State of Oregon
Building Codes Division

Better Buildings for Oregon

CODE UPDATE TRAINING



2021 OREGON RESIDENTIAL SPECIALTY CODE

Based on the 2018 International Residential Code®



2021 ORSC

Structural & Fire / Life Safety provisions

Based on the 2018 International Residential Code (including portions of the 2021 IRC)

© All Rights Reserved, State of Oregon, Building Codes Division Updated: 2021

2021 ORSC UPDATE TRAINING

Table of contents

Chapter 1 – Scope and administration

- <u>Scope</u>
- Local adoption
- Repairs
- Permits
- <u>Construction Documents</u>

Chapter 3 – Building planning

- R301.1.3 Engineered Design
- Table R301.2(1) Climatic Design Criteria
- R301.2.1 Wind Design Criteria
- <u>Table R301.2.1(1) Component and Cladding</u>
- Figure R301.2.1 Special Wind Regions
- R301.2.2 Determination of Seismic Design Category
- R301.2.3.1 Ground Snow Load
- R302.1 Exterior Walls
- <u>R302.2.1 Townhouse Firewalls</u>
- R302.2.3 Townhouse Utilities
- R302.3 Two-family dwellings
- <u>R310.2.5 Emergency Escape & Rescue Openings</u>
- R311.7 Stairways
- <u>R311.7.11 & 12 Alternating Tread Devices & Ladders</u>
- Small Home Specialty Code Reminder

Chapter 3 continued...

- <u>R312.2.1 Window Fall Protection</u>
- <u>R324 Solar Energy Systems</u>
- R326 Habitable Attics
- R329 Swimming Pools

Chapter 4 – Foundations

- Table R403.1 Minimum Footing Width
- Table R404.1.2(1) Reinforcement for Foundation Walls
- R408.3 Unvented Crawlspaces

Chapter 5 – Floors

R507 Decks

Chapter 6 – Wall construction

- R602.9 Cripple Walls
- R602.10 Wall Bracing

Chapter 9 – Roof assemblies

- <u>R905.16 & 17 Photovoltaic Shingles & Building Integrated</u>
 <u>Photovoltaic Panels</u>
- <u>R908.3.1 Roof Recover</u>

Appendices

- Appendix F <u>Radon Control Methods</u>
- Appendix T <u>Dwelling Unit Fire Sprinklers</u>
- SAM 13-01 & SAM 97-01 October 1, 2021

Course goal:

- ✓ Broad view of administrative (Chapter 1) updates in the 2021 ORSC
- ✓ Identify the significant technical changes of the 2021 Oregon Residential Specialty Code (ORSC) regarding structural, FLS and general design

Course questions:

Please email specific *technical content* inquiries to: <u>BCD.PTSPtech@oregon.gov</u>

Our team plans to organize and offer a "Q&A session" in the near future to address submitted inquiries regarding the 2021 ORSC significant changes. Advanced notification will be provided to our local government partners.

To ensure you receive notification, please visit our homepage and click on "Email updates" in the upper ribbon.

Technical Team (ORSC / OSSC / OMSC / Energy)

Tony Rocco Structural Program Chief

Eric McMullen Senior Building Codes Specialist

Jeremy Williams, P.E. Structural Program Engineer

Mark Heizer, P.E. Mechanical and Energy Code Engineer

Kelly Thomas, LEED AP BD+C Energy Policy Analyst

Francisco Ramos Building Code Specialist 503-373-7529 Anthony.J.Rocco@Oregon.gov

503-373-7418 Eric.T.McMullen@Oregon.gov

503-378-4635 Jeremy.G.Williams@Oregon.gov

> 503-373-0205 Mark.R.Heizer@Oregon.gov

> 503-373-0886 Kelly.I.Thomas@Oregon.gov

503-373-7542 Francisco.M.Ramos@Oregon.gov

General Presentation Format

Model code revisions from 2018 IRC are shown as:

- ✓ Red <u>underline</u> for additions
- ✓ Red double strikethrough for Oregon model code deletions.

Oregon amendments are shown as:

- ✓ Blue <u>underline</u> for additions
- ✓ Blue double strikethrough for existing amendment deletions

Chapter 1 – Administrative Updates - Scope

CHANGE SUMMARY: Chapter 1 has been updated to accurately reflect scoping policy, delegated authority, local allowances and applicable construction standards.



Chapter 1 – Administrative Updates - Scope

CHANGE SUMMARY: Chapter 1 has been updated to accurately reflect scoping policy, delegated authority, local allowances and applicable construction standards.

<u>R101.2.1 Application.</u> The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, *repair*, *equipment*, use, occupancy and location of the following:

- 1. Detached one- and two-family *dwellings* and *townhouses* classified as Group R-3, not more than three stories above *grade plane* in height, and their *accessory structures*.
- 2. Detached owner-occupied *lodging houses* containing not more than five guest rooms.
- 3. Residential aircraft hangars as defined in Section R202.
- 4. Live/work units located in <u>detached one- and two-family *dwellings* and *townhouses* and complying with the requirements of Section 419 of the *Building Code*.</u>

The following uses shall comply with the *Building Code*:

- 1. New "family childcare" uses and new "foster care" uses identified in ORS Chapters 418, 443 and 329A, located within detached one-family *dwellings*, shall be classified as Group R-3 occupancies.
- 2. Congregate living facilities.

Chapter 1 – Administrative Updates - Local

CHANGE SUMMARY: Chapter 1 has been updated to accurately reflect scoping policy, delegated authority, local allowances and applicable construction standards.

R101.2.2 Optional local adoption. In addition to the work exempt from building *permits* in Section R105, the following items are exempt from building *permits* unless specifically required by a *municipality's* local ordinance. If a *municipality* adopts an ordinance to require a *permit* for any of these items, the construction standards of this code shall be applicable:



SEE LOCAL PARAMETERS FOR:

- Fences other than required swimming pool barriers
- Retaining walls unrelated to occupants of buildings
- Freestanding radio antennae and similar
- Ground mounted PV arrays
- In-ground swimming pool construction
- Freestanding tanks
- Fixed docks not supporting a structure

Chapter 1 – Administrative Updates - Repairs

CHANGE SUMMARY: Section R102.7.2 has been added to clarify repairs governed by the ORSC.

R102.7.2 Repairs. Repairs shall not make the building any less conforming with the provisions of this code than the building was before the repair was undertaken. Repairs for the purposes of building maintenance shall comply with Section R105.2.2. Repairs for the purposes of correcting damage shall be permitted to conform with the code edition in effect at the time of original construction, where the requirements of this section are met.

Where it becomes necessary to repair all or a portion of a legally existing building that has been damaged by, including but not limited to fire, wind, flood, earthquake or other similar damage, and where prior to the damage the legally existing building did not contain unsafe conditions, the building may be reconstructed exactly as it existed prior to the damage. The following requirements from the currently effective code shall be included in the reconstruction, where applicable:

(CONTINUED ON NEXT SLIDE...)

Chapter 1 – Administrative Updates - Repairs

CHANGE SUMMARY: Section R102.7.2 has been added to clarify repairs governed by the ORSC.

- 1. Repaired structural elements in accordance with the design criteria and loading requirements of Chapter 3, or to the maximum extent practical as approved by the *building official*.
- 2. Smoke alarms in accordance with Section R314.
- 3. Carbon monoxide alarms in accordance with Section R315.
- 4. Guards and fall protection in accordance with Section R312.
- 5. Hazardous glazing locations in accordance with Section R308.
- 6. Emergency escape and rescue openings in accordance with Section R310.
- 7. Table N1101.2, to the maximum extent practical.
- 8. Floodplain construction requirements, where applicable, as determined by the *flood plain administrator*.

Chapter 1 – Administrative Updates - Repairs

CHANGE SUMMARY: Section R102.7.2 has been added to clarify repairs governed by the ORSC.

(CONTINUED)

•••

Such repairs for the purposes of correcting damage are not required to meet other current code requirements for new construction. Where unsafe conditions existed prior to the damage occurring, the building may be reconstructed in accordance with this section provided that the unsafe conditions are corrected, as determined by the *building official*.





Chapter 1 – Administrative Updates - Permits

CHANGE SUMMARY: Clarification added regarding the creation of new spaces. Also see exemption #8 from R105.2 regarding nonbearing partitions.

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 electrical, gas, or 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*.

R105.1.1 New spaces. The creation of new *habitable spaces*, new toilet rooms, or new bathrooms shall require a building *permit*.

