Chapter 9.03 directly adopt Building Code Appendix J, with amendments as presented in Attachment 3, in lieu of reproducing the text of the appendix in the body of the County Code. This allows for Chapter 9.03 to use current code language each time a new code is adopted, without revising the County Code itself.

#### **Questions from September 24, 2019 Policy Session**

At the end of the September policy session with the Board, staff were asked to respond to a series of questions regarding this proposal.

##### ***1 - Who does this action impact?***

The changes to Chapter 1 will affect any customer permitting a structure in the County's jurisdiction. Without making the proposed changes, our customers would have to work with regulations different from long standing practice, from national building codes, and from the code practices of metro area jurisdictions. The metro area building officials have worked collaboratively to develop a consistent approach to addressing the Chapter 1 changes, so customers across the area receive the consistent service they have counted upon for years.

Customers and staff would also be significantly impacted if the proposed County Code amendments are not adopted, as noted above.

**2 – Do these changes make permitting easier or the process better?**

Development customers value consistency when creating a project, since knowing what to expect is essential in developing project timelines and project costs. The proposed amendments would provide consistency with the metro region, national codes, and past practice.

By adjusting County Code to maintain current practices, permitting processes will not be impacted. If the changes are not made, more complex systems will need to be developed to ensure that other technical items are reviewed, code enforcement actions can proceed and ordinances are enforced. This would complicate the permitting process and add procedures for customers.

**3 – Do these actions reduce the cost of housing?**

As noted in the response to question 2 above, inconsistency in process can directly impact project timelines and costs, which would impact all projects including affordable housing. For affordable housing projects, development of infrastructure is key in supporting the addition of new housing units. If the County Code changes are not made and payment of TSDC fees cannot be a condition of permitting, the inability to collect fees could negatively impact infrastructure development that is critical for building affordable housing.

**4 – Should these changes be made?**

Staff recommends the proposed amendments be moved forward for adoption to maintain consistent practices, ensure the ability to use the building code to pursue code enforcement actions, and provide a mechanism to tie issuance of permits and certificates of occupancy to other ordinances.

**Timing is Key**

The notice of rulemaking for the residential code was published by the State BCD on August 30, 2019, with the comment period closing on September 20, 2019. The new commercial code, with the same changes to its Chapter 1, went into effect October 1, 2019.

The State BCD enacted a “grace period” allowing the previous Chapter 1 of each code to remain in effect, with the technical, code enforcement, and links to other ordinances in place, but this **grace period ends January 1, 2020**. Due to the decreased length of notice from State BCD, and the narrow window to make changes, there is limited time to move the proposed changes to County Code following the adoption process (first and second readings).

**Future Action**

If staff’s recommendation to move forward with the adoption process for the amendments to Chapters 9.02 and 9.03 of the County Code (as proposed in Attachments 2 and 3) is supported by the Board, staff will prepare for first reading of the amendments during the November 27, 2019 Business Meeting, with a second reading during the December 12, 2019 Business Meeting.

Staff would also propose including minor housekeeping updates as part of the amendments to Chapters 9.02 and 9.03. The proposed changes would be in update County Code to correspond with the current State building code language, and to provide a definition of “processing” when addressing agricultural exempt structures.

**FINANCIAL IMPLICATIONS (current year and ongoing):**

Is this item in your current budget?       YES       NO

**What is the cost?** The cost is comprised primarily of administrative staff time.

**What is the funding source?** The Building Code program is fully funded by fees for service.

**STRATEGIC PLAN ALIGNMENT:**

- **How does this item align with your Department’s Strategic Business Plan goals?**

The Land Use and Development line of business purpose includes providing “permitting services to residents, property owners, the development community and business so they can experience a safe, thriving and well-planned community, make informed decisions, invest and develop property.”

- **How does this item align with the County’s Performance Clackamas goals?**

Ensuring that all laws and ordinances are observed and enforced during issuance of permits and certificates of occupancy allows the County to “ensure safe, healthy and secure communities,” to “build a strong infrastructure” and building “public trust through good government.”

**LEGAL/POLICY REQUIREMENTS:**

The county is mandated to maintain a building code program by ORS 455.020, with the program delegated to the County through OAR 918-020. Oregon Administrative Rule section 455.020(4) allows the County to adopt *Scope and Administration* provisions into the County Code.

**PUBLIC/GOVERNMENTAL PARTICIPATION:**

County staff will coordinate with PGA to provide public notice, as required by law, for the proposed amendments to County Code Chapters 9.02 and 9.03, if approved to move the proposed amendments forward for adoption.

**OPTIONS:**

- (1) Direct staff to schedule a future policy session to continue discussion on the proposed amendments to Chapters 9.02 and 9.03 of the County Code.
- (2) Direct staff to discontinue this project and use only the *Chapter 1- Scope and Administrative* provisions as provided in the state building codes.
- (3) Direct staff to move forward with the adoption process for amendments to Chapters 9.02 and 9.03 of the County Code as proposed in Attachments 2 and 3.

**RECOMMENDATION:**

Staff respectfully recommends option 3, to direct staff to move forward with the adoption process for the amendments to Chapters 9.02 and 9.03 of the County Code as proposed in Attachments 2 and 3.

**ATTACHMENTS:**

1. Copy of State of Oregon Building Codes Division Notice of Rulemaking – Amendment to Oregon Residential Specialty Code
2. Draft amendments to County Code, Chapter 9.02
3. Draft amendments to County Code, Chapter 9.03
4. Summary of Scoping Provisions for Proposed Adoption
5. 2018 IBC Chapter 18 References
6. ASCE 7-16 Non-Building Structures

**SUBMITTED BY:**

Division Director/Head Approval \_\_\_\_\_

Department Director/Head Approval \_\_\_\_\_

County Administrator Approval \_\_\_\_\_

For information on this issue or copies of attachments, please contact Cheryl Bell @ 503-742-4721
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**Notice of Rulemaking Hearing**  
**Updated September 13, 2019**

**Amendment to Oregon Residential Specialty Code**

**Opportunity for public input:**

Those who would like to provide testimony should attend a public hearing on September 17, 2019, at 11:30 a.m. The hearing will be located at the Building Codes Division; Conference Room A. Written comments may also be submitted to Shannon Flowers, Rules Coordinator, at [Shannon.M.Flowers@Oregon.gov](mailto:Shannon.M.Flowers@Oregon.gov), or to the address below. The last day to submit written comments is 5:00 p.m. September 20, 2019.

**Live broadcast via the internet:**

To view the public hearing live, click on "[View live meeting](#)"

**Purpose of the rule:**

This proposed rule amends the Oregon Residential Specialty Code (ORSC) to align the cross referenced administrative scoping provisions of the 2017 ORSC with the administrative scoping provisions of the 2019 Oregon Structural Specialty Code (OSSC).

**Note:** A correction was made to the proposed amendments and posted September 13, 2019.

**Citation:**

Amend OAR 918-480-0010

This proposed rule would become effective October 1, 2019.

**History:**

The division anticipates adoption of the 2019 OSSC on October 1, 2019. Due to changes in the scope of the upcoming 2019 OSSC there would be confusing and misaligned references between the 2019 OSSC and the 2017 ORSC. These issues need to be resolved to ensure a smooth adoption of the 2019 OSSC and require a code amendment before the next scheduled code change for the ORSC in 2020. Additional scoping changes for the 2020 ORSC will be made as necessary during the code change process for that code.

**Contact:**

If you have questions or need further information, contact Richard Rogers, Chief Building Official, at 503.378.4472, or [Richard.Rogers@oregon.gov](mailto:Richard.Rogers@oregon.gov).



The purpose of this October 1, 2019 amendment to Chapter 1 of the 2017 Oregon Residential Specialty Code (ORSC) is to align with the adoption of the 2019 Oregon Structural Specialty Code (OSSC).

Consistent with the phase-in period for the OSSC, use of the unamended 2017 ORSC Chapter 1 or use of this 2019 amendment is permitted from October 1, 2019 to January 1, 2020.

## Part I Administration

# CHAPTER 1 SCOPE AND ADMINISTRATION

## SECTION R101 GENERAL

**R101.1 Title.** These provisions shall be known as the *Oregon Residential Specialty Code* and shall be cited as such and will be referred to herein as “this code.” Nothing in this code limits a local *municipality’s* ability to require application of its own ordinances, or to enforce its own ordinances.

**R101.2 Scope.** The *Oregon Residential Specialty Code*, as adopted by the State of Oregon, Building Codes Division, includes portions of the *International Residential Code* and the *International Fire Code* pertaining to any construction, reconstruction, alteration, repair, and installation of materials and equipment in or part of building and structures covered under the *state building code*.

1. The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use, occupancy and location of the following:
  - 1.1. Detached one- and two-family *dwelling*s and *townhouses* classified as Group R-3, and *accessory* Group U occupancies, not more than three stories above *grade plane* in height.
  2. ~~Detached one family residences used for family childcare home or foster care in accordance with ORS chapters 418, 443 and 657A.~~
  3. ~~Detached one family congregate living facilities (each accommodating 10 persons or less) and detached one-family lodging houses containing not more than five guest rooms.~~
  - 1.2. Detached owner-occupied *lodging houses* containing not more than five guest rooms.
  - 1.3. Residential aircraft hangars as defined in Section R202.
  - 1.4. Live/work units ~~located in townhouses and~~ complying with the requirements of Section 419 of the *Building Code* shall be permitted to be constructed in accordance with the *Residential Code*. Fire suppression required by Section 419.5 of the *Building Code* where constructed under this code shall conform to Section 903.3.1.3 of the *Building Code*.
2. Consistent with the purpose and scope of application of the *state building code* as authorized in ORS 455.020, this code shall not apply to the following:
  - 2.1. Public utility facilities owned and maintained by the serving utility.
  - 2.2. Agricultural buildings defined and regulated by ORS 455.315 and Appendix C in the *Building Code*.
  - 2.3. Abatement of nuisances and dangerous buildings.
  - 2.4. Demolition.
  - 2.5. Protection of adjoining property.
  - 2.6. Fences, other than required swimming pool barriers.
  - 2.7. Mechanical equipment not specifically regulated in this code.
  - 2.8. Retaining walls that do not provide safeguards for the users of the buildings; and do not support a regulated building; and do not retain material, which if not restrained, could impact a regulated building.
  - 2.9. Freestanding radio, television and other telecommunication antennae, and towers not attached to or supported by a regulated building.
  - 2.10. Ground-mounted photovoltaic arrays.
  - 2.11. Floating structures.
  - 2.12. Docks.
  - 2.13. Transitional housing accommodations.
  - 2.14. Administration and implementation of a National Flood Insurance Program (NFIP).
  - 2.15. Tanks that are located exterior to and not attached to or supported by a regulated building, and not serving a required automatic fire sprinkler system.
3. *Municipalities*, as defined in ORS 455.010(5), may establish administrative procedures in accordance with ORS 455.020(4), and may amend specific sections of Chapter 1, as identified throughout the chapter. *Municipalities* are permitted to enact local ordinances for the following:
  - 3.1. Abatement of nuisances and dangerous buildings.
  - 3.2. Demolition.
  - 3.3. Protection of adjoining property.
  - 3.4. Fences, other than required swimming pool barriers.
  - 3.5. Retaining walls that do not provide safeguards for the users of the buildings; and do not support a regulated building; and do not retain material, which if not restrained, could impact a regulated building.
  - 3.6. Freestanding radio, television and other telecommunication antennae, and towers not attached to or supported by a regulated building.
  - 3.7. Floating structures.
  - 3.8. Docks.
  - 3.9. Transitional housing accommodations.
  - 3.10. Administration and implementation of a National Flood Insurance Program (NFIP).
  - 3.11. Tanks that are located exterior to and not attached to or supported by a regulated building, and not serving a required automatic fire sprinkler system.



**R101.3 Owner-built dwellings.** For ~~exempt~~ owner-built dwellings and out-buildings exemptions, see ORS 455.320.

## SECTION R102 APPLICABILITY

ORS 455.320 is not part of this code but is reproduced here for the reader's convenience:

### 455.320 Owner-built dwellings exempt from certain structural code provisions; recording of exemption.

- (1) As used in this section, unless the context requires otherwise:
- “Owner” means the owner of the title to real property or the contract purchaser of real property, of record as shown on the last available complete assessment roll which person has not taken advantage of the exemptions under subsection (2) of this section during the five years prior to applying for an exemption under this section.
  - “Owner-built dwelling and outbuildings” means a single-family residence and adjacent auxiliary structures, the structural components of which are constructed entirely by the owner who intends to occupy the structures or by that owner and friends and relatives of the owner assisting on an unpaid basis.
- (2) Owner-built dwellings and outbuildings shall be exempt from any requirements of the structural code for ceiling heights, room sizes and the maintenance of specific temperature levels in those structures. The exemption shall apply to the new construction, renovation, remodeling or alteration of an owner-built dwelling or outbuilding.
- (3) A building permit issued for an owner-built dwelling or outbuilding shall note whether the owner-built dwelling or outbuilding complies with the requirements it is exempted from under subsection (2) of this section. If the dwelling or other structure does not comply with these requirements, the owner-builder shall file a copy of the building permit with the county clerk, who shall make the permit a part of the permanent deed record of the property.
- The owner shall provide the county clerk with a description of the property sufficient if it were contained in a mortgage of the property to give constructive notice of the mortgage under the law of this state.
- (4) Noncompliance with subsection (3) of this section shall not affect, in any manner, any conveyance of interest in property subject to this section. [Formerly 456.920]

**R101.4 Intent.** The purpose of this code is to establish minimum requirements to safeguard the public safety, health and general welfare through affordability, structural strength, means of egress facilities, stability, sanitation, light and ventilation, energy conservation and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

**R101.5 Statutory references.** This code is adopted pursuant to Oregon Revised Statutes (ORS). Where this code and the statutes specify different requirements, the statute shall govern. Statutes related to this code include, but are not limited to, ORS 455.010 through 455.895.

Statutes referenced may be obtained from the Building Codes Division, 1535 Edgewater St. NW, Salem, OR 97304 or P.O. Box 14470, Salem, OR 97309 at a nominal cost or read online at [Oregon.gov/bcd](http://Oregon.gov/bcd).

**R102.1 General.** Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

**R102.2 Other laws.** The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

**R102.3 Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

**R102.4 Referenced codes and standards.** The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R102.4.1 and R102.4.2.

**Exception:** Where enforcement of a code provision would violate the conditions of the *listing* of the *equipment* or *appliance*, the conditions of the *listing* and manufacturer's instructions shall apply.

**102.4.1 ASCE Standard 24 Flood Resistant Design and Construction.** The following ASCE Standard 24 Tables are not adopted by the State of Oregon as the subject matter encompasses Free Board, Base Flood Elevation and Design Flood Elevation. The authority to establish the same is reserved for local government:

- Table 2-1. “Elevation of Lowest Floor”
- Table 4-1. “Elevation of Bottom of Lowest Horizontal Structural Member”
- Table 5-1. “Elevation Below Which Flood-Damage-Resistant Materials Shall be Used”
- Table 6-1. “Elevation for Flood proofing”
- Table 7-1. “Minimum Elevation of Utilities and Equipment”

### Informational Note:

*Each local community participating in the National Flood Insurance Program (NFIP) designates a local Flood Plain Administrator who is responsible to make sure communities meet their insurance program obligations. Certain matters comprised within the NFIP program may conflict with or overlap with the State Building Code. Certain decisions such as sill plate height and other NFIP criteria fall under the authority and responsibility of the Flood Plain Administrator. Once decisions under the NFIP program are made, then the appropriate requirements of this code for the construction of the building are applied.*

*Local communities may choose to designate their local building official as the Flood Plain Administrator or may designate other staff. When a building official functioning in the capacity of Flood Plain Administrator exercises authority under the NFIP, such decisions are not part of this code nor subject to the building official duties and responsibilities as adopted by the Oregon Building Codes Division.*

Per ORS 455.210(3)(c), local communities are prohibited from using building permit monies for any matter other than administration and enforcement of the State Building Code. Administration and implementation of NFIP requirements are not part of the State Building Code.

**R102.4.2 Conflicts.** Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

**R102.4.3 Provisions in referenced codes and standards.** Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

**R102.5 Appendices.** Provisions in the appendices shall not apply unless specifically adopted as noted below.

**R102.5.1 Appendices adopted.** The following appendices are adopted as part of the *Oregon Residential Specialty Code*.

1. Appendix E (Manufactured Housing Used as Dwellings)
2. Appendix F (Radon Control Methods)
3. Appendix G (Swimming Pools, Spas and Hot Tubs)
4. Appendix H (Patio Covers)
5. Appendix K (Sound Transmission)
6. Appendix R (Light Straw-Clay Construction)
7. Appendix S (Strawbale Construction)
8. Appendix T (Dwelling Unit Fire Sprinkler Systems)

**R102.5.2 Appendices available for municipal adoption.** The following appendix is not adopted by the State of Oregon but may be adopted by local municipalities by local ordinance. Such adoptions shall comply with the requirements specified in the adopted appendix unless otherwise *approved* under the provisions of ORS 455.040.

1. Appendix J (Existing Building and Structures)

**102.5.3 Appendices not available for municipal adoption.** The following appendices are not adopted by the State of Oregon and municipalities may not adopt the same.

1. Appendix A (Sizing and Capacities of Gas Piping)
2. Appendix B (Sizing of Venting Systems Serving Appliances Equipped with Draft Hoods, Category 1 Appliances, and Appliances listed for use with Type B Vents)
3. Appendix C (Exit Terminals of Mechanical Draft and Direct-Vent Venting Systems)
4. Appendix D (Recommended Procedure for Safety Inspection of an Existing Appliance Installation)
5. Appendix I (Private Sewage Disposal)
6. Appendix L (Permit Fees)
7. Appendix M (Home Day Care—R-3 Occupancy)
8. Appendix N (Venting Methods)
9. Appendix O (Automatic Vehicular Gates)
10. Appendix P (Sizing of Water Piping System)
11. Appendix Q (RESERVED)
12. Appendix U [Solar-Ready Provisions—Detached One- and Two-Family Dwellings, Multiple Single-Family Dwellings (Townhouses)]

**OAR 918-008-0000** is not part of this code but is provided here for the readers' convenience:

**918-008-0000 Purpose and Scope**

- (1) The Department of Consumer and Business Services, Building Codes Division, adopts model building codes, standards and other publications by reference, as necessary, through administrative rule to create the State Building Code. When a matter is included in a specialty code or referenced publication that is in conflict with Oregon Revised Statutes or Oregon Administrative Rules, the statute or rule applies and the code or standard provision does not. All remaining parts or application of the code or standard remain in effect.
- (2) Unless required by law, matters generally not authorized for inclusion in a specialty code or referenced standard include, but are not limited to: licensing or certification requirements, or other qualifications and standards for businesses or workers; structures or equipment maintenance requirements; matters covered by federal or state law; and matters that conflict with other specialty codes or publications adopted by the department.
- (3) OAR 918-008-0000 to OAR 918-008-0070 provides the process for adopting and amending the State Building Code that is consistent across all program areas.
- (4) The State Building Code is derived from the most appropriate version of base model codes, which are updated periodically.
- (5) The Oregon specialty code amendment process begins approximately midway into a code cycle.
- (6) An appropriate advisory board approves or forwards the adoption of the Oregon specialty code and amendments to the Department for adoption.
- (7) Notwithstanding sections (3) through (6) of this rule, the division may adopt supplemental code amendments as authorized by OAR 918-008-0028.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 447.020, 455.030 & 479.730

Stats. Implemented: ORS 447.020, 455.030 & 479.730

Hist.: BCD 26-1994, f. & cert. ef. 11-15-94; BCD 6-1997, f. &

cert. ef. 4-1-97; BCD 3-2006(Temp), f. & cert. ef. 3-1-06 thru 827-06; BCD

9-2006, f. 6-30-06, cert. ef. 7-1-06; BCD 1-2014, f. 1-22-14, cert. ef. 4-1-14

**R102.6 Partial invalidity.** In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

**R102.7 Existing structures.** The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, ~~unless an unsafe condition is identified by the building official.~~

**R102.7.1 Additions, alterations or repairs.** *Additions, alterations* or repairs (excluding ordinary repairs) to any structure shall conform to the requirements for a new structure without requiring the existing structure to comply with the requirements of this code, unless otherwise stated. *Additions, alterations, repairs* and relocations shall not cause an existing structure to become unsafe or adversely affect the performance of the building.

An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded; will not provide adequate egress in compliance with the provisions of this code or will obstruct existing exits; will create a fire hazard; will reduce required fire resistance; or will otherwise create

conditions dangerous to human life. Any building plus new additions shall not exceed the height and stories specified for new buildings in Section R101.2.

**Exception:** Structural changes which improve the resistance of the building to seismic forces may be made without complying with the current code requirements providing:

1. The strength of the existing structural elements is not reduced; and
2. An unsafe condition is not created.

**R102.7.2 Conversions to permanent dwellings.** As authorized by Enrolled House Bill 2333 of the 2019 Oregon Legislative session, recreational vehicles which are being converted to permanent *dwellings* shall be inspected by the local *municipality* and shall either conform to all applicable provisions of this code, or shall otherwise obtain necessary approvals as determined and authorized by the local *building official*.

**SECTION R103  
DEPARTMENT OF BUILDING SAFETY**

(Not adopted by the State of Oregon, Building Codes Division, as part of the *state building code*.)

**SECTION R104  
DUTIES AND POWERS OF THE BUILDING OFFICIAL**

The requirements of Sections R104.1 and R104.3 shall apply unless specifically amended by a local *municipality* under the authority of ORS 455.020.

**R104.1 General.** The *building official* is hereby authorized and directed to enforce the provisions of this code. The *building official* shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this code. ~~Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code, statewide alternate methods, or statewide code interpretations.~~

Consistent with discretionary decision-making powers granted to *building officials*, a *building official* may take any action including but not limited to waiving a requirement, modifying a requirement and/or accepting an alternate method to the requirements of this code. When waiving or accepting a modification, a *building official* shall not allow a provision that would create an imminent threat to public health or safety, and may not enforce requirements that are in addition to this code.

**R104.2 Applications and permits.** The *building official* shall receive applications, review *construction documents* and issue *permits* for the erection, *alteration* and moving of buildings and structures, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.

**R104.3 Notices and orders.** The *building official* shall issue necessary notices or orders to ensure compliance with this code.

**R104.4 Inspections.** The *building official* shall make the required inspections, or the *building official* shall have the authority to accept reports of inspection by *approved agencies* or individuals.

