Structural Changes Part II

Chapter 11- Scope of Application

CHANGE: Just a quick reminder of how the A11.7 Standard is used in conjunction with the mandatory OSSC provisions.

Application:

- ✓ The OSSC establishes when a component or element is required to be accessible.
- ✓ The referenced standard identifies the design requirements of that component or element, except where specifically modified by the OSSC (e.g., door opening force).
- ✓ The referenced standard does not establish when a component or element is required to be accessible.

Common misapplication examples:

- Visual contrast on accessible stairs (part of AMOE)
- Detectable warnings
- > ATMs

Chapter 11– Scope of application (cont'd)

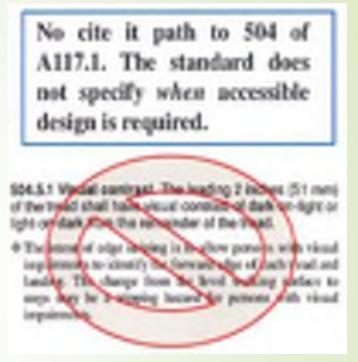
Visual contrast on accessible stairs (part of AMOE)

1102.1 Design. Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and ICC A117.1, as detailed in this chapter.

This section establishes the primary and fundamental relationship of ICC a117.1 to the code. The code text is intended to "scope" or provide thresholds for application of required accessibility features. The referenced standard contains technical provisions indicating how compliance with the code is achieved. In short, Chapter 11 specifies what, when and how many accessible features are required; the referenced standard indicates how to make that feature accessible. Compliance with both the code and the standard is required.

In accordance with Section 102.4, standards are utilized only to the extent that they are referenced. Note that ICC A117.1 includes technical criteria for several items that are not actually scoped in the code. Such items are not required to comply with ICC A117.1 criteria unless specifically scoped by the authority having jurisdiction. Some examples of items in ICC A117.1 that are not referenced by the code are:

- Section 403.6- Corridor Handrails
- Section 504- Stairways
- Section 704- Telephones



504.4 Tread Surface. Stair treads shall comply with 302. Changes in level are not permitted.
 EXCEPTION: Treads shall be permitted to have a slope not steeper than 1:48.

Advisory **504.4 Tread Surface**. Consider providing visual contrast on tread nosing or at the leading edges of treads without nosing, so that stair treads are more visible for people with low vision.

Chapter 11- Places of Religious Worship

CHANGE: This modification exempts small areas used for religious ceremonies.

1103.2.8 Areas in places of religious worship. Raised or lowered areas, or portions of areas, in places of religious worship that are less than 300 square feet (30 m2) in area and located 7 inches (178 mm) or more above or below the finished floor and used primarily for the performance of religious ceremonies are not required to comply with this chapter.

**Remember we always start with determination of affected building:

Definitions for ORS 447.210 to 447.280 As used in ORS 447.210 (Definitions for ORS 447.210 to 447.280) to 447.280 (Enforcement powers), unless the context requires otherwise:

(1) "Affected buildings" includes any place of public accommodations and commercial facilities designed, constructed and altered in compliance with the accessibility standards established by the Americans with Disabilities Act. "Affected buildings" also includes any government building that is subject to Title II of the Americans with Disabilities Act. "Affected buildings" also includes private entities, private membership clubs and churches that have more than one floor level and more than 4,000 square feet in ground area or that are more than 20 feet in height, measured from the top surface of the lowest flooring to the highest interior overhead finish of the building.

Chapter 11- Walk-in cooler & freezer

 CHANGE: This modification exempts cooler and freezer equipment in employee work areas from accessibility.

1103.2.14 Walk-in coolers and freezers. Walk-in cooler and freezer equipment accessed only from employee work areas is not required to comply with this chapter.

Note:

This establishes the differentiation between walk-in cooler/freezer equipment (large refrigerators) and refrigerated rooms where occupants are customarily engaged in labor (e.g. slaughterhouse, cold storage facilities, etc.).





Chapter 11- Multistory Buildings & Facilities

CHANGE: This modification removes the use of "levels" through out 1104.4. Additionally, the Oregon specific "elevator exceptions" have been retained.

<u>1104.4 Multistory buildings and facilities.</u> At least one accessible route shall connect each accessible story, mezzanine and occupied roofs in multilevel buildings and facilities.

Exceptions: (10 total)

1. An accessible route is not required to stories, mezzanines and occupied roofs that have an aggregate area of not more than 3,000 square feet (278.7 m2) and are located above and below accessible levels.

This exception shall not apply to:

- 1.1. Multiple tenant facilities of Group M occupancies containing five or more tenant spaces used for the sales or rental of goods and where at least one such tenant space is located on a floor level above or below the accessible levels.
- 1.2. Stories or mezzanines containing offices of health care providers (Group B or I).
- 1.3. Passenger transportation facilities and airports (Group A-3 or B).
- 1.4. Government buildings.