- The longstanding statutory exemption regarding nonbearing partitions has historically led to misapplication and customer delays.
- New language is intended to clarify that when a new habitable room, toilet room or bathroom is created, a building permit is required – regardless of if the nonbearing partitions qualify as exempt under R105.2.

Chapter 1 – Administrative Updates - Permits

CHANGE SUMMARY: The popular detached one story nonhabitable accessory structure exemption height threshold has been adjusted for alignment purposes.

See other updates within Section R105.2.

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. Nothing in this code limits a local municipality's ability to require application of its ordinances, or to enforce its own ordinances. See Section R101 for the application and scope of this code. 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 m²) and a wall height of 10 feet (3048 mm) measured from the finished floor level to the top of the top plate does not exceed a height of 15 feet (4572 mm) measured from grade plane to the average height of the highest roof surface.

Chapter 1 – Administrative Updates - Permits

CHANGE SUMMARY: Detached one story nonhabitable accessory structures







Chapter 1 – Administrative Updates – CDs

CHANGE SUMMARY: Updated language regarding design of "exempt structures" and associated *construction document* requirements.

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* <u>shall be</u> <u>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*.</u>

Exceptions:

- 1. {No Change}
- Plans, calculations, 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: (List on following slide)...

Chapter 1 – Administrative Updates - CDs

CHANGE SUMMARY: Updated language regarding design of "exempt structures" and associated *construction document* requirements.

R106.1 Submittal documents. (Exception #2 continued)...

- 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 m²) or less and is not more than 20 feet (6096 mm) in height from the top surface of the lowest flooring to the highest interior over a finish (ORS 671.030).
- 2.2. A detached single-family dwelling, a farm agricultural building, nonfarm agricultural building, or accessory building to a single family dwelling.
- 2.3. Alterations or repairs that do not involve structural parts of the building.

- ✓ OSBEELS/OBAE determines "exempt structures" under their licensure and statutes
- Licensed architects or engineers cannot be required by the building official for "exempt structures"

Chapter 1 – Administrative Updates - CDs

CHANGE SUMMARY: Updated language regarding design of "exempt structures" and associated *construction document* requirements.

General guidance regarding construction documents

A local building department does not have the authority, as delegated by our division, to override statute and require a registered architect or engineer provide the design for a "single family residential dwelling." We follow the application of the associated law and exemptions thereof.

A building department does have the authority to determine that a set of construction documents lacks the necessary design information required to ascertain code compliance, and subsequently the associated approval. If the "single family residential dwelling" designer has failed to provide the necessary information on a plan set, then those deficiencies should be identified for the designer accordingly.

For non-prescriptive "single family residential dwelling" designs, ORSC Section R301.1.3 may be cited to require a design in accordance with accepted engineering practice to the extent the non-conventional or non-prescriptive elements of design effect the conventional performance of the conventional framed system.

Chapter 3 – R301.1.3 Engineered Design

CHANGE SUMMARY: Clarifies which structural design criteria is to be used where a design in accordance with accepted engineering practice is provided.

R301.1.3 Engineered design.

Where a building of otherwise conventional construction contains structural elements exceeding the limits of Section R301 or otherwise not conforming to this code, these elements shall be designed in accordance with accepted engineering practice. The extent of such design need only demonstrate compliance of nonconventional elements with other applicable provisions and shall be compatible with the performance of the conventional framed system. Engineered design in accordance with the International Building Code is permitted for buildings and structures, and parts thereof, included in the scope of this code. Where a design, in accordance with accepted engineering practice, is provided for a structure, or portion thereof, the design values and limitations of Sections R301.5, R301.6, and R301.7 shall apply. All other structural design requirements shall be in accordance with Chapter 16 of the *Building Code*, as applicable.

Note:

Removes uncertainty regarding the required design criteria for engineered portions, such as exterior decks that fall outside the prescriptive limitations of Section R507 (e.g. the OSSC requires 60 psf deck live load per Table 1607.1, whereas the ORSC requires 40 psf per Table R301.5)

Chapter 3 – Table R301.2(1) Climatic Design Criteria

CHANGE SUMMARY: Revises amended Table R301.2(1) based on the associated changes to snow, wind, and seismic design provisions in Chapter 3.