Reports of such inspections shall be in writing and be certified by a responsible officer of such *approved agency* or by the responsible individual. The *building official* is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise.

**R104.5 Identification.** Not adopted by the State of Oregon.

**R104.6 Right of entry.** Not adopted by the State of Oregon, Building Codes Division, as part of the *state building code*. ~~Where it is necessary to make an inspection to enforce the provisions of this code, or where the *building official* has reasonable cause to believe that there exists in a structure or upon a premises a condition that is contrary to or in violation of this code that makes the structure or premises unsafe, dangerous or hazardous, the *building official* or designee is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the *building official* shall first make a reasonable effort to locate the owner, the owner's authorized agent, or other person having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall have recourse to the remedies provided by law to secure entry.~~

**R104.7 Department records.** The *building official* shall keep official records, as dictated by OAR 166-150-0020 where a county has jurisdiction; OAR 166-200-0025 where a city has jurisdiction; and OAR 166 Division 300 et al., for the cities and counties where the State of Oregon has jurisdiction. Such records shall be retained in the official records for the period required for the retention of public records.

**R104.8 Liability.** See ORS 30.265 for regulations relating to liability.

ORS 30.265 is not a part of this code but is reproduced here for the reader's convenience:

**ORS 30.265 Scope of liability of public body, officers, employees and agents; liability in nuclear incident.**

- (1) Subject to the limitations of ORS 30.260 to 30.300, every public body is subject to civil action for its torts and those of its officers, employees and agents acting within the scope of their employment or duties, whether arising out of a governmental or proprietary function or while operating a motor vehicle in a ridesharing arrangement authorized under ORS 276.598.
- (2) The sole cause of action for a tort committed by officers, employees or agents of a public body acting within the scope of their employment or duties and eligible for representation and indemnification under ORS 30.285 or 30.287 is an action under ORS 30.260 to 30.300. The remedy provided by ORS 30.260 to 30.300 is exclusive of any other action against any such officer, employee or agent of a public body whose act or omission within the scope of the officer's, employee's or agent's employment or duties gives rise to the action. No other form of civil action is permitted.
- (3) If an action under ORS 30.260 to 30.300 alleges damages in an amount equal to or less than the damages allowed under ORS 30.271, 30.272 or 30.273, the sole cause of action for a tort committed by officers, employees or agents of a public body acting within the scope of their employment or duties and eligible for representation and indemnification under ORS 30.285 or 30.287 is an action against the public body. If an

action is filed against an officer, employee or agent of a public body, and the plaintiff alleges damages in an amount equal to or less than the damages allowed under ORS 30.271, 30.272 or 30.273, the court upon motion shall substitute the public body as the defendant. Substitution of the public body as the defendant does not exempt the public body from making any report required under ORS 742.400.

- (4) If an action under ORS 30.260 to 30.300 alleges damages in an amount greater than the damages allowed under ORS 30.271, 30.272 or 30.273, the action may be brought and maintained against an officer, employee or agent of a public body, whether or not the public body is also named as a defendant. An action brought under this subsection is subject to the limitations on damages imposed under ORS 30.271, 30.272 or 30.273, and the total combined amount recovered in the action may not exceed those limitations for a single accident or occurrence without regard to the number or types of defendants named in the action.
- (5) Every public body is immune from liability for any claim for injury to or death of any person or injury to property resulting from an act or omission of an officer, employee or agent of a public body when such officer, employee or agent is immune from liability.
- (6) Every public body and its officers, employees and agents acting within the scope of their employment or duties, or while operating a motor vehicle in a ridesharing arrangement authorized under ORS 276.598, are immune from liability for:
- Any claim in connection with the assessment and collection of taxes.
  - Any claim in connection with the assessment and collection of taxes.
  - Any claim based upon the performance of or the failure to exercise or perform a discretionary function or duty, whether or not the discretion is abused.
  - Any claim that is limited or barred by the provisions of any other statute, including but not limited to any statute of ultimate repose.
  - Any claim arising out of riot, civil commotion or mob action or out of any act or omission in connection with the prevention of any of the foregoing.
  - Any claim arising out of an act done or omitted under apparent authority of a law, resolution, rule or regulation that is unconstitutional, invalid or inapplicable except to the extent that they would have been liable had the law, resolution, rule or regulation been constitutional, valid and applicable, unless such act was done or omitted in bad faith or with malice.
- (7) This section applies to any action of any officer, employee or agent of the state relating to a nuclear incident, whether or not the officer, employee or agent is acting within the scope of employment, and provided the nuclear incident is covered by an insurance or indemnity agreement under 42 U.S.C. 2210.
- (8) Subsection (6)(c) of this section does not apply to any discretionary act that is found to be the cause or partial cause of a nuclear incident covered by an insurance or indemnity agreement under the provisions of 42 U.S.C. 2210, including but not limited to road design and route selection. [1967 c.627 §§2,3,10; 1969 c.429 §1; 1975 c.609 §12; 1977 c.823 §2; 1981 c.490 §4; 1985 c.731 §31; 1987 c.705 §7; 1991 c.861 §1; 2005 c.22 §19; 2007 c.803 §4; 2011 c.270 §1]

**R104.9 Approved materials and equipment.** Materials, *equipment* and devices *approved* by the *building official* shall be constructed and installed in accordance with such approval.

**R104.9.1 Used materials and equipment.** Used materials, *equipment* and devices shall not be reused unless *approved* by the *building official*. Used or salvaged dimensional lumber shall be permitted to be used in accordance with all of the following:

- Used or salvaged dimensional lumber shall be in generally good condition and free of any obvious areas of decay.
- Where used or salvaged dimensional lumber is identified by a grade mark or where a certificate of inspection is provided from a lumber grading or inspection agency *approved* by an accreditation body that complies with DOC PS 20, structural properties for the used or salvaged lumber shall be as determined by the *approved* agency in accordance with the grade stamp or certificate provided.

**Exception:** In lieu of the grade mark or certificate described in Item 2, used or salvaged dimensional lumber not bearing a grade stamp or provided with a certificate shall be assumed to be Douglas Fir-Larch No. 2 grade and shall have structural properties assigned in accordance with current adopted standards.

**R104.10 Modifications.** Where there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, life and fire safety or structural requirements. The details of action granting modifications shall be recorded and entered in the *municipality's* files.

**R104.10.1 Flood hazard areas.** Not adopted by the State of Oregon Building Codes Division as part of the *State Building Code*.

**R104.11 Alternative materials, design and methods of construction and equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Compliance with the specific performance-based provisions of the current editions of the *Oregon Specialty Codes* shall be an alternative to the specific requirements of this code. Where the alternative material, design or method of construction is not *approved*, the *building official* shall respond in writing, stating the reasons why the alternative was not *approved*. ~~For the process governing statewide alternate methods see ORS 455.060.~~

~~ORS 455.060 is not part of this code but is reproduced here for the reader's convenience.~~

~~**455.060 Rulings on acceptability of material, design or method of construction; effect of approval; fees.**~~

- ~~(1) Any person who desires to use or furnish any material, design or method of construction or installation in the state, or any building official, may request the Director of the Department of Consumer and Business Services to issue a ruling with respect to the acceptability of any material, design or method of construction about which there is a question under any provision of the state building code. Requests shall be in writing and, if made by anyone other than a building official, shall be made and the ruling issued prior to the use or attempted use of such questioned material, design or method.~~
- ~~(2) In making rulings, the director shall obtain the approval of the appropriate advisory board as to technical and scientific facts and shall consider the standards and interpretations published by the body that promulgated any nationally recognized model code adopted as a specialty code of this state.~~
- ~~(3) A copy of the ruling issued by the director shall be certified to the person making the request. Additional copies shall be transmitted to all building officials in the state. The director shall keep a permanent record of all such rulings and shall furnish copies thereof to any interested person upon payment of such fees as the director may prescribe.~~
- ~~(4) A building official or inspector shall approve the use of any material, design or method of construction approved by the director pursuant to this section if the requirements of all other local ordinances are satisfied. [Formerly 456.845]~~

**R104.11.1 Tests.** Where there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made at no expense to the *municipality*. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an *approved* agency. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

## SECTION R105 PERMITS

**R105.1 Required.** Any owner or owner's authorized agent who intends to construct, enlarge, alter, repair, move, ~~demolish or~~ change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any mechanical ~~or plumbing~~ system, the installation of which is regulated by this code, or to cause any such work to be performed, shall first make application to the *building official* and obtain the required *permit*. See ORS 455.020(2).

**R105.2 Work exempt from permit.** ~~Exemption from permit requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this municipality.~~ *Permits* shall not be required for the following:

### Building:

1. Nonhabitable one-story detached *accessory structures*, provided that the floor area does not exceed 200 square feet (18.58 m<sup>2</sup>) and a wall height of 10 feet (3048 mm)

measured from the finished floor level to the top of the top plate.

**Exception:** Where the structure is located on a parcel of 2.0 acres or greater in area, and the structure is located a minimum of 20 feet (6096 mm) from all property lines, floor area may be increased to 400 square feet (37.16 m<sup>2</sup>).

- ~~2. Except for barriers around swimming pools as required in Appendix G, fences not over 7 feet (2134 mm) high and typical field fencing not over 8 feet (2438 mm) high where constructed of woven wire or chain link.~~
- ~~3. Retaining walls that do not support a regulated building, do not retain material which, if not restrained, could impact a regulated building.~~
- ~~4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.~~
2. Concrete sidewalks, slabs, platforms and driveways.
3. Painting, papering, tiling, carpeting, cabinets, counter tops, interior wall, floor or ceiling covering and similar finish work.
4. Prefabricated swimming pools accessory to a Group R-3 Occupancy where the pool walls are entirely above the adjacent grade. ~~Barrier requirements found in Appendix G are not exempt.~~
- ~~8. Swings and other playground equipment.~~
5. Patio covers, as defined in AH102, and porch covers not over 200 square feet (11 m<sup>2</sup>) and supported by an exterior building wall.
6. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
7. Nonbearing partitions, except when such partitions create habitable rooms.
8. Replacement or repair of siding not required to be fire resistive.
9. Retrofitted insulation.
10. Masonry repair.
11. Porches and decks, where the floor or deck is not more than 30 inches (762 mm) above adjacent grade measured at any point within 3 feet (914 mm) horizontally of the floor or deck, and where in the case of a covered porch, the covered portion of the porch does not come closer than 3 feet (914 mm) to property lines.
12. Gutters and downspouts
13. Door and window replacements (where no structural member is changed).
14. Re-roofing, where replacement or repair of roofing does not exceed 30 percent of the required live load design capacity and the roof is not required to be fire resistive

### Exceptions:

1. Permits for re-roofing are required for structures in wildfire hazard zones as provided in Section R327; and

2. Structures falling within the scope of Section R302.2.
3. Permits for re-roofing are required where more than 15 percent of the existing space sheathing is removed to facilitate the installation of new sheathing.

15. Plastic glazed storm windows.

16. Framed covered nonhabitable accessory buildings not more than 500 square feet (46.45 m<sup>2</sup>) in area, one story in height and not closer than 3 feet (914 mm) to a property line, where the structure is composed of a rigid framework that supports a fabric membrane.

~~21. Ground mounted flagpoles, antennae, and similar items that do not exceed 25 feet in height.~~

Unless otherwise exempted, separate plumbing, electrical and mechanical permits may be required for the above exempted items. In addition, all new construction and substantial improvements (including the placement of prefabricated buildings and certain building work exempt from permit under Section R105.2) shall be designed and constructed with methods, practices and materials that minimize flood damage in accordance with this code, FEMA regulations and ASCE 24.

**Electrical:** See the *Electrical Code*.

**Mechanical:**

1. Portable heating *appliances*, cooking or clothes drying appliances.
2. Portable ventilation *appliances*.
3. Portable cooling units.
4. Steam, hot- or chilled-water piping within any heating or cooling *equipment* regulated by this code.
5. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.
6. Portable evaporative coolers.
7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.
8. Portable-fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.

**Plumbing:** See the *Plumbing Code*.

**R105.2.1 Emergency repairs.** Where mechanical *equipment* replacements and repairs must be performed in an emergency situation, the *permit* application shall be submitted to the *building official* within the next 5 working business days.

**R105.2.1.1 Structural temporary repairs.** For temporary (180 days) structural supports, structural replacement or repairs performed in an emergency on an existing structure, the *building official* shall be notified within 72 hours and permit application for the temporary work shall be submitted to the *building official* within the next 5 business days.

**ORS 455.058** is not part of this code but is reprinted here for the reader's convenience:

**455.058 Investigation fee for work commenced without permit; rules.**

- (1) Except as provided in subsection (2) of this section, the Department of Consumer and Business Services, or a municipality administering and enforcing a building inspection program, may assess an investigation fee against a person that is required to obtain a permit for work on the electrical, gas, mechanical, elevator, boiler, plumbing or other systems of a building or structure if the work is commenced before the permit required for the work is obtained. The amount of the investigation fee shall be the average or actual additional cost of ensuring that a building, structure or system is in conformance with State Building Code requirements that results from the person not obtaining a required permit before work for which the permit is required commences.
- (2) This section does not apply to:
  - (a) An emergency repair required for health, safety, the prevention of property damage or the prevention of financial harm if the required building permit for the repair is obtained no later than five business days after commencement of the repair; or
  - (b) Any project for which construction, alteration, repair, maintenance or installation in a building or structure prior to obtaining a permit is expressly authorized by law.
- (3) The department may adopt rules and establish policies and procedures for use by the department or municipalities in assessing an investigation fee under this section. [2013 c.324 §2]

**R105.2.2 Repairs.** Application or notice to the *building official* is not required for ordinary repairs to structures.

Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include *addition to, alteration of, replacement or relocation of any water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical system* or other work affecting public health or general safety.

**R105.2.3 Public service agencies.** A *permit* shall not be required for the installation, *alteration* or repair of generation, transmission, distribution, metering or other related *equipment* that is under the ownership and control of public service agencies by established right.

**R105.3 Application for permit.** To obtain a *permit*, the applicant shall first file an application therefor in writing on a form furnished by the department of building safety for that purpose. Such application shall:

1. Identify and describe the work to be covered by the *permit* for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.

4. Be accompanied by *construction documents* and other information as required in Section R106.1.
5. State the valuation of the proposed work.
6. Be signed by the applicant or the applicant's authorized agent.
7. Give such other data and information as required by the *building official*.

**R105.3.1 Action on application.** The *building official* shall examine or cause to be examined applications for *permits* and amendments thereto within a reasonable time after filing. If the application or the *construction documents* do not conform to the requirements of pertinent laws, the *building official* shall reject such application in writing stating the reasons therefor. If the *building official* is satisfied that the proposed work conforms to the requirements of this code and laws and ordinances applicable thereto, the *building official* shall issue a *permit* therefor as soon as practicable. Nothing in this code provision limits a local municipality's ability to require application of its own ordinances, or to enforce its own ordinances.

**R105.3.1.1 Determination of substantially improved or substantially damaged existing buildings in flood hazard areas.** Not adopted by the State of Oregon Building Codes Division as part of the *State Building Code*.

**R105.3.2 Time limitation of application.** An application for a *permit* for any proposed work shall be deemed to have been abandoned 180 days after the date of filing unless such application has been pursued in good faith or a *permit* has been issued; except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

**R105.4 Validity of permit.** The issuance or granting of a *permit* shall not be construed to be a *permit* for, or an *approval* of, any violation of any of the provisions of this code or of any other laws or of any other ordinance of the municipality. *Permits* presuming to give authority to violate or cancel the provisions of this code or of any other laws or other ordinances of the municipality shall not be valid. The issuance of a *permit* based on *construction documents* and other data shall not prevent the *building official* from requiring the correction of errors in the *construction documents* and other data. The *building official* is authorized to prevent occupancy or use of a structure where in violation of this code. Nothing in this code provision limits a local municipality's ability to require application of its own ordinances, or to enforce its own ordinances.

**R105.5 Expiration.** Every *permit* issued shall become invalid unless the work authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

**R105.6 Suspension or revocation.** The *building official* is authorized to suspend or revoke a *permit* issued under the provisions of this code wherever the *permit* is issued in error or on the basis of incorrect, inaccurate or incomplete information, or

in violation of any ordinance or regulation or any of the provisions of this code. Nothing in this code provision limits a local municipality's ability to require application of its own ordinances, or to enforce its own ordinances.

**R105.7 Placement of permit.** The building *permit* or a copy shall be kept on the site of the work until the completion of the project.

**R105.8 Responsibility.** It shall be the duty of every person who performs work for the installation or repair of building, structure, or mechanical systems, for which this code is applicable, to comply with this code.

**R105.9 Preliminary inspection.** Before issuing a *permit*, the *building official* is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

## SECTION R106 CONSTRUCTION DOCUMENTS

**R106.1 Submittal documents.** Submittal documents consisting of *construction documents*, and other data shall be submitted in two or more sets with each *permit* application. The *construction documents* shall be prepared by a registered *design professional* where required by state law. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a registered *design professional*.

### Exception:

1. The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a registered *design professional* if it is found that the nature of the work applied for is such that reviewing of *construction documents* is not necessary to obtain compliance with this code.
2. Plans, calculations and specifications, diagrams and other data prepared and designed by an architect or an engineer licensed by the state to practice as such are not required for the following work, provided the building official determines that the work is not of a highly technical nature or there is unreasonable potential risk to life and/or safety of the structure:
  - 2.1. The erection, enlargement or alteration of any building, or any appurtenance thereto, where the resulting building has a ground area of 4,000 square feet (372 m<sup>2</sup>) or less and is not more than 20 feet (6096 mm) in height from the top surface of the lowest floor to the highest interior overhead finish (ORS 671.030).
  - 2.2. A single-family dwelling, a farm agricultural building, nonfarm agricultural building, or accessory building to a single-family dwelling.
  - 2.2. Alterations or repairs that do not involve structural parts of the building.

ORS 672.107 is not part of this code but is reproduced here for the reader's convenience:

**672.107 Structural engineer registration for performing engineering services on significant structures; rules.**

- (1) For purposes of this section:
- (a) "Significant structure" means:
    - (A) Hazardous facilities and special occupancy structures, as defined in ORS 455.447;
    - (B) Essential facilities, as defined in ORS 455.447, that have a ground area of more than 4,000 square feet or are more than 20 feet in height;
    - (C) Structures that the Director of the Department of Consumer and Business Services determines to have irregular features; and
    - (D) Buildings that are customarily occupied by human beings and are more than four stories or 45 feet above average ground level.
  - (b) "Significant structure" does not mean:
    - (A) One-family and two-family dwellings and accompanying accessory structures;
    - (B) Agricultural buildings or equine facilities, both as defined in ORS 455.315; or
    - (C) Buildings located on lands exempt from Department of Consumer and Business Services enforcement of building code regulations.
- (2) Consistent with ORS 672.255, the State Board of Examiners for Engineering and Land Surveying shall adopt rules establishing standards of competence in structural engineering analysis and design relating to seismic influence.
- (3) An engineer may not provide engineering services for significant structures unless the engineer possesses a valid professional structural engineer certificate of registration issued by the board. [Formerly 672.129]

**R106.3 Examination of documents.** The *building official* shall examine or cause to be examined accompanying *construction documents* and shall ascertain by such examination whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws ~~or ordinances~~. *Nothing in this code provision limits a local municipality's ability to require application of its own ordinances, or to enforce its own ordinances.*

**R106.3.1 Approval of construction documents.** Where the *building official* issues a *permit*, the *construction documents* shall be *approved* in writing or by a stamp that states "REVIEWED FOR CODE COMPLIANCE." One set of *construction documents* so reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the *building official* or a duly authorized representative. *Construction documents* shall be *approved* in the timelines specified in ORS 455.467.

**R106.3.2 Previous approvals.** This code shall not require changes in the *construction documents*, construction or designated occupancy of a structure for which a lawful *permit* has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

**R106.3.3 Phased approval.** The *building official* is authorized to issue a *permit* for the construction of foundations or any other

part of a building or structure before the *construction documents* for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such *permit* for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a *permit* for the entire structure will be granted.

**R106.3.4 Design professional in responsible charge.**

**R106.3.4.1 General.** When it is required that documents be prepared by a registered *design professional*, the *building official* shall be authorized to require the owner to engage and designate on the building *permit* application a registered *design professional* who shall act as the registered *design professional* in responsible charge. If the circumstances require, the owner shall designate a substitute registered *design professional* in responsible charge who shall perform the duties required of the original registered *design professional* in responsible charge. The *building official* shall be notified in writing by the owner if the registered *design professional* in responsible charge is changed or is unable to continue to perform the duties.

The registered *design professional* in responsible charge shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

**R106.4 Amended construction documents.** Work shall be installed in accordance with the *approved construction documents*, and any changes made during construction that are not in compliance with the *approved construction documents* shall be resubmitted for approval as an amended set of *construction documents*.

**R106.5 Retention of construction documents.** One set of *approved construction documents* shall be retained by the *building official* for a period of not less than that dictated by OAR 166-150-0020 where a county has jurisdiction; OAR 166-200-0025 where a city has jurisdiction; and OAR 166300 et al., for the jurisdictions where the State of Oregon has jurisdiction. One set of *approved plans* and specifications shall be returned to the applicant and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress. The *building official* shall maintain a permanent record of all permits issued in flood hazard areas, including copies of inspection reports and certifications required in Section R109.1.3.

**SECTION R107  
TEMPORARY STRUCTURES AND USES**

**R107.1 General.** The *building official* is authorized to issue a *permit* for temporary structures and temporary uses. Such *permits* shall be limited as to time of service but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

**R107.2 Conformance.** Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, light, ventilation and sanitary requirements of this code as necessary to ensure the public health, safety and general welfare.



**R107.3 Temporary power.** Refer to the *Electrical Code*.

**R107.4 Termination of approval.** The *building official* is authorized to terminate such *permit* for a temporary structure or use and to order the temporary structure or use to be discontinued.

**SECTION R108  
FEES**

The requirements of Section R108 shall apply unless specifically amended by a *municipality* under the authority of ORS 455.020.

**R108.1 Payment of fees.** A *permit* shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a *permit* be released until the additional fee, if any, has been paid.

**R108.2 Schedule of permit fees.** Permit and plan review fees shall be as adopted by the *municipality*, except as otherwise limited by statute. On buildings, structures, and mechanical systems or *alterations* requiring a *permit*, a fee for each *permit* shall be paid as required, in accordance with the schedule as established by the *municipality* under authority of ORS 455.020 and 455.210, or set forth in OAR chapter 918, division 480 where the State of Oregon has jurisdiction.