Chapter 11 – Dwelling & Sleeping Units

► CHANGE: Sections 1107.3 & 1107.4 have been expanded to provide a clearer distinction of accessible route requirements at elevation change. This is intended to align more closely with FHA (covered multifamily dwellings).

1107.3 Accessible spaces. Rooms and spaces available to the general public or available for use by residents and serving Accessible units, Type A units or Type B units shall be accessible. Accessible spaces shall include toilet and bathing rooms, kitchen, living and dining areas and any exterior spaces, including patios, terraces and balconies.

Exceptions: (3 total)

- 1. Stories and mezzanines exempted by Section 1107.4.
- 2. Recreational facilities in accordance with Section 1102.2.2.9.
- 3. Exterior decks, patios or balconies that are part of Type B units and have impervious surfaces, and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the unit.

Note: Exception #3 was moved from 1107.4 in the 2014 OSSC

Chapter 11 – Dwelling & Sleeping Units (cont'd)

1107.4 Accessible route. Not fewer than one accessible route shall connect accessible building or facility entrances with the primary entrance of each Accessible unit, Type A unit and Type B unit within the building or facility and with those exterior and interior spaces and facilities that serve the units.

Exceptions: (7 total)

- 1. If due to circumstances outside the control of the owner, either the slope of the finished ground level between accessible facilities and buildings exceeds one unit vertical in 12 units horizontal (1:12), or where physical barriers or legal restrictions prevent the installation of an accessible route, a vehicular route with parking that complies with Section 1106at each public or common use facility or building is permitted in place of the accessible route.
- 2. In Group I-3 facilities, an accessible route is not required to connect stories or mezzanines where Accessible units, all common use areas serving Accessible units and all public use areas are on an accessible route.
- 3. In Group R-2 facilities with Type A units complying with Section 1107.6.2.2.1, an accessible route is not required to connect stories or mezzanines where Type A units, all common use areas serving Type A units and all public use areas are on an accessible route.
- 4. In other than Group R-2 dormitory housing provided by places of education, in Group R-2 facilities with Accessible units complying with Section1107.6.2.3.1, an accessible route is not required to connect stories or mezzanines where Accessible units, all common use areas serving Accessible units and all public use areas are on an accessible route.

Chapter 11 – Dwelling & Sleeping Units (cont'd)

Exceptions: (7 total continued)

- 5. In Group R-1, an accessible route is not required to connect stories or mezzanines within individual units, provided the accessible level meets the provisions for Accessible units and sleeping accommodations for two persons minimum and a toilet facility are provided on that level.
- 6. In congregate residences in Groups R-3 and R-4, an accessible route is not required to connect stories or mezzanines where Accessible units or Type B units, all common use areas serving Accessible units and Type B units and all public use areas serving Accessible units and Type B units are on an accessible route.
- 7. An accessible route between stories is not required where Type B units are exempted by Section 1107.7.

Note: exception #7 is a common reference for non-elevator 3-story 'walk-up' apartment complexes where all ground floor units are Type A units or Type B units(depending on total number of units).

Chapter 11 – Group R-1 Accessible Units

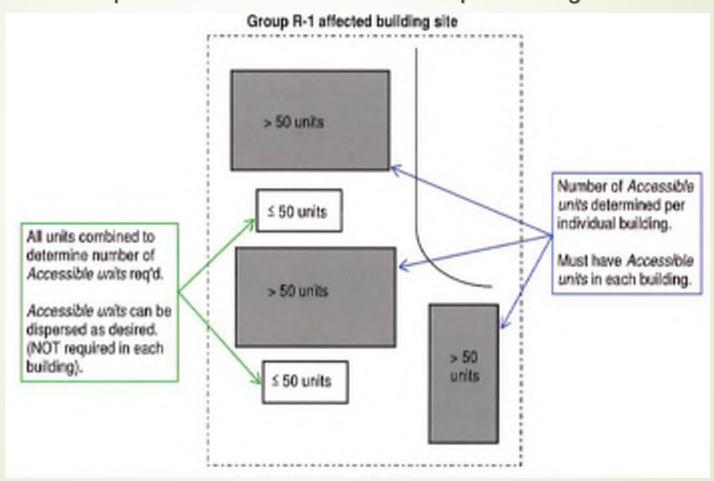
CHANGE: The modification in Section 1107.6.1.1 clarifies how to determine the number of required Accessible units on a multiple building site.

1107.6.1 Group R-1. Accessible units and Type B units shall be provided in Group R-1 occupancies in accordance with Sections 1107.6.1.1 and 1107.6.1.2.

1107.6.1.1 Accessible units. Accessible dwelling units and sleeping units shall be provided in accordance with Table 1107.6.1.1. On a multiple-building site, where structures contain more than 50 dwelling units or sleeping units, the number of Accessible units shall be determined per structure. On a multiple-building site, where structures contain 50 or fewer dwelling units or sleeping units, all dwelling units and sleeping units on a site shall be considered to determine the total number of Accessible units. Accessible units shall be dispersed among the various classes of units.