TABLE R301.2(1) CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA 9 ^{f, hg}								
COUNTY	GROUND SNOW LOAD, pg = 36 psf (Reef snew load = 25 psf)	ULTIMATE BASIC DESIGN WIND	SPECIAL WIND REGION BASIC		SU	BJECT TO DAMA	GE	
	below elevation shown (feet)	SPEED, V (mph) ^b	SPEED, V (mph) ^b	CATEGORY	Weathering ^d	(inches)	Decay	INDEX
Baker	3,200 Note a	Note b 103	-	Note c	Severe	24	Slight	2000
Benton	400 Note a	Note b 96	-	Note c	Moderate	12	Moderate	≤ 1500
Clackamas	500 Note a	Note b 98	120	Note c	Moderate	12	Moderate	≤ 1500
Clatsop	400 Note a	Note b 97	135	Note c	Moderate	12	Moderate	≤ 1500
Columbia	400 Note a	Note b 97	120	Note c	Moderate	12	Moderate	≤ 1500
Coos	400 Note a	Note b 95	120 ^h	Note c	Moderate	12	Moderate	≤ 1500
	100 Not a	1-08	10	Norm		In 18m	Slight	
For locatio Snow Load with the 20 load, p _g sha	ns with elevation higher th I Analysis for Oregon (incl 10 Oregon Snow Load Ma 11 be determined in accord	an the listed val uding the groun p update and In ance with Section	ues or for a possibl ad snow load maps) terim Guidelines fe on R301.2.3.1.	e reduction in minim published by the Str or Snow Load Determ	um design roof sn uctural Engineers sination for the St	ow load from 25 p Association of Or ate of Oregon, put	paf to 20 paf, ref egon in 2007, in blished in 2011.	er to the conjunction The ground snow
For locatio Snow Load with the 20 load, pg sha Refer to Fi Section R3 provided h	ns with elevation higher th I Analysis for Oregon (inel 10 Oregon Snow Load Ma 11 be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein.	an the listed valuding the groun pupdate and In ance with Section Ultimate Designin a special wir	ucs or for a possibl id snow load maps) iterim Guidelines fe on R301.2.3.1. gn Wind Speeds. W nd region as determ	e reduction in minim published by the Stru- or Snow Load Determ find exposure categor ined from Figure R3(um design roof sn uctural Engineers sination for the St y shall be determ D1.2.1 shall use th	ow load from 25 p Association of Or ate of Oregon, put ined on a site-spec e Special Wind Re	osf to 20 pst, ref egon in 2007, in blished in 2011, iffic basis in acce egion Basic Des	er to the conjunction The ground snow ordance with ign Wind Speeds
For locatio Snow Load with the 20 load, pg sha Refer to Fi Section R3 provided h Refer to Fi	ns with elevation higher th I Analysis for Oregon (inel 10 Oregon Snow Load Ma 11 be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein. gure R301.2(2) for mapped	an the listed val uding the groun p update and In ance with Section Ultimate Desig in a special wir I Seismie Desig	ucs or for a possibl id snow load maps) iterim Guidelines fe on R301.2.3.1. gn Wind Speeds. W nd region as determ n Categories. <u>The s</u>	e reduction in minim published by the Stru- or Snow Load Determ find exposure categor ined from Figure R3(eismic design catego	um design roof an uctural Engineers sination for the St y shall be determin D1.2.1 shall use th ry shall be determine	iow load from 25 p Association of Or ate of Oregon, put ined on a site-spec e Special Wind Re ined in accordance	osf to 20 psf, ref egon in 2007, in blished in 2011, iffic basis in acce egion Basic Desi e with Section R	er to the conjunction The ground snow ordance with ign Wind Speeds 3301.2.2.1.
For location Snow Load with the 20 load, p_g sha Refer to Fi Section R3 provided h Refer to Fi A "severe" thawing ca	ns with elevation higher th I Analysis for Oregon (inel 10 Oregon Snow Load Ma 11 be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein. gure R301.2(2) for mapped classification is where we using de-icing salts to be u	an the listed val uding the groun p update and In ance with Section Ultimate Design in a special wir I Sciemic Design ather conditions sed extensively.	ucs or for a possibl id snow load maps) iterim Guidelines fe on R301.2.3.1. gn Wind Speeds. W nd region as determ n Categories. The s result in significan	e reduction in minim published by the Stru- or Snow Load Determ find exposure categor ined from Figure R3(eismic design catego tt snowfall combined	um design roof an uctural Engineers sination for the St y shall be determ D1.2.1 shall use th ry shall be determ with extended per	ow load from 25 p Association of Or ate of Oregon, put ined on a site-spec e Special Wind Re ined in accordance riods during which	e with Section R here is little or	er to the conjunction The ground snow ordance with ign Wind Speeds 301.2.2.1. r no natural
For location Snow Load with the 20 load, pg sha Refer to Fi Section R3 provided h Refer to Fi A "severe" thawing ca For elevati Multnomal	ns with elevation higher th LAnalysis for Oregon (incl 10 Oregon Snow Load Ma all be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein. gure R301.2(2) for mapped classification is where we using de-icing salts to be u ons below 500 feet, the grea a Counties is 12 inches.	an the listed val uding the groun p update and In ance with Section Ultimate Design in a special wir I Seismic Design ather conditions sed extensively.	ues or for a possible de snow load maps) terim Guidelines for on R301.2.3.1. gn Wind Speeds. W ad region as determ n Categories, The s result in significant is 70 psf. Above 50	e reduction in minim published by the Stru- or Snow Load Determ find exposure categor ined from Figure R3(eismic design catego at snowfall combined 0 feet, see Note a. Th	um design roof an uctural Engineers ination for the St y shall be determ D1.2.1 shall use th ry shall be determ with extended per ne frost line depth	ow load from 25 p Association of Or ate of Oregon, put ined on a site-spec e Special Wind Re ined in accordance riods during which below 2,500 feet	e with Section R a there is little or in Jackson, Jose	er to the conjunction The ground snow ordance with ign Wind Speeds 301.2.2.1. r no natural phine and
For location Snow Load with the 20 load, p _g sha Refer to Fi Section R3 provided h Refer to Fi A "severe" thawing ca For clevati Multnomal The frost li determinat	ns with elevation higher th LAnalysis for Oregon (incl 10 Oregon Snew Load Ma all be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein. gure R301.2(2) for mapped classification is where we using de-icing salts to be u ons below 500 feet, the gro a Counties is 12 inches. ne depth below 2,500 feet ions and flood hazard design	an the listed val uding the groun p update and In ance with Secti- Ultimate Desig in a special wir I Seismie Desig ather conditions sed extensively, und snow load in Jackson and an criteria.	ues or for a possibl de snow load maps) terim Guidelines for on R301.2.3.1. gn Wind Speeds. W ad region as determ n Categories. The s result in significant is 70 psf. Above 50 Josephine Counties	e reduction in minim published by the Str or Snow Load Determ (ind exposure categor ined from Figure R3(eismic design catego it snowfall combined 00 feet, see Note a. <u>T1</u> is 12 inches. <u>See Sec</u>	um design roof an uctural Engineers sination for the St y shall be determ 01.2.1 shall use th ry shall be determ with extended per ne frost line depth ctions R301.2.4 ar	ined on a site-spec e Special Wind Re tried in accordance riods during which below 2,500 feet and ad R322 for flood p	e with Section R a there is little or in Jackson, Jose	er to the conjunction The ground snow ordance with ign Wind Speeds 301.2.2.1. r no natural phine and ttor
For location Snow Load with the 20 load, p _g sha Refer to Fi Section R3 provided h Refer to Fi A "severe" thawing ca For elevati Multnomal The frost li determinat See Section	ns with elevation higher th LAnalysis for Oregon (incl 10 Oregon Snow Load Ma all be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein. gure R301.2(2) for mapped classification is where we using de-icing salts to be u ons below 500 feet, the gro a Counties is 12 inches. ne depth below 2,500 feet- ions and flood hazard design as R301.2.4 and R322 for co	an the listed val uding the groun p update and In ance with Secti- Ultimate Desig in a special wir I Seismic Desig ather conditions sed extensively, und snow load in Jackson and an criteria.	ues or for a possibl de snow load maps) terim Guidelines fo on R301.2.3.1. gn Wind Speeds. W ad region as determ n Categories. The s result in significant is 70 psf. Above 50 Josephine Counties Filood hazard desig	e reduction in minim published by the Str or Snow Load Determ find exposure categor ined from Figure R3(eismic design catego it snowfall combined 00 feet, see Note a. <u>Th</u> is 12 inches. <u>See Sec</u> n-criteria. <u>See Section</u>	um design roof an uctural Engineers sination for the St y shall be determ 01.2.1 shall use th ry shall be determ with extended per ne frost line depth ctions R301.2.4 ar n R327 for establi	ow load from 25 j Association of Or ate of Oregon, put ined on a site-spec e Special Wind Re ined in accordance riods during which below 2,500 feet is ad R322 for <i>flood</i> j ishment of wildfire	e with Section R a there is little or in Jackson, Jose blain administra	er to the conjunction The ground snow ordance with ign Wind Speeds (301.2.2.1. r no natural phine and tor
For location Snow Load with the 20 load, p _g shi Refer to Fi Section R3 provided h Refer to Fi A "severe" thawing ca For clevati Multnomal The frost li determinat See Section See Section	ns with elevation higher th LAnalysis for Oregon (inel 10 Oregon Snew Load Ma all be determined in accord gure R301.2(4) for mapped 01.2.1.4, Sites located with erein. gure R301.2(2) for mapped classification is where we using de-icing salts to be u ons below 500 feet, the gro a Counties is 12 inches. In depth below 2,500 feet ions and flood hazard design as R301.2.4 and R322 for et a R327 for establishment of posure Category D) to Pacifi	an the listed val uding the groun p update and In ance with Secti- l Ultimate Desig in a special wir l Seismic Desig ather conditions sed extensively und snow load in Jackson and an criteria. stablishment of f wildfire hazar ic Ocean winds	ues or for a possibl de snow load maps) terim Guidelines for on R301.2.3.1. gn Wind Speeds. W ad region as determ n Categories, The s result in significant is 70 psf. Above 50 Josephine Counties Flood hazard desig d design criteria, <u>Ti</u> shall 135 mph.	e reduction in minim published by the Str or Snow Load Determ find exposure categor ined from Figure R3(eismic design catego at snowfall combined 00 feet, see Note a. <u>Th</u> is 12 inches. See Section the basic design wind.	um design roof an uctural Engineers sination for the St D1.2.1 shall be determ out and the stand of the ry shall be determ with extended per the frost line depth ctions R301.2.4 ar n R327 for establic speed, V, for build	ined on a site-spece e Special Wind Re- tried in accordance riods during which below 2,500 feet : ad R322 for <i>flood</i> ; shment of wildfired	e hazard mitigati es in this region	er to the conjunction The ground snow ordance with ign Wind Speeds 301.2.2.1. r no natural phine and tor on design criteria with full exposure
For location Snow Load with the 20 load, p _g shi Refer to Fi Section R3 provided h Refer to Fi A "severe" thawing ca For elevatii Multnomal The frost li determinat See Section See Section (wind Exp. The basic of be 135 mpl	ns with elevation higher the LAnalysis for Oregon (inel 10 Oregon Snow Load Ma 11 be determined in accord gure R301.2(4) for mapped 01.2.1.4. Sites located with erein. gure R301.2(2) for mapped classification is where we using de-icing salts to be u ons below 500 feet, the gro n Counties is 12 inches. ne depth below 2,500 feet ions and <i>flood hazard</i> design to R301.2.4 and R322 for a R327 for establishment o posure Category D) to Pacifi lesign wind speed, V, for bu	an the listed val uding the groun p update and In ance with Secti- LUltimate Desig in a special win Section Desig ather conditions sed extensively und snow load in Jackson and n criteria. stablishment of fwildfire hazar ic Ocean winds uildings and stru	ues or for a possibl de snow load maps) terim Guidelines fo on R301.2.3.1. gn Wind Speeds. W ad region as determ n Categories. The s result in significan Josephine Counties flood hazard desig d design criteria. <u>Th</u> shall 135 mph. uctures in this regio	e reduction in minim published by the Str or Snow Load Detern find exposure categor ined from Figure R3(eismic design catego at snowfall combined 00 feet, see Note a. Th is 12 inches. See Sec in criteria. See Section in criteria. See Section in basic design wind a	um design roof an uctural Engineers sination for the St D1.2.1 shall be determ D1.2.1 shall use th ry shall be determ with extended per the frost line depth extions R301.2.4 ar n R327 for establis speed, V, for build (wind Exposure C	ined on a site-spece e Special Wind Re- tried in accordance riods during which below 2,500 feet in ad R322 for <i>flood</i> is shment of wildfire lings and structure category D) to Col	e with Section R a there is little or blain administra e hazard mitigati e hazard mitigati es in this region umbia River Go	er to the conjunction The ground snow ordance with ign Wind Speeds 301.2.2.1. r no natural phine and tor ion design criteria with full exposure rge winds shall

- ✓ Site-specific ground snow load aligns with OSSC (with same minimums as 2017 ORSC)
- ✓ The wind design criteria and terms now align with the OSSC
- Site-specific seismic design criteria aligns with model code and OSSC

Chapter 3 – R301.2.1 Wind Design Criteria

CHANGE SUMMARY: Aligns the ORSC wind design criteria with the OSSC and adds model code provisions for component and cladding performance measures.