**ORS 455.020(2)** is not a part of this code but is reprinted here for the reader's convenience:

**455.020(2) Purpose: scope of application; exceptions; scope of rules; fees by rule.**

- (2) The rules adopted pursuant to this chapter shall include structural standards; standards for the installation and use of mechanical, heating and ventilating devices and equipment; and standards for prefabricated structures; and shall, subject to ORS 455.210, prescribe reasonable fees for the issuance of building permits and similar documents, inspections and plan review services by the Department of Consumer and Business Services. The department may also establish, by rule, the amount of any fee pertaining to the State Building Code or any specialty code that is authorized by statute, but for which an amount is not specified by statute. [Formerly 456.755; 1991 c.227 §2; 1991 c.310 §2; 1995 c.304 §1; 1995 c.400 §5; 1999 c.1045 §13; 1999 c.1082 §11; 2001 c.710 §8]

**ORS 455.210(3)(a)** is not a part of this code but is reproduced for the reader's convenience:

**455.210 Fees; appeal of fees; surcharge; reduced fees; rules.**

- (3) (a) A *municipality* may adopt by ordinance or regulation such fees as may be necessary and reasonable to provide for the administration and enforcement of any specialty code or codes for which the *municipality* has assumed responsibility under ORS 455.148 or 455.150. A *municipality* shall give the director notice of the proposed adoption of a new or increased fee under this subsection. The *municipality* shall give the notice to the director at the time the *municipality* provides the opportunity for public comment under ORS 294.160 regarding the fee or, if the proposed fee is contained in an estimate of municipal budget resources, at the time notice of the last budget meeting is published under ORS 294.426. [Subsections (1) to (5) formerly 456.760; subsection (6) enacted as 1987 c.604 §6; 1997 c.856 §1; 1999 c.432 §1; 1999 c.1045 §24; 1999 c.1082 §9; 2001 c.573 §9; 2001 c.673 §1; 2005 c.193 §1; 2005 c.833 §3; 2007 c.69 §5; 2011 c.473 §29]

**R108.2.1 Plan review fees.** When *construction documents* are required by Section R106.1, a plan review fee shall be paid at the time of submitting the *construction documents* for plan review. Said plan review fee shall be a percentage of the building *permit* fee as established under Section R108.2. The plan review fees specified in this section are separate from the *permit* fees specified in Section R108.2 and are in addition to the *permit* fees. The state surcharge is not applied to plan review fees. When *construction documents* are incomplete or changed so as to require additional plans an additional plan review fee shall be charged according to the rate established by the *municipality*, or OAR chapter 918, division 480 where the State of Oregon has jurisdiction.

**OAR 918-050-0100** is not part of this code but is reproduced here for the reader's convenience.

**918-050-0100 Statewide Fee Methodologies for Residential and Commercial Permits.**

- (1) Residential construction permit fees shall be calculated using the following methodologies:
  - (a) A plumbing permit fee for new construction includes one kitchen and is based on the number of bathrooms, from one to three, on a graduated scale. An additional set fee shall be assessed for each additional bath or kitchen.
    - (A) No additional fee shall be charged for the first 100 feet of water and sewer lines, hose bibbs, icemakers, underfloor low-point drains, and rain drain packages that include the piping, gutters, downspouts, and perimeter system.
    - (B) The plumbing permit fee described in this section does not include:
      - (i) Any storm water retention/detention facility;
      - (ii) Irrigation and fire suppression systems; or
      - (iii) Additional water, sewer and service piping or private storm drainage systems exceeding the first 100 feet.
    - (C) Permit fees for an addition, alteration, or repair shall be calculated based on the number of fixtures, appurtenances, and piping, with a set minimum fee.
  - (b) A mechanical permit fee shall be calculated per appliance and related equipment, with a set minimum fee.
  - (c) Effective January 1, 2009, a structural permit fee for new construction and additions shall be calculated using the ICC Building Valuation Data Table current as of April 1 of each year, multiplied by the square footage of the dwelling to determine the valuation. The valuation shall then be applied to the *municipality's* fee schedule to determine the permit fee. The plan review fee shall be based on a predetermined percentage of the permit fee set by the *municipality*.
    - (A) The square footage of a dwelling, addition, or garage shall be determined from outside exterior wall to outside exterior wall for each level.
    - (B) The square footage of a carport, covered porch, patio, or deck shall be calculated separately at fifty percent of the value of a private garage from the ICC Building Valuation Data Table current as of April 1.
    - (C) Permit fees for an alteration or repair shall be calculated based on the fair market value as determined by the building official, and then applying the valuation to the *municipality's* fee schedule.

- (2) Commercial construction permit fees shall be calculated using the following methodologies:
- (a) A plumbing permit fee shall be calculated based on the number of fixtures and footage of piping, with a set minimum fee.
  - (b) A mechanical permit fee shall be calculated based on the value of the mechanical equipment and installation costs and applied to the municipality's fee schedule with a set minimum fee.
  - (c) A structural permit fee shall be calculated by applying the valuation to the municipality's fee schedule with a minimum set fee. Valuation shall be the greater of either:
    - (A) The valuation based on the ICC Building Valuation Data Table current as of April 1 of each year, using the occupancy and construction type as determined by the building official, multiplied by the square footage of the structure; or
    - (B) The value as stated by the applicant.
    - (C) When the construction or occupancy type does not fit the ICC Building Valuation Data Table, the valuation shall be determined by the building official with input from the applicant.

Stat. Auth.: ORS 455.048 & 455.055

Stats. Implemented: ORS 455.046 & 455.055

Hist.: BCD 9-2000, f. 6-15-00, cert. ef. 10-1-00; BCD 31-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 5-2007, f. 5-11-07, cert. ef. 7-1-07; BCD 27-2008, f. ef. 12-12-08, cert. ef. 1-1-09; BCD 7-2009, f. 9-30-09, cert. ef. 10-1-09

**R108.3 Building permit valuations.** Structural and mechanical building *permit* valuations shall be based upon the Uniform Fee methodologies as established by OAR 918-050-0100.

**R108.4 Related fees.** The payment of the fee for the construction, or *alteration* for work done in connection to or concurrently with the work authorized by a building *permit* shall not relieve the applicant or holder of the *permit* from the payment of other fees that are prescribed by law.

**R108.5 Refunds.** The *building official* is authorized to establish a refund policy.

**R108.6 Work commencing before permit issuance.** Any person who commences work requiring a permit on a building or before obtaining the necessary permits shall be subject to an investigation fee. The amount of the investigation fee shall be the average or actual additional cost of ensuring that a building, structure or system is in conformance with this code and shall be in addition to the required *permit* fees.

**Exception:** Work ~~as permitted~~ **exempted** in Section R105.2.

## SECTION R109 INSPECTIONS

**R109.1 General.** Construction or work for which a permit is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other laws ~~or ordinances of the municipality~~. Inspections presuming to give authority to violate or cancel the provisions of this code or of other laws ~~or ordinances of the municipality~~ shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and

exposed for inspection purposes. Neither the *building official* nor the state shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. **Nothing in this code provision limits a local municipality's ability to require application of its own ordinances, or to enforce its own ordinances.**

**R109.1.1 Foundation inspection.** Inspection of the foundation shall be made after poles or piers are set or trenches or *basement* areas are excavated, and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or *equipment* and special requirements for wood foundations.

**R109.1.1.1 Concrete slab or under-floor inspection.** Concrete slab or under-floor inspection shall be made after in-slab or under-floor building service equipment, conduit, piping accessories and other ancillary equipment items are in place but before any concrete is placed or floor sheathing installed, including subfloor.

**R109.1.2 Mechanical systems inspection.** Rough inspection of mechanical systems shall be made prior to covering or concealment, before fixtures or *appliances* are set or installed, and prior to framing inspection.

**Exception:** Backfilling of ground-source heat pump loop systems tested in accordance with Section M2105.28 prior to inspection shall be permitted.

**R109.1.3 Floodplain inspections.** In flood hazard areas as established by the *Flood Plain Administrator*, upon placement of the lowest floor, including *basement*, and prior to further vertical construction, the *Flood Plain Administrator* shall require submission of documentation, prepared and sealed by a registered *design professional*, of the elevation of the lowest floor, including *basement*, required in Section R322.

**R109.1.4 Frame and masonry inspection.** Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are *approved*.

**R109.1.4.1 Moisture content.** After the framing inspection and prior to the installation of interior finishes, the *building official* shall be notified in writing by the general contractor that all moisture-sensitive wood framing members used in construction have a moisture content of not more than 19 percent of the weight of dry wood framing members.

**R109.1.5 Other inspections.** In addition to inspections in Sections R109.1.1 through R109.1.4, the *building official* shall have the authority to make or require other inspections to ascertain compliance with this code and other laws ~~enforced by the building official~~. **Nothing in this code provision limits a local municipality's ability to require application of its own ordinances, or to enforce its own ordinances.**

**R109.1.5.1 Fire-resistance-rated construction inspection.** Where fire-resistance-rated construction is required between *dwelling units* or due to location on property, the *building official* shall require an inspection of such construction after

lathing or gypsum board or gypsum panel products are in place, but before any plaster is applied, or before board or panel joints and fasteners are taped and finished.

**R109.1.5.2 Insulation and vapor retarder inspection.** Inspection shall be made after all insulation and required vapor retarders are in place, but before any lath or gypsum board interior wall covering is applied.

**Exceptions:**

1. Ceiling and floor insulation visible during final inspection.
2. The *building official* may allow the frame, insulation and vapor retarder inspections to be performed simultaneously.

**R109.1.5.3 Reinforced masonry, insulating concrete form (ICF) and conventionally formed concrete wall inspection.** Reinforced masonry walls, insulating concrete form (ICF) walls and conventionally formed concrete walls located in Seismic Design Categories D<sub>1</sub>, D<sub>2</sub>, and E shall be inspected after plumbing, mechanical, and electrical systems embedded within the walls, and reinforcing steel are in place and prior to placement of grout or concrete. Inspection shall verify the correct size, location, spacing, and lapping of reinforcing. For masonry walls, inspection shall also verify that the location of grout cleanouts and size of grout spaces comply with the requirements of this code.

**R109.1.6 Final inspection.** Final inspection shall be made after all work required by the building *permit* is completed.

**R109.1.6.1 Elevation documentation.** If located in a flood hazard area, the documentation of elevations required in Section R322.1.10 shall be submitted to the *building official* prior to the final inspection.

**R109.2 Inspection agencies.** The *building official* is authorized to accept reports of *approved* agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

**R109.3 Inspection requests.** It shall be the duty of the holder of the building *permit* or their duly authorized agent to notify the *building official* when work is ready for inspection. It shall be the duty of the *permit* holder to provide access to and means for inspection of such work that are required by this code.

**OAR 918-098-1900** is not part of this code but is reproduced here for the reader's convenience.  
**918-098-1900 Corrective Notices—Cite-it Write-it Requirement.**  
 In addition to any other requirements set forth in statute and rule, all building officials, inspectors and plans examiners certified under Division 098, OAR 918-225-0540, 918-281-0020, 918-695-0400, and ORS 460.055 must include an exact reference to the applicable specialty code section, Oregon administrative rule, or statute, when issuing corrective notices at construction sites or to buildings or related appurtenances during a plan review while administering or enforcing a building inspection program. The building official, inspector, or plans examiner must include a plain statement of facts upon which the citation for correction action is based.  
 Stat. Auth.: ORS 455.720 & 455.740  
 Stat. Implemented: ORS 455.720 & 455.740  
 Hist.: BCD 16-2005(Temp), f. & cert. ef. 7-7-05 thru 12-31-05; BCD 24-2005, f. 9-30-05, cert. ef. 10-1-05; BCD 1-2016(Temp), f. & cert. ef. 1-26-16 thru 7-23-16; BCD 6-2016, f. & cert. ef. 4-1-16

**R109.4 Approval required.** Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. The *building official* upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the *permit* holder or their duly authorized agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *building official*.

**SECTION R110  
 CERTIFICATE OF OCCUPANCY**

**R110.1 Use and occupancy.** A building or structure shall not be used or occupied, and a change in the existing character, use or occupancy classification of a building or structure or portion thereof shall not be made, until the *building official* has issued a certificate of occupancy for such change in character, use or occupancy as specified in OAR 918-480-0140. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code ~~or of other ordinances of the municipality~~. Nothing in this code provision limits a local *municipality's* ability to require application of its own ordinances, or to enforce its own ordinances.

**Exceptions:**

1. Certificates of occupancy are not required for work exempt from permits under Section R105.2.
2. Accessory buildings or structures.

**OAR 918-480-0140** is not part of this code but is reproduced here for the reader's convenience:

**OAR 918-480-0140 Residential Certificates of Occupancy.**

- (1) Prior to occupancy of a new residential dwelling or townhouse the building official must issue a certificate of occupancy in the form and format established by the division, unless a temporary certificate of occupancy is issued by the building official.
- (2) This rule applies to a new residential dwelling or townhouse, if the structural permit for construction of the residential dwelling or townhouse was applied for on or after April 1, 2008.
- (3) For purposes of this rule, the terms "residential dwelling" and "townhouse" have the same meaning as in section R202 of the 2008 *Oregon Residential Specialty Code*.
- (4) Before the certificate of occupancy is issued, the general contractor or owner who was issued the structural permit for construction must provide to the building official the contact information and relevant license information for the general contractor, as well as any electrical contractor, HVAC contractor and plumbing contractor that performed work on the residential dwelling or townhouse.
- (5) A building official may revoke a certificate of occupancy or a temporary certificate of occupancy when the residential dwelling or townhouse is in violation of applicable law that poses a threat to health and safety. The revocation must be in writing and state the basis for the revocation of the certificate of occupancy.

**R110.2 Change in use or occupancy.** No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of this code and **Section 3411**

Chapter 34 of the *Building Code* for such division or group of occupancy, as applicable. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is no more hazardous, based on life and fire risk, than the existing use.

**R110.2 Change in use or occupancy.** No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of this code and Section 3411 of the *Building Code* for such division or group of occupancy. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is no more hazardous, based on life and fire risk, than the existing use.

**R110.3 Certificate issued.** After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy containing the following:

1. The building *permit* number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the code under which the *permit* was issued.
8. If an automatic sprinkler system is provided and whether the sprinkler system is required.
9. Any special stipulations and conditions of the building *permit*.

**R110.4 Temporary occupancy.** The *building official* is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* shall set a time period during which the temporary certificate of occupancy is valid.

**R110.5 Revocation.** The *building official* is authorized to, in writing, suspend or revoke a certificate of occupancy or completion issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of any of the provisions of this code.

## SECTION R111 SERVICE UTILITIES

The requirements of Section R111 are not adopted by the State of Oregon, Building Codes Division, as part of the *state building code* but may be specifically adopted by a *local municipality*.

**R111.1 Connection of service utilities.** A person shall not make connections from a utility, source of energy, fuel or power to any building or system that is regulated by this code for which a *permit* is required, until *approved* by the *building official*.

**R111.2 Temporary connection.** The *building official* shall have the authority to authorize the temporary connection of the building or system to the utility, source of energy, fuel or power.

**R111.3 Authority to disconnect service utilities.** The *building official* shall have the authority to authorize disconnection of a fuel supply or appliance that does not conform to this code. The *building official* shall also have the authority to order disconnected a gas utility service, or energy supplies to a building, structure, premises or equipment in case of emergency when necessary to eliminate an immediate hazard to life or property. A notice shall be attached to the energy supply or appliances stating the reason for disconnection. Such notices shall not be removed, nor shall the system or appliance be reconnected until authorized by the *building official*. The owner, the owner's authorized agent or occupant of the building, structure or service system shall be notified in writing as soon as practical thereafter.

## SECTION R112 BOARD OF APPEALS

**R112.1 General.** In order to hear and decide appeals of orders, decisions or determinations made by the *building official* relative to the application and interpretation of this code, the *municipality* shall establish an appeals procedure.

**R112.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall not have authority to waive requirements of this code.

~~ORS 455.690 is not part of this code but is reproduced here for the reader's convenience:~~

~~455.690 Appeal to advisory boards. Any person aggrieved by the final decision of a municipal appeals board or a subordinate officer of the Department of Consumer and Business Services as to the application of any provision of a specialty code may, within 30 days after the date of the decision, appeal to the appropriate advisory board. The appellant shall submit a fee of \$20, payable to the department, with the request for appeal. The final decision of the involved municipality or state officer shall be subject to review and final determination by the appropriate advisory board as to technical and scientific determinations related to the application of the specialty code involved.~~

**R112.2.1 Alternative appeals process.** ORS 455.475 provides an alternative appeals process to that set forth by the local *municipality*.

**Note:** Forms for appeals under ~~ORS 455.690~~ and ORS 455.475 are available online at [www.oregon.gov/bcd](http://www.oregon.gov/bcd).

**R112.3 Qualifications.** An appeals board shall consist of members who are qualified by experience and training to pass judgement on matters pertaining to building construction.

**R112.4 Administration.** Not adopted by the State of Oregon as part of the *Building Code*.

ORS 455.475 is not part of this code but is reproduced here for the reader's convenience.

**455.475 Appeal of decision of building official.** A person aggrieved by a decision made by a building official under authority established pursuant to ORS 455.148, 455.150 or 455.467 may appeal the decision. The following apply to an appeal under this section:

- (1) An appeal under this section shall be made first to the appropriate specialty code chief inspector of the Department of Consumer and Business Services. The decision of the department chief inspector may be appealed to the appropriate advisory board. The decision of the advisory board may only be appealed to the Director of the Department of Consumer and Business Services if codes in addition to the applicable specialty code are at issue.
- (2) If the appropriate advisory board determines that a decision by the department chief inspector is a major code interpretation, then the inspector shall distribute the decision in writing to all applicable specialty code public and private inspection authorities in the state. The decision shall be distributed within 60 days after the board's determination, and there shall be no charge for the distribution of the decision. As used in this subsection, a "major code interpretation" means a code interpretation decision that affects or may affect more than one job site or more than one inspection jurisdiction.
- (3) If an appeal is made under this section, an inspection authority shall extend the plan review deadline by the number of days it takes for a final decision to be issued for the appeal.

**SECTION R113  
VIOLATIONS**

**R113.3 Prosecution of violation.** If the notice of violation is not complied with in the time prescribed by such notice, the *building official* is authorized to request the legal counsel of the *municipality* to institute the appropriate proceeding at law ~~or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.~~

**R113.2 Notice of violation.** The *building official* is authorized to serve a notice of violation or order on the person responsible for the erection, construction, *alteration*, extension, repair, moving, or occupancy of a building or structure in violation of the provisions of this code, or in violation of a detail statement or a plan *approved* thereunder, or in violation of a *permit* or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

**R113.3 Prosecution of violation.** If the notice of violation is not complied with in the time prescribed by such notice, the *building official* is authorized to request the legal counsel of the *municipality* to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

**R113.4 Violation penalties.** Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the *approved construction documents* or directive

of the *building official*, or of a *permit* or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law.

**R113.5 Penalties.** Penalty amounts other than those described in Section R108.6 are limited by ORS 455.895. Local authority to levy penalties is limited to violations of code application only.

**SECTION R114  
STOP WORK ORDER**

**R114.1 Authority.** Whenever the *building official* finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or dangerous or unsafe, the *building official* is authorized to issue a stop work order.

**R114.2 Issuance.** The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

**R114.3 Unlawful continuance.** Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by law.

**SECTION R115  
REFABRICATED CONSTRUCTION**

**R115.1 General.** See ORS 455.010 and OAR chapter 918, division 674.

ORS 455.010(6) is not part of this code but is reproduced here for the reader's convenience:

ORS 455.010(6) "Prefabricated structure" means a building or subassembly that has been in whole or substantial part manufactured or assembled using closed construction at an off-site location to be wholly or partially assembled on-site. "Prefabricated structure" does not include a manufactured dwelling, recreational structure or recreational vehicle, as those terms are defined in ORS 446.003.

**SECTION R116  
SWIMMING POOLS, SPAS AND HOT TUBS**

**R116.1 General.** Barrier provisions for swimming pools, spas and hot tubs are contained in Appendix G as amended.

**R116.2 In-ground pools.** In-ground pools shall be designed and constructed in accordance with ANSI/NSPI-5 as listed in Appendix G, ~~Section AG103.1.~~

**SECTION R117  
INSPECTION CARD**

**R117.1 Record required.** The *permit* holder or *permit* holder's agent shall post the inspection record on the job site in an accessible and conspicuous place to allow the *building official* to make the required entries. The record shall be maintained by the *permit* holder until the final inspection has been made and *approved*. *The building official may approve alternate inspection record policies.*

## SECTION R118 MOVED BUILDINGS

**R118.1 Moved buildings.** See ORS 455.410.

**ORS 455.410** is not part of this code but is reproduced here for the reader's convenience:

**455.410 Relocated buildings; substantial compliance required; permits.**

- (1) Existing buildings or structures which are removed from their foundation and relocated to another site within this state shall be in substantial compliance as defined in subsections (2) and (3) of this section.
- (2) "Substantial compliance" means compliance with local construction codes in effect as of the original permit date of the building or structure, or where there was no permitting required at the time of original construction, with basic health and safety standards, as described in the closest dated *Uniform Housing Code*, as published by the International Conference of Building Officials as of the date of construction. Only the insulation, overhead and underneath the structure, shall be upgraded to the current insulation requirements of the state building code, or to the maximum extent possible subject to the design of the structure. Nothing in this statute shall be construed to mean that all heating, plumbing and electrical systems shall be replaced with systems meeting current standards for new construction, except that any life-threatening deficiencies in those systems shall be repaired, notwithstanding that the cost of rehabilitation may exceed 50 percent of the value of the structure before rehabilitation.
- (3) All foundation and basement construction on the structure and any remodeling at the new location shall be constructed subject to all applicable local current building and safety codes, or where none exist, with the applicable standards as described in the *Uniform Housing Code* described in subsection (2) of this section.
- (4) All moved houses shall be provided with either battery-operated or hard-wired smoke detection devices located in accordance with the provisions of the state building code.
- (5) Nothing in this section is intended to permit any person to move a structure unless the person first consults the appropriate building inspection authority and obtains all required permits.

## SECTION R119 HISTORIC BUILDINGS

**R119.1 Repairs, alterations and additions.** Repairs, alterations and additions necessary for the preservation, restoration, rehabilitation or continued use of an historical building may be made without conforming to all of the requirements of this code when authorized by the *building official*, provided:

1. The building has been officially designated an historic building.
2. Unsafe conditions are corrected.
3. The restored building will be no more hazardous based on life, fire safety and sanitation than the existing building.
4. The *building official* seeks the advice of the State of Oregon Historic Preservation Office.