R301.2.1 Wind design criteria. Buildings and portions thereof shall be constructed in accordance with the wind provisions of this code using the <u>ultimate basic</u> design wind speed, V in Table R301.2(1) as determined from Figure R301.2(4). Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where not otherwise specified, the wind loads listed in Table R301.2.1(1) adjusted for height and exposure using Table R301.2.1(2) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.4. A continuous load path shall be provided to transmit the applicable uplift forces in Section R802.11.1 from the roof assembly to the foundation.

- Basic design wind speed is in tabular form in Table R301.2(1) for each jurisdiction as is provided in the OSSC (no longer mapped)
- Added model code component and cladding pressure tables for use by manufacturers and installers of exterior windows, doors, etc.

Chapter 3 – Table R301.2.1(1) Component and Cladding

CHANGE SUMMARY: Added model code component and cladding pressure tables for use by manufacturers and installers of exterior windows, doors, etc.

			A ME	COM EAN ROOF		TABLE AND CLA OF 30 FE	R301.2.1 DDING LC ET LOCA	(<u>1)</u> R301.2 DADS FOR TED IN EX	(2) R A BUILD POSURE	ING WITH B (ASD) (l psf) ^{a, b, c, d,}	e	~~~~	
	ZONE	EFFECTIVE WIND AREA (feet ²)	1	10	1	ULT 15	IMATE BAS	C DESIGN	WIND SPE	ED, V <u>uut</u> (n 30	ıph) 1 4	40	<u>13</u>	5
il.		the second second	ل <i>معد</i> ل		Vaa		- and and			and and a	magn	1_	lal	
leg	سفر ہے۔	10	10.0	-20.0	10.0	-22.0	10.0	-24.0	10.5	-29.0	han the second		11.4	-31.0
27 (2	20	10.0	-19.0	10.0	-20.0	10.0	-22.0	10.0	-26.0	11.1	-31.0	10.6	-28.5
7 to	2	50	10.0	-16.0	10.0	-18.0	10.0	-20.0	10.0	-23.0	10.0	-27.0	<u>10.0</u>	<u>-25.0</u>
4	2	100	10.0	-15.0	10.0	-16.0	10.0	-18.0	10.0	-21.0	10.0	-24.0	<u>10.0</u>	<u>-22.5</u>
80	3	10	10.0	-30.0	10.0	-33.0	10.0	-36.0	10.5	-43.0	12.2	-49.0	<u>11.4</u>	<u>-46.0</u>
L.L.		have a second of	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	La san	100	Lingen		hand man	L V	-40.0-		how have	10.6	m
	4	500	10.0	-10.0	10.6	-11.0	11.6	-12.0	13.6	-15.0	L-~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-17.0	<u>14.7</u>	<u>-16.0</u>
Ň	5	10	13.1	-17.0	14.3	-19.0	15.5	-20.0	18.2	-24.0	21.2	-28.0	19.7	-26.0
	5	20	12.5	-16.0	13.6	-17.0	14.8	-19.0	17.4	-22.0	20.2	-26.0	<u>18.8</u>	-24.0
	5	50	11.7	-14.0	12.8	-16.0	13.9	-17.0	16.3	-20.0	19.0	-23.0	<u>17.7</u>	-21.5
	5	100	11.1	-13.0	12.1	-14.0	13.2	-16.0	15.5	-19.0	18.0	-22.0	<u>16.8</u>	-20.5
	5	500	10.0	-10.0	10.6	-11.0	11.6	-12.0	13.6	-15.0	15.8	-17.0	<u>14.7</u>	<u>-16.0</u>

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m², 1 mile per hour = 0.447 m/s, 1 pound per square foot = 0.0479 kPa.

a. The effective wind area shall be equal to the span length multiplied by an effective width. This width shall be permitted to be not less than one-third the span length. For cladding fasteners, the effective wind area shall not be greater than the area that is tributary to an individual fastener.

b. For effective areas between those given, the load shall be interpolated or the load associated with the lower effective area shall be used.

c. Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table R301.2(3) R301.2.1(2).

d. See Figure R301.2.1(1) R301.2(8) for location of zones.

e. Plus and minus signs signify pressures acting toward and away from the building surfaces.

Chapter 3 – Table R301.2.1(1) Component and Cladding

CHANGE SUMMARY: Added model code component and cladding pressure tables and figures for use by manufacturers and installers of exterior windows, doors, etc.



- This pressure zone figure and adjustment coefficients table are used in conjunction with Table R301.2.1(1) to obtain the factored pressures for each zone
- These pressure zones are based on/similar to those from ASCE 7 Chapter 30, *Components and Cladding*
- For use by manufacturers and installers of wall coverings, roof coverings, exterior windows, skylights, garage doors, and exterior doors.

HEIGHT	TABLE R301	I.2.1(2) R301.2(3) DEFFICIENTS FOR TABLE R301.2	. <u>1(1)</u> R301.2(2)
		EXPOSURE	
MEAN ROOF HEIGHT	В	С	D
15	1.00	1.21	1.47
20	1.00	1.29	1.55
25	1.00	1.35	1.61
30	1.00	1.40	1.66
35		45	1.70

CHANGE SUMMARY: Replaces the 2017 ORSC wind speed map with a new Oregon Special Wind Regions map (same as 2019 OSSC Figure 1609.3) and refers to the new tabular wind speeds provided in Table R301.2(1).



Notes:

- The design wind speeds in the identified special wind regions default to the 2017 ORSC wind speeds
- ✓ This figure is the same as Figure 1609.3 from the 2019 OSSC
- Aligns the ORSC and OSSC wind design criteria

Special wind regions

FIGURE R301.2.1 - OREGON SPECIAL WIND REGIONS^{a, b}

- a. <u>Sites on the perimeter of the identified special wind regions shall be verified using https://hazards.atcouncil.org.</u>
- b. <u>Basic design wind speeds shall be obtained from Table R301.2(1); see table footnotes for buildings and structures</u> with full exposure (wind exposure category D) to Pacific Ocean or Columbia River Gorge winds.

Example: Lane County





- The design wind speeds in the identified special wind regions are the same as the 2017 ORSC wind speeds
- The next slides show an example special wind region check:
 10868 E Mapleton Rd, Mapleton,
 Lane County, OR 97453

Example: Special wind region check using <u>Hazards.atcouncil.org</u>



Example: Special wind region verification using <u>Hazards.atcouncil.org</u>

ATC Hazards by Location		Our Sponsors	About ATC Contact API
Search by Address Search by Coordinate 10868 E Mapleton Rd, Mapleton, OR 97453, USA Q Search 10868 E Mapleton Rd Mapleton, OR 97453, USA Powered by Google Seismic 7 Vvino Vvino Seismic	Map Satellite	Pacific City 2 Neskowin 2 Otis 8 are Lincoln City	McMinnville 27 19 Sheridan 13 (99) Keizer (7) Salem
Print these results Save these results ASCE 7-16 Select a dataset to view contours.	Find and click	ten Lincoln Beach Depoe Bay Otter Rock (10)	Dallas Monmouth
MRI 10-Year A Special Region mph You are in a special wind region. Please contact the Authority Having Jurisdiction.	Category II	Newport 20 (8)	Blodgett (Noon Corvallis (2)
MRI 25-Year A Special Region mph You are in a special wind region. Please contact the Authority Having Jurisdiction.	dataset below to see the	Seal Rock	Alsea (WW) Halsey
MRI 50-Year A Special Region mph You are in a special wind region. Please contact the Authority Having Jurisdiction.	special wind region overlay	48 ft	Monree Hamsburg Junction City Blachiy (19) (20) (20) (20) (20) (20) (20) (20) (20
MRI 100-Year A Special Region mph You are in a special wind region. Please contact the Authority Having Jurisdiction.	He	Ceta Beach Mapleton (20) Florence (20)	Walton Noti Veneta Eugene
Risk Category I A Special Region mph You are in a special wind region. Please contact the Authority Having Jurisdiction.		Dunes City	Lorane Cottage Grove
Risk Category II A Special Region mph You are in a special wind region. Please contact the Authority Having Jurisdiction.	Lak	Scottsburg	Elikton I Drain Yoncalla Kellogg
Risk Category III A Special Region mph	North B4	nd	Oakland

Example: Special wind region verification using <u>Hazards.atcouncil.org</u>



Example: Multnomah County



Example: Wasco County





Notes:

Footnote 'j' is new and applicable in Wasco, Sherman, Gilliam, Morrow, and Umatilla Counties for sites with full exposure (Exposure Category D) to Columbia River Gorge winds, essentially retaining the 2017 ORSC wind speeds in these specific areas.

Chapter 3 – R301.2.2 Determination of SDC

CHANGE SUMMARY: Adopted the 2018 IRC model code provisions for site-specific determination of seismic design category with clarifying Oregon amendments.



FIGURE R301.2.2.1 SEISMIC DESIGN CATEGORIES

Chapter 3 – R301.2.2 Determination of SDC

Example: Seismic design category verification using Hazards.atcouncil.org



A window with a dynamic map of the area will open.

•	Select the dataset:	Reference Document:	ASCE 7-16	
		Risk Category:	II	
		Site Class:	D – Default	

Use Table R301.2.2.1.1, Seismic design category determination, to find the Seismic Design Category, based on the S_{DS} found under Basic Parameters.

Basic P	arameters	5	TABLE R	301.2.2.1.1
Name	Value	Description	 SEISMIC DESIGN CATE	GORY DETERMINATION
0	0.997	MCE ground motion (period=0.2c)	CALCULATED S _{DS}	SEISMIC DESIGN CATEGORY
SS	0.037	MCER ground motion (period=0.25)	$S_{DS} \le 0.17 \text{g}$	A
S1	0.421	MCE _R ground motion (period=1.0s)	$0.17g < S_{DS} \le 0.33g$	В
S _{MS}	1.005	Site-modified spectral acceleration value	$0.33g < S_{DS} \leq 0.50g$	С
S _{M1}	* null	Site-modified spectral acceleration value	 $0.50g < S_{DS} \le 0.67g$	\mathbf{D}_0
SDS	0.67	seismic design value at 0.2s SA	$0.67g < S_{DS} \leq 0.83g$	D1
S _{D1}	* null	Numeric seismic design value at 1.0s SA	$0.83g < \textit{SDS} \leq 1.25g$	D2
* See Se	ection 11.4.8		1.25g < S _{DS}	E

Note from Figure R301.2.2.1 Seismic Design Categories:

"Sites on the perimeter of identified seismic design categories shall be verified using the Applied Technology Council (ATC) hazards by location tool at Hazards.atcouncil.org with 'ASCE 7-16' selected as the 'Reference Document', 'II' selected as the 'Risk Category', and 'D-Default' selected as the 'Site Class'. The reported value of the short-period design spectral acceleration, S_{DS}, shall be used in conjunction with Table R301.2.2.1.1 for determination of the seismic design category."

Chapter 3 – R301.2.2.1.2 SDC E

CHANGE SUMMARY: No change to this provision from the 2017 ORSC or IRC, but be aware that this provision is now applicable to portions of Coos, Curry, and Lincoln Counties.

R301.2.2.1.2 Alternative determination of Seismic Design Category E. Buildings located in Seismic Design Category E in accordance with Figure <u>R301.2.2.1</u> R301.2(2) are permitted to be reclassified as being in Seismic Design Category D_2 provided that one of the following is done:

- 1. A more detailed evaluation of the seismic design category is made in accordance with the provisions and maps of the *International Building Code*. Buildings located in Seismic Design Category E in accordance with Table R301.2.2.1.1, but located in Seismic Design Category D in accordance with the *International Building Code*, shall be permitted to be designed using the Seismic Design Category D₂ requirements of this code.
- 2. Buildings located in Seismic Design Category E that conform to the following additional restrictions are permitted to be constructed in accordance with the provisions for Seismic Design Category D_2 of this code:
 - 2.1. All exterior shear wall lines or *braced wall panels* are in one plane vertically from the foundation to the uppermost *story*.
 - 2.2. Floors shall not cantilever past the *exterior walls*.
 - 2.3. The building is within the requirements of Section R301.2.2.2.6 for being considered as regular.

- ✓ Item 2 prevents the use of the cantilever and offset irregularity exceptions under Item 1 of Section R301.2.2.2.6
- ✓ Essentially requires boxlike structures for prescriptive application in these areas

CHANGE SUMMARY: Aligns the ORSC with the OSSC for site-specific ground snow load determination, and retains the longstanding minimum ground snow load of 36 psf from the 2017 ORSC.

Footnote 'a' from Table R301.2(1) Climatic and Geographic Design Criteria:

"a. The ground snow load, p_g shall be determined in accordance with Section R301.2.3.1."

R301.2.3.1 Ground Snow Load Determination. Site-specific ground snow loads, p_g , shall be those set forth in the online lookup tool at http://snowload.seao.org/lookup.html. Where the site elevation is higher than the modeled elevation reported by the online lookup tool, the reported ground snow load values shall be adjusted by adding the specified loads from Table R301.2.3.1. The minimum ground snow load for prescriptive design is 36 psf. The minimum roof snow load for engineered design is 25 psf.

Note:

This is the same path as outlined in Section 1608.2.2 of the 2019 OSSC except for the addition of the minimum ground snow load for prescriptive design and the minimum roof snow load (per R802.10.2.1) for engineered trusses

CHANGE SUMMARY: New Oregon amendment aligning the ORSC and OSSC for site-specific ground snow load determination.

TABLE R301.2.3.1 GROUND SNOW LOAD ADJUSTMENT

REGION	GROUND SNOW ADJUSTMENT LOADS (psf per foot of elevation gain)
Oregon Coast Mountains	<u>0.07</u>
Interior and Willamette Valleys	<u>0.04</u>
Cascade Mountains	<u>0.07</u>
Siskiyou and Kalmiopsis Mountains	<u>0.04</u>
Plains east of the Cascades	0.007
Klamath Basin	0.008
Eastern Oregon Mountains	<u>0.04</u>

Note:

This is the same ground snow load adjustment table as provided in Section 1608.2.2 of the 2019 OSSC.

Example: Ground snow load adjustment



Example: Ground snow load adjustment

Snowload.seao.org/lookup.html



Example: Ground snow load adjustment

Ecoregion map such as this could be used to verify region: https://pubs.usgs.gov/tm/04/c03/virtual_CD/useco.pdf



Adjusted p_g = 8 psf + 0.04 psf/ft (1,011 ft - 305 ft) = **36 psf**

CHANGE SUMMARY: Several clarifications and updates regarding application of R302.1



Summary notes:

- Minimum *fire separation distances* (FSD) where land-use permits multiple detached one- or two-family *dwellings* on a single *lot*
- ✓ Attached decks and the consideration as projections for the purposes of establishing FSD
- ✓ Clarified minimum thickness regarding the fireblocking footnote allowance

CHANGE SUMMARY: Minimum FSD clarified where multiple detached dwellings are permitted by land-use to be on a single lot.



CHANGE SUMMARY: New exception to R302.1 and noted in the associated table.

R302.1 Exterior walls. Construction, projections, openings and penetrations of *exterior walls* of *dwellings* and *accessory structures* shall comply with Table R302.1. Where multiple detached dwellings are located on a single *lot*, each detached *dwelling* shall comply independently with Table R302.1.

Exceptions:

(1-5: No Change)

6. Attached decks that are exempt from permitting by Section R105.2. All other attached decks shall be considered projections for compliance with Table R302.1.

DECK, ATTACHED. An exterior floor system supported on at least one side by the exterior wall of the adjoining structure and supported on the opposing side by posts, piers or other support methods.

CHANGE SUMMARY: Updates in the associated table regarding decks and blocking.

MINIMUM FIRE SEPARATION EXTERIOR WALL ELEMENT DISTANCE PROVIDED FIRE-RESISTANCE RATING 1 hour-tested in accordance with ASTM E119 or UL Fire-resistance rated < 3 feet 263 with exposure from both sides Walls Not fire-resistance rated 0 hours ≥ 3 feet Not allowed N/A < 2 feet 1 hour on the undersidea, b Fire-resistance rated ≥ 2 feet to < 3 feet Projections^c Not fire-resistance rated 0 hours ≥ 3 feet Not allowed N/A < 3 feet Openings in walls Unlimited 0 hours >3 feet Comply with Section R302.4 < 3 feet Penetrations A11 None required ≥ 3 feet

TABLE R302.1 EXTERIOR WALLS

For SI: 1 foot = 304.8 mm. NA = Not Applicable.

a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing. Fireblocking shall consist of not less than two layers of two-inch (51 mm) nominal lumber.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

c. For the purposes of this table, attached decks that are not exempted by Section R105.2 shall be considered projections.