In the case of appeals related to historic buildings, the local appeals board or the appropriate state appeals board shall seek the advice of the state historic preservation officer.

## Chapter 9.02

### 9.02 APPLICATION AND ENFORCEMENT OF THE CLACKAMAS COUNTY BUILDING CODE

#### 9.02.010 Purpose

The purpose of this chapter is to establish uniform performance standards for building-related codes and rules to reasonably safeguard the health, safety, welfare, comfort and security of residents of this jurisdiction who are occupants and users of buildings, and provide for the use of modern methods, devices, materials and techniques and for superior energy conservation. The provisions of this chapter are in addition to the requirements of the State Building Code, as defined in ORS 455.010.

[Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 03-2016, 8/11/16]

#### 9.02.020 Application

This chapter shall apply to the construction, reconstruction, alteration, relocation (i.e. moving), demolition, repair, maintenance and work associated with any building or structure ~~located in public ways~~ <sup>except when</sup> <sup>[BN1]</sup>.

Without limiting the generality of the foregoing, this chapter shall also apply to the following:

- A. Abatement of nuisances and dangerous buildings.
- B. Protection of adjoining property.
- C. Retaining walls.
- D. Fences.
- E. Water tanks.
- F. Telecommunications towers.
- G. Ground mounted flagpoles.
- H. Piers and wharves.

This chapter shall not apply to the following:

- A. Fire safety during construction.
- B. Temporary use of ROW/Encroachments??
- C. Signs??
- D. Floating structures.
- E. Docks.
- F. Equipment shelters not intended for human occupancy with a building area 250 square feet or less, designated as Risk Category I or II.
- G. Administration and implementation of a National Flood Insurance Program (NFIP).
- H. Transitional housing accommodations.

If any apparent conflict arises because different sections of this chapter specify different materials, methods of construction or other requirements, the most restrictive provision shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement will apply.

If any apparent conflict arises between a provision of this Chapter and Oregon Revised Statutes or State Building Code, the statutory or State Building Code provision(s) shall govern.  
[Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 03-2016, 8/11/16]

### **9.02.030 Definitions**

When used in this chapter, the following terms, phrases, words and their derivatives shall have the meanings ascribed to them below. When terms are used that are not defined below, they shall have the ordinary accepted meanings that are appropriate to their context. Words used in the singular include the plural and those used in the plural include the singular. Words used in the masculine gender include the feminine and those used in the feminine include the masculine.

- A. PERSON includes human beings and, where appropriate, public or private corporations, unincorporated associations, partnerships, firms, governments, governmental instrumentality, joint stock companies, trusts and estates, trustees, and any other legal entities whatsoever, and shall indicate both the singular and the plural.
- B. BUILDING OFFICIAL is the official designated by order of the Clackamas County Board of Commissioners as the Clackamas County Building Official, and includes that official's authorized representatives.
- C. AUTHORIZED REPRESENTATIVE may include, among others, the Community Environment Manager and his authorized inspection personnel, and the Fire Marshall.
- D. BUILDING is any building or structure constructed for any purpose whatsoever.
- E. BOARD OF APPEALS is the entity appointed by the Clackamas County Board of Commissioners to hear and decide appeals of orders, decisions and determinations made by the building official relative to the application and interpretation of this Chapter, except that the Board of Appeals will not have jurisdiction over appeals arising from the Electrical Specialty Code, the Manufactured Dwelling or Mobile Home Parks Administrative Rules, or the On-Site Sewage Disposal Administrative Rules, which must be appealed to the entities identified in Section 9.02.150 of this Chapter.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.040 Clackamas County Building Code**

The Clackamas County Building Code consists of the following Specialty Codes, as adopted by the State of Oregon, and regulations:

- A. The Oregon Structural Specialty Code, as adopted by OAR Chapter 918, Division 460, except as modified in this Chapter, shall be enforced as part of this Chapter.
- B. The Oregon Mechanical Specialty Code, as adopted by OAR Chapter 918, Division 440, except as modified in this Chapter, shall be enforced as part of this Chapter.
- C. The Oregon Plumbing Specialty Code, as adopted by OAR Chapter 918, Division 750, except as modified in this Chapter, shall be enforced as part of this Chapter.
- D. The Oregon Electrical Specialty Code, as adopted by OAR Chapter 918, Division 251



- except as modified in this Chapter, shall be enforced as part of this Chapter.
- E. The Oregon Residential Specialty Code, as adopted by OAR Chapter 918, Division 480, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - F. The manufactured dwelling park and mobile home park rules adopted by OAR Chapter 918 Division 600, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - G. The manufactured structure rules adopted by OAR Chapter 918, Divisions 500 and 530, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - H. The Recreational Park and Organizational Camp Rules adopted by OAR Chapter 918, Division 650, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - I. [Chapter 9.01 of the Clackamas County Code: Code for the Abatement of Dangerous Buildings and Structures.](#)
  - ~~I.J.~~ Chapter 9.03 of the Clackamas County Code: Excavation and Grading.
  - ~~J.K.~~ The On-Site Sewage Disposal Rules as adopted by OAR Chapter 340, Division 71 and OAR Chapter 340, Division 73, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - ~~K.L.~~ The Oregon Energy Efficiency Specialty Code as adopted by OAR Chapter 918, Division 460, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - M. The Oregon Solar Installation Specialty Code as adopted by ORS 455.010 through 455.897, except as modified in this Chapter, shall be enforced as part of this Chapter.
  - N. [2018 International Building Code, International Code Council \(ICC IBC-2018\) Section 105.2.](#)
  - O. [ICC IBC-2018 Section 1807.3.](#)
  - ~~L.P.~~ [American Society of Civil Engineers \(ASCE\) 7.16, Section 15.](#)
- [Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 03-2016, 8/11/16]

#### **9.02.050 Alternate Materials And Methods**

The provisions of this chapter are not intended to prevent the use of any material, alternate design or method of construction not specified in this chapter, provided the alternate has been approved and its use authorized by the building official.

The building official may approve any alternative, provided the building official finds that the proposed design is satisfactory and complies with the provisions of this chapter, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that required under this chapter in suitability, strength, effectiveness, fire resistance, durability, safety and sanitation.

The building official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding the use of alternates. The details of any action granting approval of an alternate shall be recorded and entered in the files. An applicant may appeal the decision of the building official regarding the use of alternates to the Board of Appeals. An appeal of the building official's decision shall be accompanied by the appropriate filing fee.

ORS 455.060 provides for state rulings on acceptable materials, designs and methods of construction. When a state ruling has been issued, ORS 455.060 (4) applies.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.060 Modifications**

When there are practical difficulties involved in carrying out the provisions of this chapter, the building official may grant modifications for individual cases. In order to grant such a modification, the building official must first find that a unique factor distinguishes the situation before him in a manner that makes it impractical to strictly apply this chapter, and that the modification is in conformance with the intent and purpose of this chapter. Such modifications shall not lessen any fire-protection requirements or any degree of structural integrity. The details of any action granting modification shall be recorded and entered in the files.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.070 Tests**

Whenever there is insufficient evidence of compliance with any of the provisions of this chapter or evidence that any material or construction does not conform to the requirements of this chapter, the building official may require tests as proof of compliance to be made at no expense to Clackamas County.

Test methods shall be as specified by this chapter or by other recognized test standards. If there are no recognized and accepted test methods for the proposed alternate, the building official shall determine test procedures.

All tests shall be made by an approved accredited testing agency. Reports of such tests shall be retained by the building official for the period required for the retention of public records.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.080 Powers And Duties Of The Building Official**

The building official is hereby authorized and directed to enforce all the provisions of this chapter.

The building official shall have the power to render interpretations of this chapter and to adopt and enforce administrative procedures in order to clarify the application of its provisions. Such interpretations, rules, and regulations shall be in conformance with the intent and purpose of this chapter. The building official shall have the power to vary the approval period for permits applied to resolve violations to less than the 180 days referred to in Section 9.02.270 of this Chapter.

The building official may request, and shall receive, the assistance and cooperation of other officials of this jurisdiction in the discharge of duties required by this chapter and other pertinent laws or ordinances.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.090 Deputies**

In accordance with prescribed procedures the building official may appoint technical officers and inspectors and other employees to carry out the functions of code enforcement under this chapter. The building official may deputize such inspectors or employees as may be necessary to carry out the functions of code enforcement under this chapter.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.100 Right Of Entry**

When it is necessary to make an inspection to enforce the provisions of this chapter, or when the building official has reasonable cause to believe that there exists in a building or upon a premises a condition which is contrary to or in violation of this chapter which makes the building or premises unsafe, dangerous or hazardous, the building official may enter the building or premises at reasonable times to inspect or to perform the duties imposed by this chapter, provided that if such building or premises be occupied that credentials be presented to the occupant and entry requested. If the building or premises be unoccupied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If entry is refused, the building official shall have recourse to the remedies provided by law to secure entry.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.110 Stop Work Orders, Warning Notices & Violation Notices**

Whenever any work is being done contrary to the provisions of this chapter, or other pertinent laws or ordinances implemented for enforcement of this chapter, the building official may order the work stopped by notice in writing served on any person engaged in doing the work or causing the work to be done, or by posting of the building or work being done, and any such person shall forthwith stop such work until authorized by the building official to resume the work.

In the discretion of the building official, warning notices or violation notices may also be issued for violations of this chapter and any other pertinent laws or ordinances implemented for enforcement of this chapter.

Orders or notices shall give a brief description of the violation identified, and shall be issued through one of the following methods:

- A. Personal service upon the person responsible for the violation;
- B. Posting at the site of the violation; or
- C. Delivered by regular U.S. mail to the address listed on the permit application (if any) submitted in association with the work in question.

Orders or notices shall contain the name of the County Department to contact regarding the violation, the name of the person issuing the order or notice, the date the order or notice was issued and a statement that failure to correct the alleged violation within the time set (no less than 30 days) may result in legal action with the courts or the Compliance Hearings Officer to abate the nuisance or both, and the imposition of penalties and enforcement fees.

If the building official believes an alleged violation presents an imminent threat to public health or safety, no warning notice need be given before pursuing remedies allowed for by this chapter. [Codified by Ord. 05-2000, 7/13/00]

### **9.02.120 Authority To Disconnect Utilities In Emergencies**

In case of emergency, the building official shall have the authority to disconnect the energy, fuel or power supply, or plumbing utility service to a building, structure, premises or equipment regulated by this chapter when necessary to eliminate an immediate hazard to life or property. The building official shall, whenever possible, give advance notice to the serving utility, the owner and the occupant(s) of the building or premises that utilities will be disconnected, and shall notify the serving utility, owner and occupant of the building or premises in writing of utility disconnection immediately afterward.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.130 Connection After Order To Disconnect**

Persons shall not make connections from an energy, fuel, power supply or plumbing service, nor supply energy, fuel, power or plumbing to any equipment regulated by this chapter which has been disconnected or ordered to be disconnected by the building official, or the use of which has been ordered to be discontinued by the building official, until the building official authorizes the reconnection and use of such equipment. [Codified by Ord. 05-2000, 7/13/00]

### **9.02.140 Occupancy Violations**

Whenever any building or equipment therein regulated by this chapter is being used contrary to the provisions of this chapter, the building official may order such use discontinued and the structure, or portion thereof, vacated by notice served on any person causing such use to be continued. Any person receiving notice shall discontinue the use within the time prescribed by the building official to make the building, or portion thereof, comply with the requirements of this chapter.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.150 Adjudicating Entities For Specific Appeals**

- A. Appeals relating to the administrative portions of this chapter shall be made only to the building official.
- B. Any person aggrieved by a decision of the building official made to apply, interpret or enforce the following specialty codes may appeal that decision to the designated entities:
  1. Electrical Specialty Code – appeals may be made to the State of Oregon, Building Codes Division, Chief Electrical Inspector (ORS 479.853);
  2. Manufactured Dwelling or Mobile Home Parks – appeals, requests for interpretations, or alternate methods and materials of OAR 918, Division 600 may be made to the Administrator of the Building Codes Division for a ruling (OAR 918-600-0080); and
  3. On-Site Sewage Disposal – appeals may be made to the State of Oregon,

Department of Environmental Quality.

- C. Appeals of all other substantive provisions of this chapter will be made first to the building official, then to the Board of Appeals.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.160 Board Of Appeals**

In order to hear and decide appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of this chapter, there shall be and is hereby created a board of appeals consisting of members who are qualified by experience and training to pass on matters pertaining to construction and who are not employees of the jurisdiction. The building official shall be an ex officio member of and shall act as secretary to the Board of Appeals but shall have no vote on any matter before the Board. The Board of Appeals shall be appointed by the governing body and shall hold office at its pleasure. The Board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the building official.

The Board of Appeals shall have no authority relative to interpretation of the administrative provisions of the code nor shall the Board be empowered to waive requirements of this chapter.

All applications for an appeal shall be accompanied by the appropriate filing fee.

Any decision relating to the suitability of alternate materials and methods of construction or interpretation by the building official with regard to this chapter, except for the State of Oregon Electrical Specialty Code, the State of Oregon Manufactured Dwelling or Mobile Home Park Rules and the State of Oregon On-Site Sewage Disposal Rules, should be appealed first to the building official, then to the Board of Appeals, in conformance with procedures provided herein.

An appeal shall be in writing, shall describe the basis for the appeal and shall first be filed with the building official.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.170 Form Of Appeal**

- A. Any person appealing an order, decision or determination of the building official to the Board of Appeals must do so by filing at the office of the building official a written appeal containing:
1. A heading in the words: "Before the Board of Appeals for the Building Official of Clackamas County";
  2. A caption reading: "In the matter of the appeal of .....,," giving the names of all appellants participating in the appeal;
  3. A brief statement setting forth the legal interest of each of the appellants in the building or the land involved in the action of the building official;
  4. A brief statement in ordinary and concise language of the specific order or action protested, together with any material facts claimed to support the appellant's contentions;

5. A brief statement in ordinary and concise language of the relief sought and the reasons why the protested order or action should be reversed, modified or set aside;
  6. The signatures of all parties named as appellants and their official mailing addresses; and
  7. The verification (by declaration under penalty of perjury) of at least one appellant as to the truth of the matters stated in the appeal.
- B. The Department of Transportation and Development shall make available to the public an appeal form consistent with the requirements of section A above.
- C. The appeal shall be filed within 10 days from the date of the service of the order or from the action of the building official.
- D. As soon as possible after receiving the written appeal, the Board of Appeals shall fix a date, time and place for the hearing by the Board of Appeals. The date shall not be less than 10 days nor more than 60 days from the date the appeal was filed with the building official. Written notice of the time and place of the hearing shall be given to each appellant at least 10 days prior to the date of the hearing, either by:
1. Causing a copy of such notice to be delivered to the appellant personally; or
  2. Mailing a copy of the notice to the appellant at the address shown on the appeal.
- [Codified by Ord. 05-2000, 7/13/00]

#### **9.02.180 Effect Of Failure To Appeal**

Failure of any person to file an appeal in accordance with the provisions of Section 9.01.170 shall constitute a waiver of the right to an administrative hearing and adjudication of the Notice and Order or other action of the building official.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.190 Scope Of Hearing On Appeal**

Only those matters or issues specifically raised by the appellant in the written request for appeal shall be considered in the hearing of the appeal.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.200 Procedures For Conduct Of Appeals Hearings**

- A. Record – A record of the entire appeal proceedings shall be made by tape recording or by any other means of permanent recording found appropriate by the Board of Appeals.
- B. Continuances – The Board of Appeals may grant requests for a continuance if good cause is shown for the continuance.
- C. Reasonable Dispatch – The Board of Appeals shall proceed with reasonable speed to conclude any matter before it.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.210 Form Of Notice Of Hearing**

The notice to appellant shall follow this basic form, but may include additional information:

“You are hereby notified that a hearing will be held before the Board of Appeals for the Building Official of Clackamas County at [hearing location] on the \_\_\_\_\_ day of \_\_\_\_\_, at the hour \_\_\_\_\_, upon the [Order or other action] regarding [address/location of building]. You may be present at the hearing. You may be represented by counsel, but need not be. You may present any relevant evidence and will be given the opportunity to cross-examine witnesses testifying against you.”

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.220 Conduct Of Hearing**

- A. Rules – Hearings need not be conducted according to court rules regarding evidence and witnesses.
- B. Oral Evidence – Oral evidence shall be taken only on oath or affirmation of the witness. The Board of Appeals may administer oaths or affirmations to witnesses.
- C. Admissibility of Evidence – Any relevant evidence shall be admitted if it is the type of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs. Common law or statutory rules that might dictate a contrary result in state courts will not apply.
- D. Exclusion of Evidence – Irrelevant, immaterial or unduly repetitious evidence shall be excluded.
- E. Rights of Parties – Each party shall have the following rights, among others:
  - 1. To call and examine witnesses on any matter relevant to the issues of the hearing;
  - 2. To introduce documentary and physical evidence;
  - 3. To cross-examine opposing witnesses on any matter relevant to the issues of the appeal;
  - 4. To impeach any witness regardless of which party first called the witness to testify;
  - 5. To rebut the evidence; and
  - 6. To be represented by anyone who is lawfully permitted to do so.
- F. Inspection of Premises – The Board of Appeals may inspect any building or premises involved in the appeal during the course of the hearing, provided that:
  - 1. Notice of the inspection is given to the parties before the inspection is made;
  - 2. The parties are given an opportunity to be present during the inspection, and
  - 3. conclusions reached upon completion of the inspection. Each party must be given an opportunity to rebut or explain observations and conclusions announced by the Appeals. The Appeals Adjudicator states for the record the material facts observed and the Adjudicator.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.230 Method And Form Of Decision**

- A. Form of Decision – The decision of the Board of Appeals shall be in writing, and shall contain findings of fact and a determination of the issues presented. A copy of the decision shall be delivered to the appellant personally or sent by certified mail, postage

prepaid, return receipt requested. A decision shall be issued within 14 days of the conclusion of any appeals hearing.

- B. Effective Date of Decision – The effective date of the decision shall be as stated in the decision itself. The timelines for compliance with the final decision should be based on the guidelines for compliance with the original Order or action of the building official, when appropriate.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.240 Plans And Permits**

The application, plans, specifications, computations and other data filed by an applicant for a permit shall be reviewed by the building official. Such plans may be reviewed by other departments of Clackamas County to verify compliance with any applicable laws and ordinances. If the building official finds that the work described in an application for a permit and the plans, specifications and other data filed therewith conform to the requirements of this chapter and other pertinent laws and ordinances, and that the fees have been paid, the building official shall issue a permit to the applicant.

When the building official issues a permit for which plans are required, the building official shall endorse in writing or stamp the plans and specifications. Such approved plans and specifications shall not be changed, modified or altered without authorization from the building official, and all work regulated by this chapter shall be done in accordance with the approved plans.

The building official may issue a permit for the construction of part of a building or structure before the complete plans and specifications for the whole building or structure have been submitted or approved, if adequate information and detailed statements have been filed to assure compliance with all pertinent requirements of this chapter. The holder of a partial permit who chooses to proceed assumes the risk that the permit for the entire building or structure may be denied.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.250 Retention Of Plans**

One set of approved plans, specifications and computations shall be retained by the building official for a period of not less than 90 days from date of completion of the work covered therein; and one set of approved plans and specifications shall be returned to the applicant.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.260 Validity Of Permit**

The building official shall consider any violations of Clackamas County Ordinances or other applicable laws that are known to him/her in responding to all permit requests and applications. The building official may refuse to issue permits under this chapter if the parcel of land, or the use of the land on which the building, or equipment is to be placed, altered, equipped or used is in violation of any Clackamas County Ordinance.



No building or site permit shall be issued by the building official until all plans for sewage disposal facilities have been approved by the appropriate authority. Further, no building containing plumbing shall be occupied until connected to a sewage disposal facility approved by the appropriate authority and meeting the minimum standards of the Oregon State Board of Health and the Department of Environmental Quality.

The issuance or granting of a permit or approval of plans, specifications and computations shall not be construed to be acquiescence to any violation of any of the provisions of this chapter or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of this chapter or other ordinances of the jurisdiction shall be null and void.

The issuance of a permit based on plans, specifications and/or other data shall not prevent the building official from thereafter requiring the correction of errors in said plans, specifications and other data, or from preventing building operations associated with the permit, if executed in violation of this chapter or of any other ordinances of this jurisdiction.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.270 Expiration Of Applications, Plans And Permits**

- A. Automatic Expiration of Applications -- Applications for which no permit is issued within 180 days following the date of the application shall automatically expire, and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the building official.
- B. Extensions on Unexpired Applications – The building official may extend the time for action by the applicant for a period not exceeding 180 days if:
  - 1. The applicant so requests; and
  - 2. The applicant shows that circumstances beyond applicant’s control have prevented action from being taken.
 No application shall be extended more than once.
- C. Pre-Conditions to Renewing Action on an Expired Application – In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee.
- D. Automatic Expiration of Permits – Every permit issued by the building official under the provisions of this chapter shall automatically expire and become null and void if the building or work authorized by the permit is:
  - 1. Not commenced within 180 days from the date of the permit; or
  - 2. Suspended or abandoned for a period of 180 days at any time after the work is commenced, or
  - 3. Not subject to inspection approval for a period of 180 days at any time after the work is commenced.
- E. Extensions on Unexpired Permits – Any permittee holding an unexpired permit may apply for an extension of the time within which to commence work under that permit when the permittee is unable to commence work within the time originally required for good reason. The building official may extend the time for action by the permittee for a period not exceeding 180 days if:
  - 1. The permittee requests an extension in writing; and

2. The permittee shows that circumstances beyond permittee's control have impeded progress under the permit.

No application shall be extended more than once.

- F. Timelines for Permits Issued to Resolve Violations – In those instances where a permit is issued to resolve a violation, the building official may specify the length of approval of the permit.
- G. Pre-Conditions to Resuming Work on Expired Permit – Before resuming work under an expired permit, a new permit must be obtained, and an additional fee remitted. The fee will determined under the following guidelines:
  1. If no changes have been made or will be made in the original plans and specifications for the work to be resumed; and the suspension or abandonment of work under the permit has not exceeded one year, then the fee will be one half the amount required for a new permit for such work; or
  2. If there have been or will be changes to the original plans and specifications for the work to be resumed, or the suspension or abandonment of work under the permit has exceeded one year, then the permittee shall pay a new full permit fee.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.280 Work Without A Permit; Investigation Fees**

Whenever any work for which a permit is required by this chapter has been commenced without first obtaining a permit, a special investigation shall be made before a permit may be issued for such work.