Chapter 3 – R302.2.1 Townhouse Firewalls

CHANGE SUMMARY: Editorial change clarifying when plumbing and mechanical are allowed in modified townhouse firewall cavities.

2. A common "modified" 2-hour fire-resistance-rated firewall centered over the common property line as shown in Figures R302.2.1(3) and R302.2.1(4). Plumbing or mechanical equipment ducts or vents are not permitted in the cavity of the "modified" 2-hour wall, except as specifically detailed in Section R302.4.2.1. Electrical installations shall be installed in accordance with the *Electrical Code*. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.



- ✓ Pointer to Figure R302.4.2.1 via Section R302.4.2.1
- ✓ Only applies to "modified" common 2-hr firewalls

Chapter 3 – R302.2.3 Townhouse Utilities

CHANGE SUMMARY: Editorial change reintroducing townhouse utility separation provisions

R302.2.3 Utilities for townhouses. Shared or common-use utilities shall not run beneath a *townhouse*. Separate utility services shall be supplied to each individual *townhouse*. Utilities serving an individual *townhouse* shall not run beneath another separate *townhouse*, and shall not run through the *attic* of another separate *townhouse*.



- ✓ 2014 ORSC maintenance agreement language deleted in 2017
- ✓ Utility language reintroduced and clarified

Chapter 3 – R302.3 Two-family dwellings

CHANGE SUMMARY: New language introduced to provide compliance options where a two-family dwelling is separated by a real property line.



R302.3.2 Property line separation. Where a twofamily *dwelling* is separated by a real property line, *dwelling unit* separation shall be provided in accordance with one of the following:

- 1. *Townhouse* provisions of Section R302.2, as applicable.
- 2. Two individual wall assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119 or UL 263.
- 3. Other *approved* methods of equivalent fire resistance.

Chapter 3 – R310.2.5 EERO Above Roof

CHANGE SUMMARY: New Oregon amendment adding a requirement for a path on roof surfaces located below emergency escape and rescue openings

R310.2.5 Emergency escape and rescue openings above lower roof surfaces. Emergency escape and rescue openings located above a portion of roof surface below shall be provided with an unobstructed path, not less than 36 inches (914 mm) in width, from the vertical plane of the opening to the nearest edge of the lower roof, as practicable.



Notes:

 \checkmark Intended to avoid obstructions that could hinder escape and/or rescue.

Chapter 3 – R310.2.6 EERO Replacement

CHANGE SUMMARY: New model code language exempts replacement windows from certain EERO requirements where specific conditions are met.

R310.2.6 Replacement windows. Replacement windows installed in buildings meeting the scope of this code shall be exempt from the maximum sill height requirements of Section R310.2.2 and the requirements of Section R310.2.1, provided that the replacement window meets the following conditions:

- 1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window is of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
- 2. The replacement window is not part of a change of occupancy or use.

- Exempts sill height and opening size req's
- Must be installed in existing rough or framed opening
- Must be equal or larger window opening area
- Must be the same operating style or have equal or greater opening area
- Does not apply to change of occupancy or use
- ✓ Aligns with Statewide Code Interpretation 92-01

Chapter 3 – R311.7 Stairways

CHANGE SUMMARY: Language introduced to clarify that all *stairways* serving the dwelling are required to comply with the dimensional requirements (not just MOE)

R311.7 Stairways. Where required by this code or otherwise provided, *stairways* shall comply with this section.

Exception: *Stairways* not within or directly serving a regulated building, patio, porch or deck.



Chapter 3 – R311.7.11 & 12 ATDs & Ladders

CHANGE SUMMARY: Model language permitting ATDs and ship's ladders for MOE purposes was *rejected* by the advisory board, and <u>not adopted</u> in Oregon.



R311.7.11 Alternating tread devices. Alternating tread devices shall not be used as an element of a means of egress. Alternating tread devices shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required. The clear width at and below the handrails shall be not less than 20 inches (508 mm).

Exception: Alternating tread devices are allowed to be used as an element of a means of egress for lofts, mezzanines and similar areas of 200 gross square feet (18.6 m2) or less where such devices do not provide exclusive access to a kitchen or bathroom.

Chapter 3 – R311.7.11 & 12 ATDs & Ladders

CHANGE SUMMARY: Model language permitting ATDs and ship's ladders for MOE purposes was *rejected* by the advisory board, and <u>not adopted</u> in Oregon.

R311.7.12 Ship's ladders. Ship's ladders shall not be used as an element of a means of egress. Ship's ladders shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required. The clear width at and below the handrails shall be not less than 20 inches.

Exception: Ship's ladders are allowed to be used as an element of a means of egress for lofts, mezzanines and similar areas of 200 gross square feet (18.6 m^2) or less that do not provide exclusive access to a kitchen or bathroom.



Small Home Specialty Code - Reminder

SUMMARY: No change. Just a quick reminder about the Small Home Specialty Code path in Oregon.

In 2019, Oregon's Legislative Assembly created a new definition in Oregon Revised Statute (ORS) Chapter 455 for "small homes" and also specified a streamlined local construction standard for these dwellings (see ORS 455.616).

As defined in the statute, a "small home" means a single family residence that is not more than 400 square feet in size.

For these dwellings, statute requires that the **2018 International Residential Code**, including but not limited to **Appendix Q**, be used for the design and construction and be considered the Small Home Specialty Code.

Additional details may be reviewed at the following link:

https://olis.leg.state.or.us/liz/2019R1/Downloads/MeasureDocument/HB2423

Small Home Specialty Code - Reminder

SUMMARY: Just a quick reminder about the Small Home Specialty Code path.

Information from the 2019 ORS 455 modification (informally summarized):

- ✓ Recognizes the unamended 2018 IRC, including Appendix Q where applicable, as the mandated construction standard for small homes (as defined)
- Defines "small home" within statute and sets associated square footage thresholds.
- ✓ Identifies all small homes are protected by an automatic sprinkler system (per the 2018 IRC – 13D) and provides design flexibility regarding the sprinkler system installation to be considered locally – building official discretion/authority/flexibility/design tradeoffs.
- Reinforces the requirement for a "two head design," specifies water meter applicability, and limits maximum design flow (gpm) for the "two head design."
- Outlines even more flexibility for a *local* building official to consider when reviewing small home proposals.
- ✓ Only allows a small home to be used for residential/dwelling purposes.

Chapter 3 – R312.2.1 Window Fall Protection

CHANGE SUMMARY: New amendment clarifies window fall protection requirements.

R312.2.1 Window sills. In dwelling units, where the top of the sill of an operable window opening is located less than 24 inches (610 mm) above the finished floor and greater than 72 inches (1829 mm) above the finished *grade* or <u>flat</u> other surface <u>not less than 36 inches (914 mm) in width</u> below on the exterior of the building, the operable window shall comply with one of the following:



- Flat surface must be 36" wide
- ✓ Windows less than 24" above floor and 72" above exterior grade or flat surface
- ✓ Sloped roofs do not qualify
 - X = Fall Protection
 - \mathcal{O} = Not Req'd



Chapter 3 – R324 Solar Energy Systems

CHANGE SUMMARY: New pointer in Chapter 3 to ORSC Chapter 23 and Section 3111 of the Oregon Structural Specialty Code (OSSC). Under the 2017 ORSC, the pointer only occurred within Chapter 23.

SECTION R324 SOLAR ENERGY SYSTEMS

R324.1 General. Solar energy systems shall comply with the provisions of this section.

R324.2 Solar thermal systems. Solar thermal systems shall be designed and installed in accordance with Chapter 23 and the *International Fire Code*.

R324.3 Photovoltaic systems. Photovoltaic systems shall be designed and installed in accordance with Section 3111 of the *Building Code*. All photovoltaic electrical installations shall comply with the *Electrical Code* Sections R324.3.1 through R324.7.1, NFPA 70 and the manufacturer's installation instructions.