An investigation fee, in addition to the permit fee, may be collected whether or not a permit is ever issued. The investigation fee shall be equal to the amount of the permit fee. The payment of the investigation fee shall not exempt any person from compliance with all other provisions of this chapter nor from any penalty prescribed by law. [Codified by Ord. 05-2000, 7/13/00]

#### **9.02.290 Transferability**

With the permission of the building official a permit issued to one person or firm may be transferred to another person or firm to perform any work thereunder.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.300 Suspension; Revocation**

The building official may, in writing, suspend or revoke a permit issued under the provisions of this chapter whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation of any of the provisions of this chapter.

[Codified by Ord. 05-2000, 7/13/00]

#### **9.02.310 Inspections**

It shall be the duty of the permit holder or his/her agent to request all necessary inspections in a timely manner and according to the policies of Clackamas County, provide access to the site, and

provide all necessary equipment to make inspections as determined by the building official. The permit holder shall not proceed with the building construction until authorized by the building official. It shall be the duty of the permit holder to cause the work to remain accessible and exposed for inspection purposes. Any expense incurred by the permit holder to remove or replace any material required for proper inspection shall be the responsibility of the permit holder or his/her agent. Failure to request inspections shall result in expiration of the permit as per Section 9.02.270. The county has no obligation, responsibility, or liability to follow up on permits for which necessary inspections have not been requested or which are at risk of expiration under Section 9.02.270. The permittee shall bear all such responsibility and liability.

Work requiring a permit shall not be commenced until the permit holder or an agent of the permit holder has posted or otherwise made available an inspection record card that will allow the building official to conveniently notate required entries regarding inspection of the work. This card shall be maintained by the permit holder and kept available until final approval has been granted by the building official.

Any person to whom a permit is issued shall be liable for any loss, damage, or injury caused or arising from the permittee's negligence, as well as for any breach of the building codes or regulations, to the person suffering such loss, damage, or injury. The permittee shall indemnify, defend and hold harmless the County and its officers, employees and agents from any and all claims, demands, actions and suits (including all attorney fees and costs, through trial and on appeal) arising from the permittee's negligence, as well as for any breach of the building codes or regulations to the person suffering such loss, damage or injury.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.320 Fees**

Fees for permits, inspections, plan checks, site plan review, copy costs, and such other fees that the Clackamas County Board of Commissioners deem reasonable shall be as set from time to time by order of the Clackamas County Board of Commissioners.

The building official may authorize refunds of fees when the guidelines of the applicable refund policy so authorize.

The determination of value or valuation under any provisions of this chapter shall be made by the building official. The value to be used in computing building permit and plan review fees shall be the total value of all construction work associated with the permit, as well as all finish work, painting, roofing, electrical, plumbing, heating, air conditioning, elevators, fire-extinguishing systems and any other permanent equipment.

Enforcement fees are in addition to and not in lieu of civil penalties that may be imposed by a Compliance Hearings Officer or court. Enforcement fees shall be used to defray the costs of enforcement of the provisions of this chapter.

[Codified by Ord. 05-2000, 7/13/00]

### **9.02.330 Violations And Enforcement**

All persons shall comply with this chapter in the location, construction, maintenance, repair, alteration, or use of buildings, installations or sewage disposal systems or facilities within Clackamas County.

A violation of this chapter exists whenever a building, structure, installation, sewage disposal system or sewage disposal facility is, or is proposed to be, located, constructed, maintained, repaired, altered, or used contrary to the requirements of this chapter. Each day that a violation exists is considered to be a separate offense.

A violation of this chapter is a public nuisance, and continues to be a public nuisance until the offending building, structure, installation, system, facility or use is brought into compliance with this chapter.

The County may, in addition to the other remedies provided by law, institute injunction, mandamus, abatement or other appropriate proceedings to prevent, temporarily or permanently enjoin, abate, or remove violations of this chapter. The County may also enforce this chapter through the provisions of the Clackamas County Compliance Hearing Officer Ordinance. [Codified by Ord. 05-2000, 7/13/00]

#### **9.02.340 Prioritization Of Violations For Enforcement**

The building official is charged with administration, implementation and enforcement of the State Building Code and this chapter. His/her duties include the duty to oversee plan reviews and building inspections required under the State Building Code and this chapter, and the duty to supervise continuing enforcement when violations are identified. Since the Building Code Division has limited financial resources, the building official must exercise his/her inherent discretion to ensure that sufficient funds are available to deal with the most important public policy matters that come before him/her.

The top priority for Division resources is the processing of plans and permits properly applied for under the Codes. Although the Division must also address Code violations, violations vary greatly in severity, with some violations having a negligible impact on the public interest and others having a potentially great impact on the public interest. For this reason, the Board of County Commissioners has determined that the building official may prioritize violations for enforcement action without unduly compromising public policy. The Board of County Commissioners believes that this prioritization of violations for enforcement will result in the most effective and efficient re-allocation of Building Division resources.

[Codified by Ord. 05-2000, 7/13/00]

## Chapter 9.03

### 9.03 EXCAVATION AND GRADING

#### 9.03.010 Purpose

The purpose of this chapter is to safeguard life, limb, property and the public welfare by regulating grading on private property.

[Codified by Ord. 05-2000, 7/13/00]

#### 9.03.020 Scope

This chapter sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction. All excavation, grading and earthwork construction, including fills and embankments, shall be performed in accordance with Appendix J of the Oregon Structural Specialty Code (OSSC), modified as follows:

- A. OSSC Section J104.1: Submittal requirements. In addition to the provisions of Section 105.3, the applicant shall state the estimated quantities of excavation and fill, and provide a quantity calculation and/or methodology.
- B. OSSC Section J104.2: Site Plan Requirements. In addition to the provisions of Section 107, a grading plan shall show the existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extend of the work and show in detail that it complies with the requirements of this code. The plans shall show the existing grade on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of this code. Cross section drawing(s) shall be provided and shall be of sufficient quality and detail to accurately represent the proposed work, and that it conforms to the requirements of this code.

[Codified by Ord. 05-2000, 7/13/00]

#### 9.03.030 Permits Required; Exceptions

No person shall do any excavation, grading or earthwork construction ~~grading~~ without first having obtained a grading permit from the Building Codes Division Manager~~Clackamas County Building Official~~ or his/her designee. ~~In Appropriate instances, the Building Codes Division Manager may, upon showing by the applicant that one of the following categories applies, allow an exception to this chapter~~The following activities shall be exempt from this Chapter:

- A. ~~Grading in an isolated, self-contained area if there is no danger apparent to private or public property or drainage ways and is not in the flood fringe, floodway or~~

~~flood hazard sub-classification as defined by the Clackamas County Zoning and Development Ordinance and which is designated Rural or Natural Resource by the Clackamas County Comprehensive Plan;~~

- ~~A. An excavation below finished grade for basements and footings of a building, retaining wall or other structure authorized by a valid building permit; this shall not exempt any fill made with the material from such excavation nor exempt any excavation having an unsupported height greater than 5 feet after the completion of such structure;~~
- ~~B. Cemetery Graves;~~
- ~~C. Refuse disposal sites controlled by other regulations;~~
- ~~D. Excavations for wells or tunnels or utilities;~~
- ~~E. Mining, quarrying, excavating processing, stockpiling of rock, sand, gravel, aggregate or clay where established and provided for by law, provided such operations do not affect the lateral support or increase the stresses in or pressure upon any adjacent or contiguous property;~~
- ~~F. Exploratory excavations under the direction of soil engineers or engineering geologists;~~
- ~~G. An excavation which
 
  - ~~8. is less than 2 feet in depth, or~~
  - ~~9. which does not create a cut in slope greater than 5 feet in height and steeper than one and one half horizontal to one vertical; or,~~~~
- ~~A. A fill less than 1 foot in depth and placed on natural terrain with a slope flatter than five horizontal to one vertical, or less than 3 feet in depth, not intended to support structures, which does not exceed 50 cubic yards on any one lot and does not obstruct a drainage course. Farm grading, as defined in ORS 30.936. All farm grading shall be done in accordance with ORS 455.315; and~~
- ~~J.B. Grading performed as part of stream or habitat improvements, including turtle nests and log jams.~~

[Codified by Ord. 05-2000, 7/13/00]

**9.03.040 — Hazards**

~~Whenever the Building Codes Division Manager determines that any existing excavation, embankment, or fill on private property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, the owner of the property upon which the excavation or fill is located, or other person or agent in control of said property, upon receipt of notice in writing from the Building Codes Division Manager, shall within the period specified therein repair or eliminate such excavation or embankment so as to eliminate the hazard and be in conformance with the requirements of this chapter.~~

~~[Codified by Ord. 05-2000, 7/13/00]~~

**9.03.090 — Definitions**

~~For the purposes of this chapter, the definitions listed hereunder shall be construed as specified in this section.~~

- L. — ~~APPROVAL is the proposed work or completed work conforms to this chapter in the opinion of the Building Codes Division Manager.~~
- M. — ~~AS GRADED is the surface conditions extent on completion of grading.~~
- N. — ~~BEDROCK is in place solid rock.~~
- O. — ~~BENCH is a relatively level step excavated into earth material on which fill is to be placed.~~
- P. — ~~BORROW is earth material acquired from an off-site location for use in grading on a site.~~
- Q. — ~~CIVIL ENGINEER shall mean a professional engineer registered in the state to practice in the field of civil works.~~
- R. — ~~CIVIL ENGINEERING shall mean the application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works for the beneficial uses of mankind.~~
- S. — ~~COMPACTION is the densification of a fill by mechanical means.~~
- T. — ~~EARTH MATERIAL is sand, rock, natural soil or fill and/or any combination thereof.~~
- U. — ~~ENGINEERING GEOLOGIST shall mean a geologist experienced and knowledgeable in engineering geology.~~
- V. — ~~EROSION is the wearing away of the ground surface as a result of the movement of wind, water, and/or ice.~~
- W. — ~~EXCAVATION is the mechanical removal of earth material.~~
- X. — ~~FILL is a deposit of earth material placed by artificial means.~~
- Y. — ~~GRADE shall mean the vertical location of the ground surface.~~
- Z. — ~~EXISTING GRADE is the grade prior to grading.~~
- AA. — ~~ROUGH GRADE is the stage at which the grade approximately conforms to the approved plan.~~
- BB. — ~~FINISH GRADE is the final grade of the site which conforms to the approved plan.~~
- CC. — ~~GRADING is any excavating or filling or combination thereof.~~
- DD. — ~~KEY is a designed compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.~~
- EE. — ~~SITE is any lot or parcel of land or contiguous combination thereof, under the same ownership where grading is performed or permitted.~~
- FF. — ~~SLOPE is an inclined ground surface the inclination of which is expressed as a ratio of horizontal distance to vertical distance.~~
- GG. — ~~SOIL is naturally occurring superficial deposits overlying bedrock.~~
- HH. — ~~SOILS ENGINEER (Geotechnical Engineer) shall mean a civil engineer experienced and knowledgeable in the practice of soils engineering (geotechnical engineering)~~
- II. — ~~SOILS ENGINEERING (geotechnical engineering) shall mean the application of the principles of soil mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection and testing of the construction thereof.~~
- JJ. — ~~TERRACE is a relatively level step constructed in the face of a graded slope surface for drainage and maintenance purposes.~~

{Codified by Ord. 05-2000, 7/13/00}

### **9.03.390 — Grading Permit Requirement**

- ~~OO. — Permits Required. Except as exempted in 9.03.030 A through I of this chapter, no person shall do any grading without first obtaining a grading permit from the Building Codes Division Manager. A separate permit shall be required for each site, and may cover both excavations and fills~~
- ~~PP. — Application. To obtain a permit, the applicant shall first file an application therefor in writing on a form furnished by the chapter enforcement agency for that purpose. Every such application shall:~~
- ~~43. — Identify and describe the work to be covered by the permit for which application is made;~~
  - ~~44. — Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work;~~
  - ~~45. — Indicate the use or occupancy for which the proposed work is intended;~~
  - ~~46. — Be accompanied by plans, diagrams, computations, specifications and other data;~~
  - ~~47. — State the valuation of any new building or structure or any addition, remodeling or alteration to an existing building;~~
  - ~~48. — Be signed by the permittee, or his authorized agent; and~~
  - ~~49. — Give such other data and information as may be required by the Building Codes Division Manager.~~
- ~~XX. — Plans and Specification. When required by the Building Codes Division Manager, each application for a grading permit shall be accompanied by four sets of plans and specifications, and supporting data consisting of a soil engineering report and/or engineering geology report. When required by the Building Codes Division Manager, the plans and specifications shall be prepared and signed by a civil engineer.~~
- ~~YY. — Information on Plans and in Specifications. Plans shall be drawn to scale upon substantial paper or cloth and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that they will conform to the provisions of this chapter and all relevant laws, ordinances, rules and regulations. The first sheet of each set of plans shall give the location of the work and the name and address of the owner and the person by whom they were prepared. The plans shall include the following information:~~
- ~~52. — General vicinity of the proposed site;~~
  - ~~53. — Property limits and accurate contours of existing ground and details of terrain and area drainage;~~
  - ~~54. — Limiting dimensions, elevations or finish contours to be achieved by the grading and proposed drainage channels and related construction;~~
  - ~~55. — Detailed plans of all surface and subsurface drainage device, wall, cribbing, dams and other protective devices to constructed with, or as a part of, the proposed work together with a map showing the drainage area and the estimated runoff of the area served by any drains; and~~



56. — Location of any buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners which are within 15 feet of the property or which may be affected by the proposed grading operations.
57. — Specifications shall contain information covering construction and material requirements.
- FFF. — Soil Engineering Report. The soil engineering report required by Subsection C shall include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures and design criteria for corrective measures, including buttress fills, when necessary, and opinions and recommendations covering adequacy of sites to be developed by the proposed grading including the stability of slopes. Recommendations included in the report and approved by the Building Codes Division Manager shall be incorporated in the grading plans or specifications.
- GGG. — Engineering Geology Report. The engineering geology report required by Subsection C shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and opinions and recommendations covering the adequacy of sites to be developed by the proposed grading. Recommendations included in the report and approved by the Building Codes Division Manager shall be incorporated in the grading plans or specifications.
- HHH. — Issuance. The application, plans, specifications, computations and other data filed by an applicant for permit shall be reviewed by the Building Codes Division Manager. Such plans may be reviewed by other departments of this jurisdiction to verify compliance with any applicable laws under their jurisdiction. If the Building Codes Division Manager finds that the work described in an application for a permit and the plans, specifications and other data filed therewith conform to the requirements of this chapter and other pertinent laws and ordinances, and that the fees specified in Appendix A “A500 Building” have been paid, he shall issue a permit therefore to the applicant.
61. — In the review of the application, the Building Codes Division Manager may attach conditions of approval which in his opinion are necessary to comply with the purpose and requirements of this chapter and other pertinent laws and ordinances.
62. — When the Building Codes Division Manager issues the permit where plans are required, he/she shall endorse in writing or stamp the plans and specifications “REVIEWED.” Such reviewed plans and specifications shall not be changed, modified or altered without authorizations from the Building Codes Division Manager, and work shall be done in accordance with the reviewed plans.
- KKK. — Retention of Plans. One set of approved plans, specifications and computations shall be retained by the Building Codes Division Manager for a period of not less than 90 days from date of completion of the work covered therein; and one set of reviewed plans and specifications shall be returned to applicant, and said set shall be kept on the site of the work at all times during which the work authorized thereby is in progress.

- ~~LLL. Validity of Permit. The issuance or granting of a permit or approval of plans, specifications and computations shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this chapter or of any other codes or ordinances of the jurisdiction. No permit presuming to give authority to violate or cancel the provisions of this chapter shall be valid.~~
- ~~MMM. The issuance of a permit based upon plans, specifications, and other data shall not prevent the Building Codes Division Manager from thereafter requiring the correction of errors in said plans, specifications and other data, or from preventing building operations being carried on thereunder when in violation of this chapter or any other codes or ordinances of this jurisdiction.~~
- ~~NNN. Expiration. Every permit issued by the Building Codes Division Manager, under the provisions of this chapter shall expire by limitation and become null and void if the work authorized by such permit is not commenced within 180 days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days. Before such work can be recommenced, a new permit shall be first obtained to do so, and the fee therefor shall be one half the amount required for a new permit for such work, provided no changes have been made or will be made in the original plans and specifications for such work, and provided further that such suspension or abandonment has not exceeded one year. In order to renew action on a permit after expiration, the permittee shall pay a new full permit fee.~~
- ~~OOO. Any permittee holding an unexpired permit may apply for an extension of the time within which he may commence work under that permit when he is unable to commence work within the time required by this section for good and satisfactory reasons. The Building Codes Division Manager may extend the time for action by the permittee for a period not exceeding 180 days upon written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. No permit shall be extended more than once.~~
- ~~PPP. Suspension or Revocation. The Building Codes Division Manager may, in writing, suspend or revoke a permit issued under the provisions of this chapter whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any code or ordinance or regulation or any of the provisions of this chapter.~~
- ~~[Codified by Ord. 05-2000, 7/13/00]~~

#### **9.03.7109.03.040 Fees**

Fees are as set forth in Appendix A, "A500. Building".

[Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 05-2003, 3/13/03]

#### **9.03.7209.03.050 Bonds**

- A. The ~~Building Codes Division Manager~~Clackamas County Building Official may require bonds in such form and amounts as may be deemed necessary to assure that the -work, if not completed in accordance with the approved plans and specifications, will be corrected to eliminate hazardous conditions.

- B. In lieu of surety bond the applicant may file a cash bond or instrument of credit with the Clackamas County Building Codes Division ManagerClackamas County Building Official in an amount equal to that which would be required in the surety bond.

[Codified by Ord. 05-2000, 7/13/00]

### **9.03.730 — Cuts**

- A. ~~General. Unless otherwise recommended in the approved soil engineering and/or engineering geology report, cuts shall conform to the provisions of this section. In the absence of an approved soils engineering report these provisions may be waived for minor fills not intended to support structures.~~
- B. ~~Slope. The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than two horizontal to one vertical and unless the owner furnished a soils engineering or an engineering geology report, or both, stating that the site has been investigated and giving an opinion that a cut of a steeper slope will be stable and not create a hazard to public or private property.~~
- C. ~~Drainage and Terracing. Drainage and terracing shall be provided as required by 9.03.120.~~

[Codified by Ord. 05-2000, 7/13/00]

### **9.03.740 — Fills**

- A. ~~General.~~
1. ~~Unless otherwise recommended in the approved soil engineering report, fills shall conform to the provisions of this section.~~
  2. ~~In the absence of an approved soil engineering report these provisions may be waived for minor fills not intended to support structures.~~
- B. ~~Fill Location. Fill slopes shall not be constructed on natural slopes steeper than two to one.~~
- A. ~~Preparation of Ground. The ground surface shall be prepared to receive fill by removing vegetation, non-complying fill, top soil and other unsuitable materials scarifying to provide a bond with the new fill, and where slopes are steeper than five to one, and height is greater than 5 feet, by benching into sound bedrock or other competent material as determined by the soils engineer. The bench under the toe of a fill on a slope steeper than five to one shall be at least 10 feet wide. The area beyond the toe of the fill shall be sloped for sheet overflow or a paved drain shall be provided. When fill is to be placed over a cut, the bench under the toe of fill shall be at least 10 feet wide but the cut shall be made before placing the fill and approved by the Soils engineer and engineering geologist as a suitable foundation for fill.~~
- B. ~~Fill Material. Detrimental amounts of organic material shall not be permitted in fills. Fill material is not solid waste as defined in ORS 459 or hazardous waste as defined in ORS 466. Except as Permitted by the Building Codes Division Manager, no rock or similar irreducible material with a maximum dimension greater than 12 inches shall be buried or placed in fills.~~

- C. ~~EXCEPTION: The Building Codes Division Manager may permit placement of larger rock when the soils engineer properly devises a method of placement, continuously inspects its placement and approves the fill stability. The following conditions shall also apply:~~
1. ~~Prior to issuance of the grading permit, potential rock disposal areas shall be delineated on the grading plan;~~
  2. ~~Rock sizes greater than 12 inches in maximum dimension shall be 10 feet or more below grade, measured vertically; and~~
  3. ~~Rocks shall be placed so as to assure filling of all voids with fines.~~
- D. ~~Compaction. All fills shall be compacted to a minimum 90 percent of maximum density as determined by American Society for Testing and Materials (ASTM) Test D1557-78 Method A. Field density shall be determined in accordance with Test (ASTM) D1556-82 or equivalent as approved by the Building Codes Division Manager.~~
- E. ~~Slope. The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes shall be no steeper than two horizontal to one vertical.~~
- F. ~~Drainage and Terracing. Drainage and terracing shall be provided and the area above fill slopes and the surfaces of terraces shall be graded and paved as required by 9.03.120.~~
- [Codified by Ord. 05-2000, 7/13/00]

#### **9.03.750 — Setbacks**

- A. ~~General. Cut and fill slopes shall be set back from site boundaries in accordance with this section. Setback dimensions shall be horizontal distances measured perpendicular to the site boundary. Setback dimensions shall be as shown in Figure No.1 and No. 2.~~
- B. ~~Top of Cut Slope. The top of cut slopes shall be made not nearer to a site boundary line than one fifth of the vertical height of cut with a minimum of 2 feet and a maximum of 10 feet. The setback may need to be increased for any required intercepter drains.~~
- C. ~~Toe of Fill Slope. The toe of fill slope shall be made not nearer to the site boundary line than one half of the height of the slope, with a minimum of 2 feet and a maximum of 20 feet. Where a fill slope is to be located near the site boundary and the adjacent off site property is developed, special precautions shall be incorporated in the work as the Building Codes Division Manager deems necessary to protect the adjoining property from damage as a result of such grading. These precautions may include but are not limited to:~~
1. ~~Additional setbacks.~~
  2. ~~Provision for retaining or slough walls~~
  3. ~~Mechanical or chemical treatment of the fill slope surface to minimize erosion;~~
  4. ~~Provisions for the control of surface waters.~~
- D. ~~Modification of Slope Location. The Building Codes Division Manager may approve alternate setbacks. The Building Codes Division Manager may require~~

an investigation and recommendation by a qualified engineer or engineering geologist to demonstrate that the intent of this section has been satisfied.  
 [Codified by Ord. 05-2000, 7/13/00]