Note:

Since 2015, the provisions governing <u>all</u> roof mounted solar photovoltaic arrays have been located in OSSC Chapter 31



Chapter 3 – R326 Habitable Attics

CHANGE SUMMARY: New provisions for habitable attics based on 2021 IRC

SECTION R326 HABITABLE ATTIC

<u>R326.1 General.</u> *Habitable attics* shall comply with this section.

R326.2 Minimum dimensions. A *habitable attic* shall have a floor area in accordance with Section R304 and a ceiling height in accordance with Section R305.

R326.3 Story above grade plane. A habitable attic shall be considered a story above grade plane.

Four exceptions to R326.3:

- 1. Max. floor area $1/_3$ story below, unless NFPA 13D system installed then $1/_2$
- 2. Occupiable space is enclosed by roof assembly above; knee walls, if applicable, on the sides; and floor-ceiling assembly below.
- 3. Floor cannot extend beyond the exterior walls of the story below.
- 4. Where above third story NFPA 13D req'd.

ATTIC, HABITABLE. A finished or unfinished habitable space within an attic.

- ✓ Added to 2009 IRC as a definition, not adopted in Oregon
- ✓ Moved to Ch.3 in 2018 IRC
- ✓ 2021 IRC change fixed language as IRC was less restrictive than the IBC

Chapter 3 – R329 Swimming Pools

CHANGE SUMMARY: New swimming pool scope and ISPSC reference.

SECTION R329 SWIMMING POOLS, SPAS AND HOT TUBS

R329.1 General. The design and construction of <u>barriers for residential swimming</u> pools which are accessory to four or fewer *dwelling units* shall comply with <u>the applicable provisions of</u> the *International Swimming Pool and Spa Code*.



- ✓ Oregon Appendix G rescinded, replaced with reference to the 2018 International Swimming Pool and Spa Code
- ✓ Scope clarified to align with the Oregon Health Authority's *Private Swimming Pool* definition
- ✓ Provides greater design allowances
- ✓ Includes barrier requirements
- Contains barrier exemptions for ASTM F1346 safety covers as follows:
 - Spas & Hot Tubs Lockable
 - Swimming Pools Powered

Chapter 4 – Table R403.1 Min. Footing Width

CHANGE SUMMARY: Retained and updated Table R403.1 based on the 2012 IRC.

<u>Mi</u>	TABLE R403.1 MINIMUM WIDTH OF CONCRETE, PRECAST								
	OR MASONRY FOO TINGS (Inches)"								
	1,000	1,500	2,000	≥ 3,000					
Conventiona	Conventional light-frame construction								
1-story	18	12	12	12					
2-story	23	15	12	12					
3-story	27 <u>35</u>	18 <u>23</u>	14 <u>17</u>	12					
4-inch brick masonry	veneer over l	ight frame or	8-inch hollov	v concrete					
1-story	<mark>₽₽</mark> <u>18</u>	<u>₩ 12</u>	12	12					
2-story	29 <u>32</u>	19 <u>21</u>	<mark>∔</mark> ≩ <u>16</u>	12					
3-story	<mark>35</mark> <u>48</u>	<u>₽₽ 32</u>	16 <u>24</u>	<mark>∔⊋</mark> <u>16</u>					
8-inch solid (B-inch solid concrete or masonry, or fully grouted masonry								
1-story	26 <u>24</u>	17 <u>16</u>	13 <u>12</u>	12					
2-story	36 <u>44</u>	23 <u>29</u>	18 <u>21</u>	12 <u>14</u>					
3-story	<mark>4≨</mark> <u>63</u>	30 <u>42</u>	<u>₽₽</u> <u>32</u>	16 <u>21</u>					

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Where minimum footing width is 12 inches, use of a single wythe of solid or fully grouted 12-inch nominal concrete masonry units is permitted.

Note:

The 2012 IRC was the last version to use this simple table format. The table expanded into three pages in the 2015 IRC and was subsequently updated in the 2018 IRC and the upcoming 2021 IRC, all of which have been widely criticized at the national level for avoidable complexity, increased limitations of use, inaccurate assumptions made, inability to correctly capture all prescriptive scenarios making them overly conservative in many scenarios, and pushing the industry toward value engineering of prescriptive home foundations in order to save on construction costs.

Chapter 4 – Table R404.1.2(1) Reinforcement for Foundation Walls

CHANGE SUMMARY: Retains and integrates existing clarifications to the minimum reinforcement requirements for stem walls located in SDC's B and C.



Chapter 4 – R408.3 Unvented Crawlspaces

CHANGE SUMMARY: New clarification regarding local building official's ability to approve unvented crawlspaces with continuous mechanical exhaust in locations where mandatory radon mitigating construction is required.

R408.3 Unvented crawl space. Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where the following items are provided:

- 1. {No Change}
- 2. {No Change to 2, 2.1 or 2.2}
 - 2.3 Dehumidification sized to provide 70 pints (33 liters) of moisture removal per day for every 1,000 square feet (93 m²) of *crawl space* floor area.

Exception: Unvented crawl spaces are not allowed in new construction in Baker, Clackamas, Hood River, Multnomah, Polk, Washington and Yamhill counties where radon-mitigating construction is required, <u>unless an *approved* mechanical ventilation</u> system is provided in accordance with the exception in Section AF103.5 and the requirements of R408.3 are met.

Chapter 5 – R507 Decks

CHANGE SUMMARY: Reorganization and new provisions added to model code and Oregon amendment adding guard provisions.

- ✓ Model section entirely reorganized for 2018
- ✓ Beam table and beam provisions updated
- ✓ Wood deck materials now No. 2 or better <u>and</u> preservative-treated or naturally durable
- ✓ Fastener section and table added
- \checkmark Prescriptive footing provisions and figures added
- Added frost depth exemption from R403.1.4.1 for free-standing decks (Section R403.1.4 still applies – 12" below finished grade)
- ✓ 8x8 added to deck post table to accommodate three ply beams (max. height same as 6x6)
- ✓ New Oregon Section R507.10 guard provisions
 - References R312 for general guard req's
 - Model language approved for 2021 IRC
 - Primarily addresses post/guard attachment



Chapter 6 – R602.9 Cripple Walls

CHANGE SUMMARY: Early adoption of 2021 IRC change regarding the location of prescriptive cripple walls requiring continuous sheathing or solid blocking.

R602.9 Cripple walls. Foundation cripple walls shall be framed of studs not smaller than the studding above. Where exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional *story*. **(ALL)**

Exterior cripple walls with a stud height less than 14 inches (356 mm) shall be continuously sheathed on one side with wood structural panels fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking.

Cripple walls shall be supported on continuous foundations. (ALL)



Chapter 6 – R602.10 Wall Bracing

CHANGE SUMMARY: Clarifying Oregon Amendments were made to the adopted 2018 IRC wall bracing provisions.

R602.10.1.2 Offsets along a braced wall line.

Exterior walls parallel to a *braced wall line* shall be offset not more than 4 feet (1219 mm) from the designated *braced wall line* location as shown in Figure R602.10.1.1.... Where all of the braced wall panels along a braced wall line occur within a single line, the braced wall line shall be located at the aligned braced wall panels, and an offset of the braced wall line is not permitted.



Chapter 6 – R602.10 Wall Bracing

CHANGE SUMMARY: Clarifying Oregon Amendments were made to the adopted 2018 IRC wall bracing provisions.

R602.10.4.1 Mixing methods.

Moved

Mixing of bracing methods shall be permitted as follows:...

- 2. Mixing intermittent bracing methods from *braced wall line* to *braced wall line* within a story shall be permitted. In regions within Seismic Design Categories A, B and C where the ultimate design wind speed is less than or equal to 130 mph (58m/s), mixing of intermittent bracing and continuous sheathing methods from braced wall line to braced wall line within a story shall be permitted.
- 3. <u>Mixing intermittent bracing and continuous sheathing methods from *braced wall line* to *braced* <u>wall line within a story shall be permitted in regions within Seismic Design Categories A, B</u> and C where the <u>ultimate</u> <u>basic</u> design wind speed is less than or equal to 130 mph (58m/s).</u>
- 4. Mixing intermittent bracing methods along a *braced wall line* shall be permitted in Seismic...

Mixing Locations	Mixing Methods	SDC B	SDC C Detached	SDC C Townhouses	SDC D ₀ -D ₂
Story to Story	Intermittent and CS	Allowed	Allowed	Allowed	Allowed
BWL to BWL	Intermittent Methods	Allowed	Allowed	Allowed	Allowed
BWL to BWL	Intermittent and CS	Allowed	Allowed	Allowed	Prohibited
Within a BWL	Intermittent Alternate	Allowed	Allowed	Prohibited	Prohibited
Within a BWL	CS Methods	Allowed	Allowed	Allowed	Allowed
Within a BWL	Intermittent and CS	Allowed	Allowed	Prohibited	Prohibited

Chapter 6 – R602.10 Wall Bracing

Change summary: Clarifying Oregon Amendments were made to the adopted 2018 IRC wall bracing provisions.

R602.10.4.4 Panel joints. Vertical joints of panel sheathing shall occur over and be fastened to common studs. Horizontal joints of panel sheathing in *braced wall panels* shall occur over and be fastened to common blocking of a thickness of $1 \frac{1}{2}$ inches (38 mm) or greater.

Exceptions:

- Where the bracing length provided is not less than twice the minimum length required by Tables R602.10.3(1) and R602.10.3(3), blocking at horizontal joints shall not be required in braced wall panels constructed using Methods WSP, SFB, GB, PBS or HPS. For methods WSP and CS-WSP, blocking of horizontal joints is permitted to be omitted when adjustment factor No. 8 of Table R602.10.3(2) or No. 9 of Table R602.10.3(4) is applied.
- 2. Vertical joints of panel sheathing shall be permitted to occur over double studs, where adjoining panel edges are attached to separate studs with the required panel edge fastening schedule, and the adjacent studs are attached together with two rows of 10d box nails [3 inches by 0.128 inch (76.2 mm by 3.25 mm)] at 10 inches o.c. (254 mm).
- 3. Blocking at horizontal joints shall not be required in wall segments that are not counted as *braced wall panels*.
- 4. Where Method GB panels are installed horizontally, blocking of horizontal joints is not required.

Note: Blocking at all horizontal panel joints for a continuously sheathed structure is not required, it's only required at the qualifying/designated *braced wall panels*.

Chapter 9 – R905.16 & 17 PV Shingles & BIPV

CHANGE SUMMARY: Model code language introduced addressing PV roof shingles and other building integrated photovoltaic products (BIPV).

R905.16 Photovoltaic shingles. The installation of *photovoltaic shingles* shall comply with the provisions of this section, Section R324 and the *Electrical Code*.

{See 905.16.1 – 6 for all details}

R905.16.1 Deck requirements.

R905.16.2 Deck slope.

R905.16.3 Underlayment.

R905.16.3.1 Ice barrier.

R905.16.4 Material standards.

R905.16.5 Attachment. *Photovoltaic shingles* shall be attached in accordance with the manufacturer's installation instructions.

R905.16.6 Wind resistance.



PHOTOVOLTAIC SHINGLES. A *roof covering* that resembles shingles and that incorporates photovoltaic modules.

Chapter 9 – R905.16 & 17 PV Shingles & BIPV

CHANGE SUMMARY: Model code language introduced addressing PV roof shingles and other building integrated photovoltaic products (BIPV).

R905.17 Building-integrated Photovoltaic (BIPV) roof panels applied directly to the roof deck. The installation of *BIPV roof panels* shall comply with the provisions of this section, Section R324 and the *Electrical Code*.

{See 905.17.1 – 7 for all details}

R905.17.1 Deck requirements.

R905.17.2 Deck slope.

R905.17.3 Underlayment.

R905.17.4 Ice barrier.

R905.17.5 Material standards.

R905.17.6 Attachment. *BIPV roof panels* shall be attached in accordance with the manufacturer's installation instructions.

R905.17.7 Wind resistance.



BUILDING-INTEGRATED PHOTOVOLTAIC ROOF PANEL (BIPV Roof Panel). A *photovoltaic panel* that functions as a component of the building envelope.

Chapter 9 – R908.3.1 Roof Recover

CHANGE SUMMARY: Rescinded amendment allowing three layers of roofing

R908.3.1.1 Roof recover not allowed. A *roof recover* shall not be permitted where any of the following conditions occur:

- 1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
- 2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
- Where the existing roof has three two or more applications of any type of roof covering.



"TEAR-OFF"

CertainTeed recommends but does not require old roofing be removed before installation of these products. Inspect the condition of the roof to determine that the load bearing capacity is adequate for the application of the Presidential® shingles. If the old roof consists of two or more layers of shingles, it is required to remove (tear-off) the existing roofing. After tear-off, repair the decking and / or install new decking and apply new underlayment, eaves flashing, and Presidential shingles using the recommended procedure.

Example of CertainTeed installation instructions

Notes:

✓ Aligns with model IRC and IBC and many manufacturer's recommendations

Appendix F – Radon Control Methods

CHANGE SUMMARY: Added language to clarify longstanding intent. Deletion of 'building tightness' crawlspace path due to superseding requirements. New figures!

SECTION AF103 REQUIREMENTS

AF103.1 General. The following construction techniques are intended to resist radon entry <u>in new residential buildings</u>. These techniques are required in areas where designated by Section AF101.1. <u>See Figures AF103(1), AF103(2) and AF103(3)</u>.

Mandatory application reminder for Appendix F:

- New construction of governed dwelling (not alteration or addition) Required
- Additions to existing dwelling Not required
- Garages Not required
- ♦ Moved dwellings (ORS 455.410) Not required

Appendix F – Radon Control Methods

CHANGE SUMMARY: Added language to clarify longstanding intent. Deletion of 'building tightness' crawlspace path due to superseding requirements. New figures!

AF103.5 Crawl space mitigation system. In buildings with crawl space foundations, a system complying with Section AF103.5.1 or <u>AF103.5.2</u> shall be installed during construction.

Exception: Buildings in which an *approved* mechanical crawl space ventilation system or other equivalent system is installed.

AF103.5.1 Passive submembrane depressurization system. {No change}

AF103.5.2 Crawl space ventilation and building tightness. AF03.5.2.1 Ventilation. AF103.5.2.2 Ventilation openings. AF103.5.2.3 Building tightness.

Appendix T – Dwelling Unit Fire Sprinklers

CHANGE SUMMARY: Oregon Appendix T rescinded

- ✓ Oregon Appendix T rescinded
- ✓ Fire sprinkler references now point to NFPA 13D
- NFPA 13D has historically been an acceptable alternative to Appendix T
- ✓ Oregon specific Appendix T was based on IRC Section P2904
- NFPA 13D has evolved to include simplified prescriptive design methods that were the basis for the original creation of IRC Section P2904

	3/4 in.	Water Serv	r Service P vice Pressu	ressure Lo re Loss	oss (PL _{svc}) 1 in. V	Vater Serv	rice Pi
low		0	psi)			(1	psi)
ate* pm)	40 ft or less	41 ft to 75 ft	76 ft to 100 ft	101 ft to 150 ft	40 ft or less	41 ft to 75 ft	76 f 100
8	TABL	LE 10.4.4	(a) Pressu	re Losses	in psi in	Water Me	ters
2					Fle	ow (gpm)	(L/min)
4	Meter (ir	r Size 1 1.)	8 or less (68)	23 (87)	26	(98)	31 (117)
-	5%(1	5 mm)	9 (0.67 bar)) 14 (0.97	bar) 18	(1.2 bar)	26 (1.8 b
	³ / ₄ (2	20 mm TA	BLE 10.4.	9.2(b) El	evation L	$Oss(PL_e)$	22 (1 5 b
		40 m 1	Elevation (j	ft) (m)	Pressu	re Loss (p	osi) (bar)
			5 (1.5	5)		2.2 (0.1	5)
			10 (3)			4.4 (0.30	0)
			15 (4.6	5)		6.5 (0.4	5)
			20 (6.1)		87(06)	`
			20 (0.1)		0.7 (0.0)	,

SAM 13-01 & SAM 97-01 – October 1, 2021

CHANGE SUMMARY: Statewide Alternate Methods #13-01 and #97-01 will be rescinded, effective October 1, 2021.



Notes:

13-01

- ✓ The 2008 ORSC bracing methodology was loosely based on the 2003 IRC and is no longer equivalent to current prescriptive design requirements.
- ✓ Many nationally recognized tools are readily available for customers who have still not learned the current bracing methodology introduced in the 2011 ORSC (2009 IRC).

97-01

- ✓ Similarly, multiple prescriptive portal frame options exist now within the ORSC.
- \checkmark A multitude of additional design options exist for portals beyond the prescriptive code.



Additional Resources:

Division website - Oregon.gov/bcd

Technical questions - BCD.PTSPtech@oregon.gov

Program contacts - Oregon.gov/bcd/Pages/contact-us.aspx

Residential Structures Program - Oregon.gov/bcd/codes-stand/Pages/residential-structures.aspx