### **9.03.760 — Drainage and Terracing**

- A. — General. Unless otherwise indicated on the approved grading Plan, drainage facilities and terracing shall conform to the provision of this section for cut or fill slopes steeper than three (3) horizontal to one (1) vertical.
- B. — Terrace. Terraces at least 6 feet in width shall be established at not more than 30-foot vertical intervals on all cut or fill slopes to control surface drainage and debris except that where only one terrace is required, it shall be at mid-height. For cut or fill slopes greater than 60 feet and up to 120 feet in vertical height, one terrace at approximately mid-height shall be 12 feet in width. Terrace widths and spacing for cut and fill slopes greater than 120 feet in height shall be designed by the civil engineer and approved by the Building Codes Division Manager. Suitable access shall be provided to permit proper cleaning and maintenance.
1. — Swales or ditches on terraces shall have a minimum gradient of 5 percent and must be paved with reinforced concrete not less than 3 inches in thickness or an approved equal paving. They shall have a minimum depth at the deepest point of 1 foot and a minimum paved width of 5 feet.
  2. — A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (projected) without discharging into a down drain.
- C. — Subsurface Drainage. Cut and fill slopes shall be provided with subsurface drainage as necessary for stability.
- D. — Disposal. All drainage facilities shall be designed to carry waters to the nearest practicable drainage way approved by the Building Codes Division Manager and/or other appropriate jurisdiction as a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices.
- E. — Building pads shall have a drainage gradient of 2 percent toward approved drainage facilities, unless waived by the Building Codes Division Manager.
- F. — EXCEPTION: The gradient from the building pad may be 1 percent if all of the following conditions exist through the permit area:
1. — No proposed fills are greater than 10 feet in maximum depth;
  2. — No proposed finish cut or fill slope faces have a vertical height in excess of 10 feet; and
  3. — No existing slope faces, which have a slope face steeper than 10 horizontally to 1 foot vertically, have a vertical height in excess of 10 feet.
- G. — Interceptor Drains. Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes towards the cut and has a drainage path greater than 40 feet measured horizontally. Interceptor drains shall be paved with a minimum of 3 inches of concrete or gunite and reinforced. They shall have a minimum depth of 12 inches and minimum paved width of 30

~~inches measured horizontally across the drain. The slope of drain shall be approved by the Building Codes Division Manager.  
[Codified by Ord. 05-2000, 7/13/00]~~

### ~~9.03.770 — Erosion Control~~

- ~~A. — Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.~~
- ~~B. — Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.  
[Codified by Ord. 05-2000, 7/13/00]~~

### ~~9.03.780 — Grading Inspection~~

- ~~A. — General:~~
- ~~1. — All grading operations for which a permit is required shall be subject to inspection by the Building Codes Division. When required by the Building Codes Division Manager, special inspection of grading operations and special testing shall be performed in accordance with the provisions of 9.03.140 C.~~
  - ~~2. — A survey of the lot may be required by the Building Codes Division Manager to verify that the site is in accordance with the approved plans. It shall be the duty of the permit applicant to cause the work to be accessible and exposed for inspection purposes. Neither the Building Codes Division Manager nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.~~
- ~~B. — Inspection Requests. It shall be the duty of the person doing the work authorized by a permit to notify the Building Codes Division Manager that such work is ready for inspection. The Building Codes Division Manager may require that every request for inspection be filed at least one working day before such inspection is desired. Such request may be in writing or by telephone at the option of the Building Codes Division Manager.~~
- ~~A. — Required Inspections:~~
- ~~1. — Pre-inspection. After all organic material or other deleterious material has been removed from the site and before any fill material is placed on site.~~
  - ~~2. — Final Inspection. To be made after all finish grading is completed and all conditions of approval have been satisfied~~
- ~~B. — Grading Designation. All grading in excess of 5000 cubic yards shall be performed in accordance with the approved grading plan prepared by a civil engineer, and shall be designated as “engineering grading.” Grading, involving less than 5000 cubic yards shall be designated “regular grading” unless the permittee, with the approval of the Building Codes Division Manager, chooses to have the grading performed as “engineered grading.”~~

- C. ~~Engineered Grading Requirements. For engineering grading, it shall be the responsibility of the civil engineer who prepares the approved grading plan to incorporate all recommendations from the soil engineering and engineering geology reports into the grading plan. He also shall be responsible for the professional inspection and approval of the grading within his area of technical specialty. This responsibility shall include, but need not be limited to, inspection and approval as to the establishment of line, grade and drainage of the development area. The civil engineer shall act as the coordinating agent in the event the need arises for liaison between the other professionals, the contractor and the Building Codes Division Manager. The civil engineer also shall be responsible for the preparation of revised plans and the submission of as graded grading plans upon completion of the work. The grading contractor shall submit in a form prescribed by the Building Codes Division Manager a statement of compliance to said as built plan.~~
1. ~~Soil engineering and engineering geology reports shall be required as specified in Section 9.03.030. During grading all necessary reports, compaction data and soil engineering and engineering geology recommendations shall be submitted to the civil engineer and the Building Codes Division Manager by the soils engineer and the engineering geologist.~~
  2. ~~The soils engineer's area of responsibility shall include, but need not be limited to the professional inspection and approval concerning the preparation of ground to receive fills, testing for required compaction, stability of all finish slopes and the design of buttress fills, where required, incorporating data supplied by the engineering geologist.~~
  3. ~~The engineering geologist's area of responsibility shall include, but need not be limited to, professional inspection and approval of the adequacy of natural ground for receiving fills and the stability of cut slopes with respect to geological matters and the need for sub-drains or other ground water drainage devices. He shall report his findings to the soils engineer and the civil engineer for engineering analysis.~~
  4. ~~The Building Codes Division Manager shall inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.~~
- D. ~~Regular Grading Requirements.~~
1. ~~The Building Codes Division Manager may require inspection and testing by an approved testing agency.~~
  2. ~~The testing agency's responsibility shall include, but need not be limited to, approval concerning the inspection of cleared areas and benches to receive fill, and the compaction of fills.~~
  3. ~~When the Building Codes Division Manager has cause to believe that geologic factors may be involved, the grading operation will be required to conform to "engineering grading" requirements.~~
- E. ~~Notification Of Noncompliance. If, in the course of fulfilling their responsibility under this chapter, the civil engineer, the soils engineer, the engineering geologist or the testing agency finds that the work is not being done in conformance with~~

~~this ordinance or the approved grading plans, the discrepancies shall be reported immediately in writing to the person in charge of the grading work and to the Building Codes Division Manager. Recommendations for corrective measures, if necessary, shall be submitted.~~

- ~~F. — Transfer of Responsibility for Approval. If the civil engineer, the soils engineer, the engineering geologist or the testing agency of record is changed during the course of the work, the work shall be stopped until the replacement has agreed to accept the responsibility within the area of their technical competence for approval upon completion of the work.~~

~~[Codified by Ord. 05-2000, 7/13/00]~~

### **9.03.790 — Completion of Work**

- ~~A. — Final Reports. Upon completion of the rough grading work and at the final completion of the work the Building Codes Division Manager may require the following reports and drawings and supplements thereto:~~
- ~~1. — An as-graded grading plan prepared by the civil engineer including original ground surface elevations, as-graded ground surface elevations, lot drainage patterns and locations and elevations of all surface and subsurface drainage facilities. He/she shall state that to the best of his knowledge the work was done in accordance with the final approved grading plan;~~
  - ~~2. — A soils grading report prepared by the soils engineer including locations and elevation of field density tests, summaries of field and laboratory tests and other substantiating data and comments on any changes made during grading and their effect on the recommendations made in the soil engineering investigation report. He/she shall render a finding as to the adequacy of the site for the intended use; and~~
  - ~~3. — A geologic grading report prepared by the engineering geologist including a final description of the geology of the site and any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan; He/she shall render a finding as to the adequacy of the site for the intended use as affected by geologic factors.~~
- ~~B. — Notification of Completion. The permittee or his/her agent shall notify the Building Codes Division Manager when the grading operation is ready for final inspection. Final approval shall not be given until all work including installation of all drainage facilities and their protective devices and all erosion control measures have been completed in accordance with the final approved grading plan and the required reports have been submitted.~~

~~[Codified by Ord. 05-2000, 7/13/00]~~

### **9.03.800 — Powers and Duties of Building Codes Division Manager**



- A. ~~General. The Building Codes Division Manager is hereby authorized and directed to enforce all the provisions of this ordinance. For such purposes he/she shall have the powers of a law enforcement officer.~~
- B. ~~Deputies. The Building Codes Division Manager may appoint technical officers, deputies, agents, inspectors and other employees, and may authorize and empower them to act, enforce and carry out the functions, terms and provisions of this ordinance.~~
- C. ~~Right of Entry. Whenever necessary to make an inspection to enforce any of the provisions of this chapter, or whenever the Building Codes Division Manager or his/her authorized representative has reasonable cause to believe that there exists upon any premises any condition or violation which makes such premises unsafe, dangerous or hazardous, the Building Codes Division Manager or his/her deputies, or other employees, agents or authorized representative may enter such premises at all reasonable times to inspect the same or to perform any duty imposed upon the Building Codes Division Manager by this chapter, provided that if such premises be occupied, he/she shall first present proper credentials and request entry; and if such premises be unoccupied, he/she shall first make a reasonable effort to locate the owner or other persons having charge or control of the premises and request entry. If such entry is refused, The Building Codes Division Manager or his/her deputies, or other employees, agents or authorized representative shall have recourse to every remedy provided by law to secure entry.~~
- D. ~~Stop Orders. Whenever any work is being done contrary to the provisions of this chapter, the Building Codes Division Manager or his/her authorized representative may order the work stopped by notice in writing served on any persons engaged in the doing or causing such work to be done, and any such persons shall forthwith stop such work until authorized by the Building Codes Division Manager to proceed with the work.~~
- E. ~~Liability~~
1. ~~The Building Codes Division Manager, or his/her deputies, or other employees, agents or authorized representative charged with the enforcement of this chapter, acting in good faith and without malice in the discharge of his/her duties, shall not thereby render him/herself personally liable for any damage that may accrue to persons or property as a result of any act or by reason of any act or omission in the discharge of his/her duties. Any suit brought against the Building Codes Division Manager or employee because of such act or omission performed by him/her in the enforcement of any provision of such chapters shall be defended by this jurisdiction until final termination of such proceedings, and any judgment resulting therefrom shall be assumed by this jurisdiction.~~
  2. ~~This chapter shall not be construed to relieve from or lessen the responsibility of any person owning, operating or controlling any building or structure for any damages to persons or property caused by defects, nor shall the chapter enforcement agency or its parent jurisdiction be held as assuming any such liability by reason of the inspections authorized by this chapter or any certificates of inspection issued under this chapter.~~

~~Cooperation of Other Officials and Officers. The Building Codes Division Manager may request, and shall receive so far as is required in the discharge of his duties, the assistance and cooperation of other officials of this jurisdiction.~~

~~{Codified by Ord. 05-2000, 7/13/00}~~

**9.03.810 — Violation Constitutes Nuisance; Abatement Remedies**

~~A. — General. Any violation of any term or provision of this chapter is hereby deemed to constitute a public nuisance. In addition to any other remedies or actions provided for under the terms and provisions of this chapter, or by law, violation of this chapter may be abated by a civil action filed by Clackamas County Counsel in Circuit Court in the name of the County against any violator, including the property owner or occupier.~~

~~B. — Remedies. Procedure for remedy of said violation shall be:~~

- ~~1. — Issuance of Warnings — The Building Codes Division Manager or his deputy may issue a warning notice of an alleged violation: if issued, such warning notice shall give a brief description of the violation alleged to exist, and shall be deemed to be served upon the person accused of the offense when sent by certified mail to the address of the violation or to the address of the owner of the property as shown on the Clackamas County Assessor's ownership records;~~
- ~~2. — The warning notice shall further contain the name of the County Department to contact regarding the violation, the name of the person issuing the warning notice, the date the warning was issued and a statement that failure to correct the alleged violation or to contact the appropriate County Department may result in civil proceedings being filed to abate the nuisance;~~
- ~~3. — If the alleged violation has not been corrected within ten(10) days after service of the warning notice as set forth above, the County may institute injunction, mandamus, abatement or other appropriate proceedings to prevent, temporarily or permanently enjoin, abate or remove the alleged violation; and~~
- ~~4. — Emergencies — In the event that the Building Codes Division determines that an immediate threat exists to the public health, safety or welfare, the ten (10) day notice period may be waived and immediate action to resolve the alleged violation may be taken.~~

~~C. — Penalties. Any person who violates this chapter shall be subject to a civil penalty in an amount set by County Code Chapter 2.07 as determined by the Compliance Hearings Officer.~~

~~D. — The aforesaid monetary penalties are in addition to any other remedies provided by law.~~

~~{Codified by Ord. 05-2000, 7/13/00; Amended by Ord. 05-2003, 3/13/03}~~

**Summary of Scoping Provisions for Proposed Adoption**

As referenced in the 2019 Oregon Structural Specialty Code, the following scoping provisions will be added to the Clackamas County Ordinance 9.02 per ORS 455.020(4)

- **101.2 Scope.** Municipalities, as defined in ORS 455.010, may establish administrative procedures in accordance with ORS 455.020 (4), and may amend specific sections of Chapter 1, as identified throughout the chapter.

Municipalities are permitted to enact local ordinances for the following:

1. **Pursuant to the regulation of dangerous buildings,** a municipality may adopt seismic rehabilitation plans that provide for phased completion of repairs that are designed to provide improved life safety but that may be less than the standards for new buildings. *2019 Oregon Structural Specialty Code and the ASCE 41-13 Seismic Evaluation and Retrofit of Existing Buildings*
  
2. **Abatement of nuisances and dangerous buildings.**  
 Clackamas County Ordinance 9.01.100 For the purpose of this chapter, any building, building system, or structure which has any or all of the conditions or defects hereinafter described shall be deemed to be a dangerous building or structure, provided that such conditions or defects endanger the life, health, property or safety of its occupants or the public.
  - A. Whenever a building or structure is determined to be structurally unsound or defective such that the building collapse or other structural failure may occur or where such a structural condition exists that may be injurious to life, limb or property.
  - B. Whenever a required door aisle, passageway, stair, or other exit component or system is blocked or otherwise rendered unusable or is otherwise in violation of any applicable code.
  - C. Whenever a building or structure is being used or occupied contrary to the manner in which it was approved provided that such use creates a life or fire safety hazard, health hazard or environmental hazard to the building occupants or adjacent property owners.
  - D. Whenever a building or structure is effected by one or more health hazards including but not limited to inadequate plumbing and/or sanitation, inadequate light and/or ventilation, chemical hazard, toxins, or is otherwise determined to be unfit for human habitation or use.
  - E. Whenever, for any reason, a building or structure or a portion thereof is manifestly unsafe for the purpose for which it is being used.
  - F. Whenever a building contains fire hazard as defined in the most current edition of the Oregon Fire Code that creates an immediate threat to life or fire safety.
  - G. Whenever any building system (electrical, plumbing, heating, ventilation, air conditioning or other permanently installed system) is determined to be unsafe or otherwise in violation of any applicable code or ordinance.
  - H. Whenever permanently installed equipment or machinery creates a structural, life or fire safety hazard, health or other hazard.

- I. Whenever the accumulation of solid and/or putrescible waste creates a structural, life or fire safety, health or other hazard.
- J. Whenever an environmental hazard exists that poses an immediate danger to the occupants of a building or where the continued use of a building will cause the environmental hazard to worsen.
- K. Whenever an occupied building lacks the operational, potable water supply.
- L. Whenever an occupied building lacks a functioning connection to public sewer or an approved and fully operational septic facilities.
- M. Whenever any other condition exists that creates a significant structural, life or fire safety, health or other hazard that impacts the occupancy or continued use of buildings or structures. In such cases, the health officer or the building official shall cite the specific reason(s) that the building or structure has been determined to be unsafe.

### 3. Demolition

2019 Oregon Structural Specialty Code

**Section 3303.1 Construction Documents.** Construction documents and a schedule of demolition shall be submitted where required by the building official. Where such information is required, work shall not be done until such construction documents are schedule, or both are approved.

**3303.2 Pedestrian protection.** The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by this chapter.

**3303.3 Means of egress.** A horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved.

**3303.4 Vacant Lot.** Where a structure has been demolished or removed, the vacant lot shall be filled and maintained to the existing grade or in accordance with the ordinances of the jurisdiction having authority.

**3303.5 Water accumulation.** Provisions shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

**3303.6 Utility connections.** Service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the applicable governing authority.

**3303.7 Fire safety during demolition.** Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the international fire code.

### 4. Protection of adjoining property

OSSC Section 3307 Protection of Adjoining Property

**Section 3307.1 Protection Required.** Adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Protection shall be provided for footings, foundation, party walls, chimneys, skylights and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities. The person making or causing an excavation to be made shall provide written notice to the owners of adjoining buildings advising them that the excavation is to

be made and that the adjoining buildings should be protected. Said notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.

**5. Retaining walls.**

2018 International Building Code

Section 105.2 (4) Retaining walls that are not over 4 feet in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.

ASCE 7-16, Section 15.6.1 (See attachment 6)

**6. Fences.**

2017 Oregon Residential Specialty Code

Section 105.2 (2) Except barriers around swimming pools as required in Appendix G, fences not over 7 feet high and typical field fencing not over 8 feet high where constructed of woven wire or chain link)

ASCE 7-16, Section 15.6.8 (See attachment 6)

**7. Water Tanks.**

2018 International Building Code

Section 105.2 (5) Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons and the ratio of height to diameter or width does not exceed 2 to 1

ASCE 7-16, 15.7 (See attachment 6)

**8. Telecommunication Towers.** Free Standing Cellular phone, radio, television and other telecommunication and broadcast towers that are not attached to or supported by a regulated building

ASCE 17-6, Section 15.6.6

**9. Ground Mounted Flagpoles.**

2018 International Building Code Section 1807.3

(See attachment 5)

**10. Piers and Wharves.**

2019 Oregon Structural Specialty Code

**Section 455.1 Scope.** This section shall apply to regulated piers and wharves constructed, in whole or in part, of combustible materials and to regulated piers and wharves constructed of noncombustible materials having less than 2-hour fire-resistive protection of the structural elements or pier deck.

**Section 455.2** Fire-extinguishing systems. Automatic fire-extinguishing systems shall be installed as specified in Section 903.

**455.3. Physical protection.** Where fire sprinkler piping and fire extinguishing equipment are subject to damage by floating debris, barriers shall be provided to exclude or protect against such debris.

**455.4 Subdivision of substructures.** All substructures of piers shall have the under-deck area subdivided by:

1. Transverse fire walls at intervals not exceeding 450 square feet extending from the low water line to the deck. Where superstructures bridge a required fire wall, the fire wall shall extend to the roof of the superstructure as required for fire walls in accordance with Chapter 7.
2. Transverse fire stops located between fire walls, spacing between fire walls, and fire stops shall not exceed 1550 feet. Fire stops shall fit tightly against the pier deck and around any structural members of pipes that pass through the fire stop so that an effective barrier to fire and draft is maintained. Fire stops shall extend to the water line. Where aprons or platforms are built along the sides of a pier, fire stops shall extend to the outside edge of such aprons or platforms.

**455.5 Detailed Requirements.** Fire walls shall be of reinforced concrete having a fire-resistance rating of 4 hours or other materials of equivalent stability and fire resistance. Fire stops shall be constructed of wood planking built up to a thickness of 4 inches and securely fastened to the structural frame or other construction having equivalent stability and fire resistance.

**455.6 Superstructures.** Except as provided in this section, superstructures located on piers and wharves shall be classified for occupancy and type of construction and constructed according to this code.

11. Matters not encompassed by this code

**1805.2.2 Walls.** Dampproofing materials for walls shall be installed on the exterior surface of the wall, and shall extend from the top of the footing to above ground level.

Dampproofing shall consist of a bituminous material, 3 pounds per square yard (16 N/m<sup>2</sup>) of acrylic modified cement, 1/8 inch (3.2 mm) coat of surface-bonding mortar complying with ASTM C887, any of the materials permitted for waterproofing by Section 1805.3.2 or other *approved* methods or materials.

**1805.2.2.1 Surface preparation of walls.** Prior to application of dampproofing materials on concrete walls, holes and recesses resulting from the removal of form ties shall be sealed with a bituminous material or other *approved* methods or materials. Unit masonry walls shall be parged on the exterior surface below ground level with not less than 3/8 inch (9.5 mm) of Portland cement mortar. The parging shall be coved at the footing.

**Exception:** Parging of unit masonry walls is not required where a material is *approved* for direct application to the masonry.

**1805.3 Waterproofing.** Where the ground-water investigation required by Section 1803.5.4 indicates that a hydrostatic pressure condition exists, and the design does not include a ground-water control system as described in Section 1805.1.3, walls and floors shall be waterproofed in accordance with this section.

**1805.3.1 Floors.** Floors required to be waterproofed shall be of concrete and designed and constructed to withstand the hydrostatic pressures to which the floors will be subjected.

Waterproofing shall be accomplished by placing a membrane of rubberized asphalt, butyl rubber, fully adhered/fully bonded HDPE or polyolefin composite membrane or not less than 6-mil [0.006 inch (0.152 mm)] polyvinyl chloride with joints lapped not less than 6 inches (152 mm) or other *approved* materials under the slab. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.

**1805.3.2 Walls.** Walls required to be waterproofed shall be of concrete or masonry and shall be designed and constructed to withstand the hydrostatic pressures and other lateral loads to which the walls will be subjected.

Waterproofing shall be applied from the bottom of the wall to not less than 12 inches (305 mm) above the maximum elevation of the ground-water table. The remainder of the wall shall be dampproofed in accordance with Section 1805.2.2. Waterproofing shall consist of two-ply hot-mopped felts, not less than 6-mil (0.006 inch; 0.152 mm) polyvinyl chloride, 40-mil (0.040 inch; 1.02 mm) polymer-modified asphalt, 6-mil (0.006 inch; 0.152 mm) polyethylene or other *approved* methods or materials capable of bridging nonstructural cracks. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.

**1805.3.2.1 Surface preparation of walls.** Prior to the application of waterproofing materials on concrete or

masonry walls, the walls shall be prepared in accordance with Section 1805.2.2.1.

**1805.3.3 Joints and penetrations.** Joints in walls and floors, joints between the wall and floor and penetrations of the wall and floor shall be made water tight utilizing *approved* methods and materials.

**1805.4 Subsoil drainage system.** Where a hydrostatic pressure condition does not exist, dampproofing shall be provided and a base shall be installed under the floor and a drain installed around the foundation perimeter. A subsoil drainage system designed and constructed in accordance with Section 1805.1.3 shall be deemed adequate for lowering the ground-water table.

**1805.4.1 Floor base course.** Floors of basements, except as provided for in Section 1805.1.1, shall be placed over a floor base course not less than 4 inches (102 mm) in thickness that consists of gravel or crushed stone containing not more than 10 percent of material that passes through a No. 4 (4.75 mm) sieve.

**Exception:** Where a site is located in well-drained gravel or sand/gravel mixture soils, a floor base course is not required.

**1805.4.2 Foundation drain.** A drain shall be placed around the perimeter of a foundation that consists of gravel or crushed stone containing not more than 10-percent material that passes through a No. 4 (4.75 mm) sieve. The drain shall extend not less than 12 inches (305 mm) beyond the outside edge of the footing. The thickness shall be such that the bottom of the drain is not higher than the bottom of the base under the floor, and that the top of the drain is not less than 6 inches (152 mm) above the top of the footing. The top of the drain shall be covered with an *approved* filter membrane material. Where a drain tile or perforated pipe is used, the invert of the pipe or tile shall not be higher than the floor elevation. The top of joints or the top of perforations shall be protected with an *approved* filter membrane material. The pipe or tile shall be placed on not less than 2 inches (51 mm) of gravel or crushed stone complying with Section 1805.4.1, and shall be covered with not less than 6 inches (152 mm) of the same material.

**1805.4.3 Drainage discharge.** The floor base and foundation perimeter drain shall discharge by gravity or mechanical means into an *approved* drainage system that complies with the *International Plumbing Code*.

**Exception:** Where a site is located in well-drained gravel or sand/gravel mixture soils, a dedicated drainage system is not required.

## SECTION 1806 PRESUMPTIVE LOAD-BEARING VALUES OF SOILS

**1806.1 Load combinations.** The presumptive load-bearing values provided in Table 1806.2 shall be used with the *allowable stress design* load combinations specified in Section 1605.3. The values of vertical foundation pressure and lateral bearing pressure given in Table 1806.2 shall be permitted to

be increased by one-third where used with the alternative basic load combinations of Section 1605.3.2 that include wind or earthquake loads.

**1806.2 Presumptive load-bearing values.** The load-bearing values used in design for supporting soils near the surface shall not exceed the values specified in Table 1806.2 unless data to substantiate the use of higher values are submitted and approved. Where the *building official* has reason to doubt the classification, strength or compressibility of the soil, the requirements of Section 1803.5.2 shall be satisfied.

Presumptive load-bearing values shall apply to materials with similar physical characteristics and dispositions. Mud, organic silt, organic clays, peat or unprepared fill shall not be assumed to have a presumptive load-bearing capacity unless data to substantiate the use of such a value are submitted.

**Exception:** A presumptive load-bearing capacity shall be permitted to be used where the *building official* deems the load-bearing capacity of mud, organic silt or unprepared fill is adequate for the support of lightweight or temporary structures.

**1806.3 Lateral load resistance.** Where the presumptive values of Table 1806.2 are used to determine resistance to lateral loads, the calculations shall be in accordance with Sections 1806.3.1 through 1806.3.4.

**1806.3.1 Combined resistance.** The total resistance to lateral loads shall be permitted to be determined by combining the values derived from the lateral bearing pressure and the lateral sliding resistance specified in Table 1806.2.

**1806.3.2 Lateral sliding resistance limit.** For clay, sandy clay, silty clay, clayey silt, silt and sandy silt, the lateral sliding resistance shall not exceed one-half the dead load.

**1806.3.3 Increase for depth.** The lateral bearing pressures specified in Table 1806.2 shall be permitted to be increased by the tabular value for each additional foot (305 mm) of depth to a value that is not greater than 15 times the tabular value.

**1806.3.4 Increase for poles.** Isolated poles for uses such as flagpoles or signs and poles used to support buildings that are not adversely affected by a 1/2-inch (12.7 mm) motion at the ground surface due to short-term lateral loads shall be permitted to be designed using lateral bearing pressures equal to two times the tabular values.

**SECTION 1807  
FOUNDATION WALLS, RETAINING  
WALLS AND EMBEDDED POSTS AND POLES**

**1807.1 Foundation walls.** Foundation walls shall be designed and constructed in accordance with Sections 1807.1.1 through 1807.1.6. Foundation walls shall be supported by foundations designed in accordance with Section 1808.

**1807.1.1 Design lateral soil loads.** Foundation walls shall be designed for the lateral soil loads set forth in Section 1610.

**1807.1.2 Unbalanced backfill height.** Unbalanced backfill height is the difference in height between the exterior finish ground level and the lower of the top of the concrete footing that supports the foundation wall or the interior finish ground level. Where an interior concrete slab on grade is provided and is in contact with the interior surface of the foundation wall, the unbalanced backfill height shall be permitted to be measured from the exterior finish ground level to the top of the interior concrete slab.

**1807.1.3 Rubble stone foundation walls.** Foundation walls of rough or random rubble stone shall be not less than 16 inches (406 mm) thick. Rubble stone shall not be used for foundation walls of structures assigned to *Seismic Design Category C, D, E or F*.

**1807.1.4 Permanent wood foundation systems.** Permanent wood foundation systems shall be designed and installed in accordance with AWC PWF. Lumber and plywood shall be preservative treated in accordance with AWPA U1 (Commodity Specification A, Special Requirement 4.2) and shall be identified in accordance with Section 2303.1.9.1.

**1807.1.5 Concrete and masonry foundation walls.** Concrete and masonry foundation walls shall be designed in accordance with Chapter 19 or 21, as applicable.

**Exception:** Concrete and masonry foundation walls shall be permitted to be designed and constructed in accordance with Section 1807.1.6.

**1807.1.6 Prescriptive design of concrete and masonry foundation walls.** Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section.

**TABLE 1806.2  
PRESUMPTIVE LOAD-BEARING VALUES**

CLASS OF MATERIALS	VERTICAL FOUNDATION PRESSURE (psf)	LATERAL BEARING PRESSURE (psf/ft below natural grade)	LATERAL SLIDING RESISTANCE	
			Coefficient of friction <sup>a</sup>	Cohesion (psf) <sup>b</sup>
1. Crystalline bedrock	12,000	1,200	0.70	—
2. Sedimentary and foliated rock	4,000	400	0.35	—
3. Sandy gravel and gravel (GW and GP)	3,000	200	0.35	—
4. Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	2,000	150	0.25	—
5. Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH and CH)	1,500	100	—	130

For SI: 1 pound per square foot = 0.0479kPa, 1 pound per square foot per foot = 0.157 kPa/m.

a. Coefficient to be multiplied by the dead load.

b. Cohesion value to be multiplied by the contact area, as limited by Section 1806.3.2.



**1807.1.6.1 Foundation wall thickness.** The thickness of prescriptively designed foundation walls shall be not less than the thickness of the wall supported, except that foundation walls of not less than 8-inch (203 mm) nominal width shall be permitted to support brick-veneered frame walls and 10-inch-wide (254 mm) cavity walls provided that the requirements of Section 1807.1.6.2 or 1807.1.6.3 are met.

**1807.1.6.2 Concrete foundation walls.** Concrete foundation walls shall comply with the following:

1. The thickness shall comply with the requirements of Table 1807.1.6.2.
2. The size and spacing of vertical reinforcement shown in Table 1807.1.6.2 are based on the use of reinforcement with a minimum yield strength of 60,000 pounds per square inch (psi) (414 MPa). Vertical reinforcement with a minimum yield strength of 40,000 psi (276 MPa) or 50,000 psi (345 MPa) shall be permitted, provided that the same size bar is used and the spacing shown in the table is reduced by multiplying the spacing by 0.67 or 0.83, respectively.
3. Vertical reinforcement, where required, shall be placed nearest the inside face of the wall a distance,  $d$ , from the outside face (soil face) of the wall. The distance,  $d$ , is equal to the wall thickness,  $t$ , minus 1.25 inches (32 mm) plus one-half the bar diameter,  $d_b$ , [ $d = t - (1.25 + d_b / 2)$ ]. The reinforcement shall be placed within a tolerance of  $\pm 3/8$  inch (9.5 mm) where  $d$  is less than or equal to 8 inches (203 mm) or  $\pm 1/2$  inch (12.7 mm) where  $d$  is greater than 8 inches (203 mm).
4. In lieu of the reinforcement shown in Table 1807.1.6.2, smaller reinforcing bar sizes with closer spacings that provide an equivalent cross-sectional area of reinforcement per unit length shall be permitted.
5. Concrete cover for reinforcement measured from the inside face of the wall shall be not less than  $3/4$  inch (19.1 mm). Concrete cover for reinforcement measured from the outside face of the wall shall be not less than  $1\frac{1}{2}$  inches (38 mm) for No. 5 bars and smaller, and not less than 2 inches (51 mm) for larger bars.
6. Concrete shall have a specified compressive strength,  $f'_c$ , of not less than 2,500 psi (17.2 MPa).
7. The unfactored axial load per linear foot of wall shall not exceed  $1.2 t f'_c$  where  $t$  is the specified wall thickness in inches.

**1807.1.6.2.1 Seismic requirements.** Based on the *seismic design category* assigned to the structure in accordance with Section 1613, concrete foundation walls designed using Table 1807.1.6.2 shall be subject to the following limitations:

1. *Seismic Design Categories* A and B. Not less than one No. 5 bar shall be provided around

window, door and similar sized openings. The bar shall be anchored to develop  $f_y$  in tension at the corners of openings.

2. *Seismic Design Categories* C, D, E and F. Tables shall not be used except as allowed for plain concrete members in Section 1905.1.7.

**1807.1.6.3 Masonry foundation walls.** Masonry foundation walls shall comply with the following:

1. The thickness shall comply with the requirements of Table 1807.1.6.3(1) for plain masonry walls or Table 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4) for masonry walls with reinforcement.
2. Vertical reinforcement shall have a minimum yield strength of 60,000 psi (414 MPa).
3. The specified location of the reinforcement shall equal or exceed the effective depth distance,  $d$ , noted in Tables 1807.1.6.3(2), 1807.1.6.3(3) and 1807.1.6.3(4) and shall be measured from the face of the exterior (soil) side of the wall to the center of the vertical reinforcement. The reinforcement shall be placed within the tolerances specified in TMS 602, Article 3.4.B.11, of the specified location.
4. Grout shall comply with Section 2103.3.
5. Concrete masonry units shall comply with ASTM C90.
6. Clay masonry units shall comply with ASTM C652 for hollow brick, except compliance with ASTM C62 or ASTM C216 shall be permitted where solid masonry units are installed in accordance with Table 1807.1.6.3(1) for plain masonry.
7. Masonry units shall be laid in running bond and installed with Type M or S mortar in accordance with Section 2103.2.1.
8. The unfactored axial load per linear foot of wall shall not exceed  $1.2 t f'_m$  where  $t$  is the specified wall thickness in inches and  $f'_m$  is the specified compressive strength of masonry in pounds per square inch.
9. Not less than 4 inches (102 mm) of solid masonry shall be provided at girder supports at the top of hollow masonry unit foundation walls.
10. Corbeling of masonry shall be in accordance with Section 2104.1. Where an 8-inch (203 mm) wall is corbeled, the top corbel shall not extend higher than the bottom of the floor framing and shall be a full course of headers not less than 6 inches (152 mm) in length or the top course bed joint shall be tied to the vertical wall projection. The tie shall be W2.8 (4.8 mm) and spaced at a maximum horizontal distance of 36 inches (914 mm). The hollow space behind the corbelled masonry shall be filled with mortar or grout.

TABLE 1807.1.6.2  
CONCRETE FOUNDATION WALLS<sup>b, c</sup>

MAXIMUM WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT <sup>a</sup> (feet)	MINIMUM VERTICAL REINFORCEMENT-BAR SIZE AND SPACING (inches)								
		Design lateral soil load <sup>a</sup> (psf per foot of depth)								
		30 <sup>d</sup>			45 <sup>d</sup>			60		
		Minimum wall thickness (inches)								
		7.5	9.5	11.5	7.5	9.5	11.5	7.5	9.5	11.5
5	4	PC	PC	PC	PC	PC	PC	PC	PC	PC
	5	PC	PC	PC	PC	PC	PC	PC	PC	PC
6	4	PC	PC	PC	PC	PC	PC	PC	PC	PC
	5	PC	PC	PC	PC	PC	PC	PC	PC	PC
	6	PC	PC	PC	PC	PC	PC	PC	PC	PC
7	4	PC	PC	PC	PC	PC	PC	PC	PC	PC
	5	PC	PC	PC	PC	PC	PC	PC	PC	PC
	6	PC	PC	PC	PC	PC	PC	#5 at 48	PC	PC
	7	PC	PC	PC	#5 at 46	PC	PC	#6 at 48	PC	PC
8	4	PC	PC	PC	PC	PC	PC	PC	PC	PC
	5	PC	PC	PC	PC	PC	PC	PC	PC	PC
	6	PC	PC	PC	PC	PC	PC	#5 at 43	PC	PC
	7	PC	PC	PC	#5 at 41	PC	PC	#6 at 43	PC	PC
9	4	PC	PC	PC	PC	PC	PC	PC	PC	PC
	5	PC	PC	PC	PC	PC	PC	PC	PC	PC
	6	PC	PC	PC	PC	PC	PC	#5 at 39	PC	PC
	7	PC	PC	PC	#5 at 37	PC	PC	#6 at 38	#5 at 37	PC
	8	#5 at 41	PC	PC	#6 at 38	#5 at 37	PC	#7 at 39	#6 at 39	#4 at 48
9 <sup>d</sup>	#6 at 46	PC	PC	#7 at 41	#6 at 41	PC	#7 at 31	#7 at 41	#6 at 39	
10	4	PC	PC	PC	PC	PC	PC	PC	PC	PC
	5	PC	PC	PC	PC	PC	PC	PC	PC	PC
	6	PC	PC	PC	PC	PC	PC	#5 at 37	PC	PC
	7	PC	PC	PC	PC	PC	PC	#6 at 35	#6 at 48	PC
	8	#5 at 38	PC	PC	#6 at 47	#6 at 47	PC	#7 at 35	#7 at 47	#6 at 45
	9 <sup>d</sup>	#6 at 41	#4 at 48	PC	#7 at 37	#7 at 48	#4 at 48	#6 at 22	#7 at 37	#7 at 47
10 <sup>d</sup>	#7 at 45	#6 at 45	PC	#7 at 31	#7 at 40	#6 at 38	#6 at 22	#7 at 30	#7 at 38	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/m.

- a. For design lateral soil loads, see Section 1610.
- b. Provisions for this table are based on design and construction requirements specified in Section 1807.1.6.2.
- c. PC = Plain Concrete.
- d. Where unbalanced backfill height exceeds 8 feet and design lateral soil loads from Table 1610.1 are used, the requirements for 30 and 45 psf per foot of depth are not applicable (see Section 1610).
- e. For height of unbalanced backfill, see Section 1807.1.2.

**1807.1.6.3.1 Alternative foundation wall reinforcement.** In lieu of the reinforcement provisions for masonry foundation walls in Table 1807.1.6.3(2), 1807.1.6.3(3) or 1807.1.6.3(4), alternative reinforcing bar sizes and spacings having an equivalent cross-sectional area of reinforcement per linear foot (mm) of wall shall be permitted to be used, provided that the spacing of reinforcement does not exceed 72 inches (1829 mm) and reinforcing bar sizes do not exceed No. 11.

**1807.1.6.3.2 Seismic requirements.** Based on the seismic design category assigned to the structure in accordance with Section 1613, masonry foundation walls designed using Tables 1807.1.6.3(1) through 1807.1.6.3(4) shall be subject to the following limitations:

1. *Seismic Design Categories A and B.* No additional seismic requirements.
2. *Seismic Design Category C.* A design using Tables 1807.1.6.3(1) through 1807.1.6.3(4) is

subject to the seismic requirements of Section 7.4.3 of TMS 402.

3. *Seismic Design Category D.* A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.4 of TMS 402.
4. *Seismic Design Categories E and F.* A design using Tables 1807.1.6.3(2) through 1807.1.6.3(4) is subject to the seismic requirements of Section 7.4.5 of TMS 402.

**1807.2 Retaining walls.** Retaining walls shall be designed in accordance with Sections 1807.2.1 through 1807.2.3.

**1807.2.1 General.** Retaining walls shall be designed to ensure stability against overturning, sliding, excessive foundation pressure and water uplift.

**1807.2.2 Design lateral soil loads.** Retaining walls shall be designed for the lateral soil loads set forth in Section 1610. For structures assigned to Seismic Design Category D, E, or F, the design of retaining walls supporting more

TABLE 1807.1.6.3(1)  
PLAIN MASONRY FOUNDATION WALLS<sup>a, b, c</sup>

MAXIMUM WALL HEIGHT (feet)	MAXIMUM UNBALANCED BACKFILL HEIGHT <sup>e</sup> (feet)	MINIMUM NOMINAL WALL THICKNESS (inches)		
		Design lateral soil load <sup>a</sup> (psf per foot of depth)		
		30 <sup>f</sup>	45 <sup>f</sup>	60
7	4 (or less)	8	8	8
	5	8	10	10
	6	10	12	10 (solid <sup>c</sup> )
	7	12	10 (solid <sup>c</sup> )	10 (solid <sup>c</sup> )
8	4 (or less)	8	8	8
	5	8	10	12
	6	10	12	12 (solid <sup>c</sup> )
	7	12	12 (solid <sup>c</sup> )	Note d
9	8	10 (solid <sup>c</sup> )	12 (solid <sup>c</sup> )	Note d
	9 <sup>f</sup>	Note d	Note d	Note d

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/m.

- a. For design lateral soil loads, see Section 1610.
- b. Provisions for this table are based on design and construction requirements specified in Section 1807.1.6.3.
- c. Solid grouted hollow units or solid masonry units.
- d. A design in compliance with Chapter 21 or reinforcement in accordance with Table 1807.1.6.3(2) is required.
- e. For height of unbalanced backfill, see Section 1807.1.2.
- f. Where unbalanced backfill height exceeds 8 feet and design lateral soil loads from Table 1610.1 are used, the requirements for 30 and 45 psf per foot of depth are not applicable (see Section 1610).

than 6 feet (1829 mm) of backfill height shall incorporate the additional seismic lateral earth pressure in accordance with the geotechnical investigation where required in Section 1803.2.

**1807.2.3 Safety factor.** Retaining walls shall be designed to resist the lateral action of soil to produce sliding and overturning with a minimum safety factor of 1.5 in each case. The load combinations of Section 1605 shall not apply to this requirement. Instead, design shall be based on 0.7 times nominal earthquake loads, 1.0 times other *nominal loads*, and investigation with one or more of the variable loads set to zero. The safety factor against lateral sliding shall be taken as the available soil resistance at the base of the retaining wall foundation divided by the net lateral force applied to the retaining wall.

**Exception:** Where earthquake loads are included, the minimum safety factor for retaining wall sliding and overturning shall be 1.1.

**1807.3 Embedded posts and poles.** Designs to resist both axial and lateral loads employing posts or poles as columns embedded in earth or in concrete footings in earth shall be in accordance with Sections 1807.3.1 through 1807.3.3.

**1807.3.1 Limitations.** The design procedures outlined in this section are subject to the following limitations:

1. The frictional resistance for structural walls and slabs on silts and clays shall be limited to one-half of the normal force imposed on the soil by the weight of the footing or slab.
2. Posts embedded in earth shall not be used to provide lateral support for structural or nonstructural materi-

als such as plaster, masonry or concrete unless bracing is provided that develops the limited deflection required.

Wood poles shall be treated in accordance with AWWA U1 for sawn timber posts (Commodity Specification A, Use Category 4B) and for round timber posts (Commodity Specification B, Use Category 4B).

**1807.3.2 Design criteria.** The depth to resist lateral loads shall be determined using the design criteria established in Sections 1807.3.2.1 through 1807.3.2.3, or by other methods approved by the building official.

**1807.3.2.1 Nonconstrained.** The following formula shall be used in determining the depth of embedment required to resist lateral loads where lateral constraint is not provided at the ground surface, such as by a rigid floor or rigid ground surface pavement, and where lateral constraint is not provided above the ground surface, such as by a structural diaphragm.

$$d = 0.5A \{ 1 + [1 + (4.36h/A)]^{1/2} \} \quad \text{(Equation 18-1)}$$

where:

$$A = 2.34P / (S_1 b).$$

*b* = Diameter of round post or footing or diagonal dimension of square post or footing, feet (m).

*d* = Depth of embedment in earth in feet (m) but not over 12 feet (3658 mm) for purpose of computing lateral pressure.

*h* = Distance in feet (m) from ground surface to point of application of "P."

*P* = Applied lateral force in pounds (kN).

**TABLE 1807.1.6.3(2)**  
**8-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE  $d \geq 5$  INCHES<sup>a, b, c</sup>**

MAXIMUM WALL HEIGHT (feet-inches)	MAXIMUM UNBALANCED BACKFILL HEIGHT <sup>d</sup> (feet-inches)	MINIMUM VERTICAL REINFORCEMENT-BAR SIZE AND SPACING (inches)		
		Design lateral soil load <sup>e</sup> (psf per foot of depth)		
		30°	45°	60°
7-4	4-0 (or less)	#4 at 48	#4 at 48	#4 at 48
	5-0	#4 at 48	#4 at 48	#4 at 48
	6-0	#4 at 48	#5 at 48	#5 at 48
	7-4	#5 at 48	#6 at 48	#7 at 48
8-0	4-0 (or less)	#4 at 48	#4 at 48	#4 at 48
	5-0	#4 at 48	#4 at 48	#4 at 48
	6-0	#4 at 48	#5 at 48	#5 at 48
	7-0	#5 at 48	#6 at 48	#7 at 48
	8-0	#5 at 48	#6 at 48	#7 at 48
8-8	4-0 (or less)	#4 at 48	#4 at 48	#4 at 48
	5-0	#4 at 48	#4 at 48	#5 at 48
	6-0	#4 at 48	#5 at 48	#6 at 48
	7-0	#5 at 48	#6 at 48	#7 at 48
	8-8 <sup>e</sup>	#6 at 48	#7 at 48	#8 at 48
9-4	4-0 (or less)	#4 at 48	#4 at 48	#4 at 48
	5-0	#4 at 48	#4 at 48	#5 at 48
	6-0	#4 at 48	#5 at 48	#6 at 48
	7-0	#5 at 48	#6 at 48	#7 at 48
	8-0	#6 at 48	#7 at 48	#8 at 48
	9-4 <sup>e</sup>	#7 at 48	#8 at 48	#9 at 48
10-0	4-0 (or less)	#4 at 48	#4 at 48	#4 at 48
	5-0	#4 at 48	#4 at 48	#5 at 48
	6-0	#4 at 48	#5 at 48	#6 at 48
	7-0	#5 at 48	#6 at 48	#7 at 48
	8-0	#6 at 48	#7 at 48	#8 at 48
	9-0 <sup>e</sup>	#7 at 48	#8 at 48	#9 at 48
	10-0 <sup>e</sup>	#7 at 48	#9 at 48	#9 at 48

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/m.

- a. For design lateral soil loads, see Section 1610.
- b. Provisions for this table are based on design and construction requirements specified in Section 1807.1.6.3.
- c. For alternative reinforcement, see Section 1807.1.6.3.1.
- d. For height of unbalanced backfill, see Section 1807.1.2.
- e. Where unbalanced backfill height exceeds 8 feet and design lateral soil loads from Table 1610.1 are used, the requirements for 30 and 45 psf per foot of depth are not applicable. See Section 1610.

$S_1$  = Allowable lateral soil-bearing pressure as set forth in Section 1806.2 based on a depth of one-third the depth of embedment in pounds per square foot (psf) (kPa).

**1807.3.2.2 Constrained.** The following formula shall be used to determine the depth of embedment required to resist lateral loads where lateral constraint is provided at the ground surface, such as by a rigid floor or pavement.

$$d = \sqrt{\frac{4.25Ph}{S_3b}} \quad \text{(Equation 18-2)}$$

or alternatively

$$d = \sqrt{\frac{4.25M_g}{S_3b}} \quad \text{(Equation 18-3)}$$

where:

$M_g$  = Moment in the post at grade, in foot-pounds (kN-m).

$S_3$  = Allowable lateral soil-bearing pressure as set forth in Section 1806.2 based on a depth equal to the depth of embedment in pounds per square foot (kPa).

**1807.3.2.3 Vertical load.** The resistance to vertical loads shall be determined using the vertical foundation pressure set forth in Table 1806.2.

**1807.3.3 Backfill.** The backfill in the annular space around columns not embedded in poured footings shall be by one of the following methods:

1. Backfill shall be of concrete with a specified compressive strength of not less than 2,000 psi (13.8 MPa). The hole shall be not less than 4 inches (102 mm) larger than the diameter of the column at its bottom or 4 inches (102 mm) larger than the diagonal dimension of a square or rectangular column.
2. Backfill shall be of clean sand. The sand shall be thoroughly compacted by tamping in layers not more than 8 inches (203 mm) in depth.
3. Backfill shall be of controlled low-strength material (CLSM).

TABLE 1807.1.6.3(3)  
10-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE  $d \geq 6.75$  INCHES <sup>a, b, c</sup>

MAXIMUM WALL HEIGHT (feet-inches)	MAXIMUM UNBALANCED BACKFILL HEIGHT <sup>d</sup> (feet-inches)	MINIMUM VERTICAL REINFORCEMENT-BAR SIZE AND SPACING (inches)		
		Design lateral soil load <sup>a</sup> (psf per foot of depth)		
		30°	45°	60
7-4	4-0 (or less)	#4 at 56	#4 at 56	#4 at 56
	5-0	#4 at 56	#4 at 56	#4 at 56
	6-0	#4 at 56	#4 at 56	#5 at 56
	7-4	#4 at 56	#5 at 56	#6 at 56
8-0	4-0 (or less)	#4 at 56	#4 at 56	#4 at 56
	5-0	#4 at 56	#4 at 56	#4 at 56
	6-0	#4 at 56	#4 at 56	#5 at 56
	7-0	#4 at 56	#5 at 56	#6 at 56
	8-0	#5 at 56	#6 at 56	#7 at 56
8-8	4-0 (or less)	#4 at 56	#4 at 56	#4 at 56
	5-0	#4 at 56	#4 at 56	#4 at 56
	6-0	#4 at 56	#4 at 56	#5 at 56
	7-0	#4 at 56	#5 at 56	#6 at 56
	8-8 <sup>e</sup>	#5 at 56	#7 at 56	#8 at 56
9-4	4-0 (or less)	#4 at 56	#4 at 56	#4 at 56
	5-0	#4 at 56	#4 at 56	#4 at 56
	6-0	#4 at 56	#5 at 56	#5 at 56
	7-0	#4 at 56	#5 at 56	#6 at 56
	8-0	#5 at 56	#6 at 56	#7 at 56
	9-4 <sup>e</sup>	#6 at 56	#7 at 56	#7 at 56
10-0	4-0 (or less)	#4 at 56	#4 at 56	#4 at 56
	5-0	#4 at 56	#4 at 56	#4 at 56
	6-0	#4 at 56	#5 at 56	#5 at 56
	7-0	#5 at 56	#6 at 56	#7 at 56
	8-0	#5 at 56	#7 at 56	#8 at 56
	9-0 <sup>e</sup>	#6 at 56	#7 at 56	#9 at 56
	10-0 <sup>e</sup>	#7 at 56	#8 at 56	#9 at 56

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 1.157 kPa/m.

- For design lateral soil loads, see Section 1610.
- Provisions for this table are based on design and construction requirements specified in Section 1807.1.6.3.
- For alternative reinforcement, see Section 1807.1.6.3.1.
- For height of unbalanced backfill, see Section 1807.1.2.
- Where unbalanced backfill height exceeds 8 feet and design lateral soil loads from Table 1610.1 are used, the requirements for 30 and 45 psf per foot of depth are not applicable. See Section 1610.

## SECTION 1808 FOUNDATIONS

**1808.1 General.** Foundations shall be designed and constructed in accordance with Sections 1808.2 through 1808.9. Shallow foundations shall satisfy the requirements of Section 1809. Deep foundations shall satisfy the requirements of Section 1810.

**1808.2 Design for capacity and settlement.** Foundations shall be so designed that the allowable bearing capacity of the soil is not exceeded, and that differential settlement is minimized. Foundations in areas with expansive soils shall be designed in accordance with the provisions of Section 1808.6.

**1808.3 Design loads.** Foundations shall be designed for the most unfavorable effects due to the combinations of loads specified in Section 1605.2 or 1605.3. The dead load is permitted to include the weight of foundations and overlying fill. Reduced live loads, as specified in Sections 1607.11 and 1607.13, shall be permitted to be used in the design of foundations.

**1808.3.1 Seismic overturning.** Where foundations are proportioned using the load combinations of Section 1605.2 or 1605.3.1, and the computation of seismic overturning effects is by equivalent lateral force analysis or modal analysis, the proportioning shall be in accordance with Section 12.13.4 of ASCE 7.

**1808.3.2 Surcharge.** Fill or other surcharge loads shall not be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or the surcharge. Existing footings or foundations that will be affected by any excavation shall be underpinned or otherwise protected against settlement and shall be protected against detrimental lateral or vertical movement or both.

**Exception:** Minor grading for landscaping purposes shall be permitted where done with walk-behind equipment, where the grade is not increased more than 1 foot (305 mm) from original design grade or where approved by the building official.

TABLE 1807.1.6.3(4)  
12-INCH MASONRY FOUNDATION WALLS WITH REINFORCEMENT WHERE  $d \geq 8.75$  INCHES<sup>a, b, c</sup>

MAXIMUM WALL HEIGHT (feet-inches)	MAXIMUM UNBALANCED BACKFILL HEIGHT <sup>d</sup> (feet-inches)	MINIMUM VERTICAL REINFORCEMENT-BAR SIZE AND SPACING (inches)		
		Design lateral soil load <sup>a</sup> (psf per foot of depth)		
		30°	45°	60
7-4	4 (or less)	#4 at 72	#4 at 72	#4 at 72
	5-0	#4 at 72	#4 at 72	#4 at 72
	6-0	#4 at 72	#4 at 72	#5 at 72
	7-4	#4 at 72	#5 at 72	#6 at 72
8-0	4 (or less)	#4 at 72	#4 at 72	#4 at 72
	5-0	#4 at 72	#4 at 72	#4 at 72
	6-0	#4 at 72	#4 at 72	#5 at 72
	7-0	#4 at 72	#5 at 72	#6 at 72
8-8	4 (or less)	#4 at 72	#4 at 72	#4 at 72
	5-0	#4 at 72	#4 at 72	#4 at 72
	6-0	#4 at 72	#4 at 72	#5 at 72
	7-0	#4 at 72	#5 at 72	#6 at 72
9-4	4 (or less)	#4 at 72	#4 at 72	#4 at 72
	5-0	#4 at 72	#4 at 72	#4 at 72
	6-0	#4 at 72	#5 at 72	#5 at 72
	7-0	#4 at 72	#5 at 72	#6 at 72
10-0	4 (or less)	#4 at 72	#4 at 72	#4 at 72
	5-0	#4 at 72	#4 at 72	#4 at 72
	6-0	#4 at 72	#5 at 72	#5 at 72
	7-0	#4 at 72	#6 at 72	#6 at 72
	8-0	#5 at 72	#6 at 72	#7 at 72
	9-0 <sup>e</sup>	#6 at 72	#7 at 72	#8 at 72
	10-0 <sup>e</sup>	#7 at 72	#8 at 72	#9 at 72

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot per foot = 0.157 kPa/m.

- a. For design lateral soil loads, see Section 1610.
- b. Provisions for this table are based on design and construction requirements specified in Section 1807.1.6.3.
- c. For alternative reinforcement, see Section 1807.1.6.3.1.
- d. For height of unbalanced backfill, see Section 1807.1.2.
- e. Where unbalanced backfill height exceeds 8 feet and design lateral soil loads from Table 1610.1 are used, the requirements for 30 and 45 psf per foot of depth are not applicable. See Section 1610.

**1808.4 Vibratory loads.** Where machinery operations or other vibrations are transmitted through the foundation, consideration shall be given in the foundation design to prevent detrimental disturbances of the soil.

**1808.5 Shifting or moving soils.** Where it is known that the shallow subsoils are of a shifting or moving character, foundations shall be carried to a sufficient depth to ensure stability.

**1808.6 Design for expansive soils.** Foundations for buildings and structures founded on expansive soils shall be designed in accordance with Section 1808.6.1 or 1808.6.2.

**Exception:** Foundation design need not comply with Section 1808.6.1 or 1808.6.2 where one of the following conditions is satisfied:

1. The soil is removed in accordance with Section 1808.6.3.
2. The *building official* approves stabilization of the soil in accordance with Section 1808.6.4.

**1808.6.1 Foundations.** Foundations placed on or within the active zone of expansive soils shall be designed to resist differential volume changes and to prevent structural damage to the supported structure. Deflection and racking of the supported structure shall be limited to that which will not interfere with the usability and serviceability of the structure.

Foundations placed below where volume change occurs or below expansive soil shall comply with the following provisions:

1. Foundations extending into or penetrating expansive soils shall be designed to prevent uplift of the supported structure.
2. Foundations penetrating expansive soils shall be designed to resist forces exerted on the foundation due to soil volume changes or shall be isolated from the expansive soil.

**1808.6.2 Slab-on-ground foundations.** Moments, shears and deflections for use in designing slab-on-ground, mat

- a. The distribution of the lateral base shear from the tank or vessel onto the supporting structure shall consider the relative stiffness of the tank and resisting structural elements.
- b. The distribution of the vertical reactions from the tank or vessel onto the supporting structure shall consider the relative stiffness of the tank and resisting structural elements. Where the tank or vessel is supported on grillage beams, the calculated vertical reaction caused by weight and overturning shall be increased at least 20% to account for nonuniform support. The grillage beam and vessel attachment shall be designed for this increased design value.
- c. Seismic displacements of the tank and vessel shall consider the deformation of the support structure where determining P-delta effects or evaluating required clearances to prevent pounding of the tank on the structure. P-delta effects shall be based on displacements determined by an elastic analysis multiplied by  $C_d/I_e$  using the appropriate  $C_d$  value from Table 15.4-2.

Tanks and vessels supported by structural towers that are integral to the tank or vessel shall be designed according to Section 15.7.10.1.

### 15.5.6 Piers and Wharves

**15.5.6.1 General.** Piers and wharves are structures located in waterfront areas that project into a body of water or that parallel the shoreline.

**15.5.6.2 Design Basis.** In addition to the requirements of Section 15.5.1, piers and wharves that are accessible to the general public, such as cruise ship terminals and piers with retail or commercial offices or restaurants, shall be designed to comply with this standard. Piers and wharves that are not accessible to the general public are beyond the scope of this section.

The design shall account for the effects of liquefaction and soil failure collapse mechanisms and shall consider all applicable marine loading combinations, such as mooring, berthing, wave, and current on piers and wharves as required. Structural detailing shall consider the effects of the marine environment.

## 15.6 GENERAL REQUIREMENTS FOR NONBUILDING STRUCTURES NOT SIMILAR TO BUILDINGS

Nonbuilding structures that do not have lateral and vertical seismic force-resisting systems that are similar to buildings shall be designed in accordance with this standard as modified by this section and the specific reference documents. Loads and load distributions shall not be less demanding than those determined in this standard. The combination of earthquake load effects,  $E$ , shall be determined in accordance with Section 12.4.2.

**EXCEPTION:** The redundancy factor,  $\rho$ , per Section 12.3.4 shall be taken as 1.

**15.6.1 Earth-Retaining Structures.** This section applies to all earth-retaining structures assigned to Seismic Design Category D, E, or F. The lateral earth pressures caused by earthquake ground motions shall be determined in accordance with Section 11.8.3. The risk category shall be determined by the proximity of the earth-retaining structure to other buildings and structures. If failure of the earth-retaining structure would affect the adjacent building or structure, the risk category shall not be less than that of the adjacent building or structure.

Earth-retaining walls are permitted to be designed for seismic loads as either yielding or nonyielding walls. Cantilevered

reinforced concrete or masonry retaining walls shall be assumed to be yielding walls and shall be designed as simple flexural wall elements.

### 15.6.2 Chimneys and Stacks.

**15.6.2.1 General.** Chimneys and stacks are permitted to be either lined or unlined and shall be constructed from concrete, steel, or masonry. Steel stacks, concrete stacks, steel chimneys, concrete chimneys, and liners shall be designed to resist seismic lateral forces determined from a substantiated analysis using reference documents. Interaction of the stack or chimney with the liners shall be considered. A minimum separation shall be provided between the liner and chimney equal to  $C_d$  times the calculated differential lateral drift.

**15.6.2.2 Concrete Chimneys and Stacks.** Concrete chimneys and stacks shall be designed in accordance with the requirements of ACI 307 except that (1) the design base shear shall be determined based on Section 15.4.1 of this standard, (2) the seismic coefficients shall be based on the values provided in Table 15.4-2, and (3) openings shall be detailed as required below. When modal response spectrum analysis is used for design, the procedures of Section 12.9 shall be permitted to be used.

For concrete chimneys and stacks assigned to Seismic Design Category D, E, and F, splices for vertical rebar shall be staggered such that no more than 50% of the bars are spliced at any section and alternate lap splices are staggered by the development length. In addition, where the loss of cross-sectional area is greater than 10%, cross sections in the regions of breachings/openings shall be designed and detailed for vertical force, shear force, and bending moment demands along the vertical direction, determined for the affected cross section using an overstrength factor of 1.5. The region where the overstrength factor applies shall extend above and below the opening(s) by a distance equal to half of the width of the largest opening in the affected region. Appropriate reinforcement development lengths shall be provided beyond the required region of overstrength. The jamb regions around each opening shall be detailed using the column tie requirements in Section 10.7.6 of ACI 318. Such detailing shall extend for a jamb width of a minimum of two times the wall thickness and for a height of the opening height plus twice the wall thickness above and below the opening but no less than the development length of the longitudinal bars. Where the existence of a footing or base mat precludes the ability to achieve the extension distance below the opening and within the stack, the jamb reinforcing shall be extended and developed into the footing or base mat. The percentage of longitudinal reinforcement in jamb regions shall meet the requirements of Section 10.6.1.1 of ACI 318 for compression members.

**15.6.2.3 Steel Chimneys and Stacks.** Steel chimneys and stacks shall be designed in accordance with the requirements of ASME STS-1 except that (1) the design base shear shall be determined based on Section 15.4.1 of this standard, (2) the seismic coefficients shall be based on the values provided in Table 15.4-2, and (3) ASME STS-1, Section 4.3.5, and Nonmandatory Appendix D Table D-1, Table D-2, Fig. D-2, and Fig. D-2a shall not be used. When modal response spectrum analysis is used for design, the procedures of Section 12.9 shall be permitted to be used.

**15.6.3 Amusement Structures.** Amusement structures are permanently fixed structures constructed primarily for the conveyance and entertainment of people. Amusement structures shall be designed to resist seismic lateral forces determined in accordance with Section 15.4.

**15.6.4 Special Hydraulic Structures.** Special hydraulic structures are structures that are contained inside liquid-containing structures. These structures are exposed to liquids on both wall surfaces at the same head elevation under normal operating conditions. Special hydraulic structures are subjected to out-of-plane forces only during an earthquake where the structure is subjected to differential hydrodynamic fluid forces. Examples of special hydraulic structures include separation walls, baffle walls, weirs, and other similar structures.

**15.6.4.1 Design Basis.** Special hydraulic structures shall be designed for out-of-phase movement of the fluid. Unbalanced forces from the motion of the liquid must be applied simultaneously "in front of" and "behind" these elements.

Structures subject to hydrodynamic pressures induced by earthquakes shall be designed for rigid body and sloshing liquid forces and their own inertia force. The height of sloshing shall be determined and compared with the freeboard height of the structure. Interior elements, such as baffles or roof supports, also shall be designed for the effects of unbalanced forces and sloshing.

**15.6.5 Secondary Containment Systems.** Secondary containment systems, such as impoundment dikes and walls, shall meet the requirements of the applicable standards for tanks and vessels and the Authority Having Jurisdiction.

Secondary containment systems shall be designed to withstand the effects of the maximum considered earthquake ground motion where empty and two-thirds of the maximum considered earthquake ground motion where full including all hydrodynamic forces as determined in accordance with the procedures of Section 11.4. Where determined by the risk assessment required by Section 1.5.3 or by the Authority Having Jurisdiction that the site may be subject to aftershocks of the same magnitude as the maximum considered motion, secondary containment systems shall be designed to withstand the effects of the maximum considered earthquake ground motion where full including all hydrodynamic forces as determined in accordance with the procedures of Section 11.4.

**15.6.5.1 Freeboard.** Sloshing of the liquid within the secondary containment area shall be considered in determining the height of the impoundment. Where the primary containment has not been designed with a reduction in the structure category (i.e., no reduction in Importance Factor  $I_e$ ) as permitted by Section 1.5.3, no freeboard provision is required. Where the primary containment has been designed for a reduced structure category (i.e., Importance Factor  $I_e$  reduced) as permitted by Section 1.5.3, a minimum freeboard,  $\delta_s$ , shall be provided where

$$\delta_s = 0.42DS_{ac} \quad (15.6-1)$$

where  $S_{ac}$  is the spectral acceleration of the convective component and is determined according to the procedures of Section 15.7.6.1 using 0.5% damping. For circular impoundment dikes,  $D$  shall be taken as the diameter of the impoundment dike. For rectangular impoundment dikes,  $D$  shall be taken as the plan dimension of the impoundment dike,  $L$ , for the direction under consideration.

**15.6.6 Telecommunication Towers.** Self-supporting and guyed telecommunication towers shall be designed to resist seismic lateral forces determined in accordance with Section 15.4.

**15.6.7 Steel Tubular Support Structures for Onshore Wind Turbine Generator Systems.** Steel tubular support structures for onshore wind turbine generator systems shall be designed to

resist seismic lateral forces determined in accordance with Section 15.4.

## 15.6.8 Ground-Supported Cantilever Walls or Fences

**15.6.8.1 General.** Ground-supported cantilever walls or fences 6 ft (1.83 m) or greater in height shall satisfy the requirements of this section. Earth-retaining structures shall comply with Section 15.6.1.

**15.6.8.2 Design Basis.** Walls or fences shall be designed to resist earthquake ground motions in accordance with Section 15.4. Detailed plain and ordinary plain concrete or masonry walls or fences and ordinary plain autoclaved aerated concrete (AAC) walls or fences are not permitted in Seismic Design Category C, D, E, and F.

## 15.7 TANKS AND VESSELS

**15.7.1 General.** This section applies to all tanks, vessels, bins, silos, and similar containers storing liquids, gases, and granular solids supported at the base (hereafter referred to generically as "tanks and vessels"). Tanks and vessels covered herein include reinforced concrete, prestressed concrete, steel, aluminum, and fiber-reinforced plastic materials. Tanks supported on elevated levels in buildings shall be designed in accordance with Section 15.3.

**15.7.2 Design Basis.** Tanks and vessels storing liquids, gases, and granular solids shall be designed in accordance with this standard and shall be designed to meet the requirements of the applicable reference documents listed in Chapter 23. Resistance to seismic forces shall be determined from a substantiated analysis based on the applicable reference documents listed in Chapter 23.

- Damping for the convective (sloshing) force component shall be taken as 0.5%.
- Impulsive and convective components shall be combined by the direct sum or the square root of the sum of the squares (SRSS) method where the modal periods are separated. If significant modal coupling may occur, the complete quadratic combination (CQC) method shall be used.
- Vertical earthquake forces shall be considered in accordance with the applicable reference document. If the reference document permits the user the option of including or excluding the vertical earthquake force to comply with this standard, it shall be included. For tanks and vessels not covered by a reference document, the forces caused by the vertical acceleration shall be defined as follows:
  - Hydrodynamic vertical and lateral forces in non-cylindrical tank walls: The increase in hydrostatic pressures caused by the vertical excitation of the contained liquid shall correspond to an effective increase in unit weight,  $\gamma_L$ , of the stored liquid equal to  $0.4S_{av}\gamma_L$ , where  $S_{av}$  is taken as the peak of the vertical response spectrum defined in Section 11.9.
  - Hydrodynamic hoop forces in cylindrical tank walls: In a cylindrical tank wall, the hoop force per unit height,  $N_h$ , at height  $y$  from the base, associated with the vertical excitation of the contained liquid, shall be computed in accordance with Eq. (15.7-1). The hoop force associated with the vertical excitation of the liquid shall be combined with the impulsive and convective components by the direct sum or SRSS method:

$$N_h = \frac{S_{av}}{R} \gamma_L (H_L - y) \left( \frac{D_i}{2} \right) \quad (15.7-1)$$