Chapter 11 – Group R-1 Accessible Units (cont'd)

CHANGE: The modification in Section 1107.6.1.1 clarifies how to determine the number of required Accessible units on a multiple building site.



Chapter 11 – Group R-2 Units

CHANGE: This modification clarifies how "bedrooms" in monasteries and convents are intended to contribute towards the total number of units.

1107.6.2.2 Apartment houses, monasteries and convents. Type A units and Type B units shall be provided in apartment houses, monasteries and convents in accordance with Sections 1107.6.2.2.1 and1107.6.2.2.2. Bedrooms in monasteries and convents shall be counted as units for the purpose of determining the number of units. Where the bedrooms are grouped in sleeping units, only one bedroom in each sleeping unit shall count toward the number of required Type A units.

Chapter 11 – Group R-2 Units

CHANGE: This modification clarifies how "bedrooms" in congregate living facilities, dormitories, sororities, fraternities and boarding houses are intended to contribute towards the total number of units.

1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents. In Group R-2 occupancies, other than live/work units, apartment houses, monasteries and convents falling within the scope of Sections 1107.6.2.1 and 1107.6.2.2, Accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.3.1 and1107.6.2.3.2. Bedrooms within congregate living facilities, dormitories, sororities, fraternities and boardinghouses shall be counted as sleeping units for the purpose of determining the number of units. Where the bedrooms are grouped into dwelling or sleeping units, only one bedroom in each dwelling or sleeping unit shall be permitted to count toward the number of required Accessible units.

Chapter 11 – Family/Assisted-use

CHANGE: Section 1109.2.1.2 has been modified to reflect other allowable fixtures within single use toilet or bathing room.

1109.2.1.2 Family or assisted-use toilet rooms. Family or assisted-use toilet rooms shall include only one water closet and only one lavatory. A family or assisted-use bathing room in accordance with Section 1109.2.1.3 shall be considered to be a family or assisted-use toilet room.

Exception: The following additional fixtures shall be permitted in a family or assisted-use toilet room:

- 1. A urinal.
- 2. A child-height water closet.
- 3. A child-height lavatory.

Note: This is intended to allow for a higher level of accommodation in the design of the family or assisted use space, where elected by the customer.

Clustering Concepts (Single-user rooms)

CHANGE: No change, just a quick revisit of "clustering" and the accessibility requirements.

1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. Except as provided for in Sections 1109.2.2 and 1109.2.3, at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

Exception #3. Where <u>multiple</u> single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible.

Note: Since "multiple" is an undefined term, we use the guidance of Section 201 to turn to the "plain, natural, and ordinary meaning...

Chapter 11 –Water Closet Compartments

CHANGE: Section 1109.2.2 has been modified to reflect a minimum 5 percent requirement (in place of one). This change will only affect large toilet rooms provided with more than 20 compartments.

1109.2.2 Water closet compartment. Where water closet compartments are provided in a toilet room or bathing room, at least one 5 percent of the total number of compartments shall be wheelchair accessible. Where the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least one 5 percent of the total number of compartments shall be ambulatory accessible, provided in addition to the wheelchair accessible compartment.

Note: 20 total WC's and urinal fixtures x .05 = 1 ambulatory compartment 25 total WC's and urinal fixtures x .05 = 1.25 = 2 ambulatory compartments

Chapter 12 – Unvented Attics / Rafters

CHANGE: ORSC language and allowance was introduced into the OSSC since the attic doesn't know what type of occupancy/use it is located above.

1202.3 Unvented attic and unvented enclosed rafter assemblies. Unvented attics and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all of the following conditions are met:

- 1. The unvented attic space is completely within the building thermal envelope.
- 2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.
- 3. Where wood shingles or shakes are used, not less than a 1/4-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.
- 4. Any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
- 5. Insulation shall be located in accordance with the following:

(FOLLOW Checklist of insulation locations based on proposed assembly.)

Chapter 12 – Temperature Control

CHANGE: New specific occupancy exception added to the minimum 68 degree Fahrenheit requirement of 1203.1.

1203.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

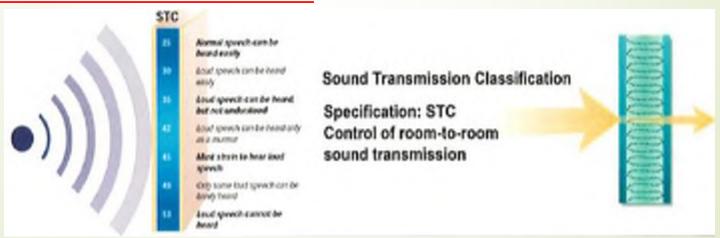
Exceptions: Space heating systems are not required for:

- 1. Interior spaces where the primary purpose of the space is not associated with human comfort.
- 2. Group F, H, S or U occupancies.

Chapter 12 – Sound Transmission Engineering

CHANGE: A new engineering analysis allowance has been added to airborne and structural-borne sound requirements.

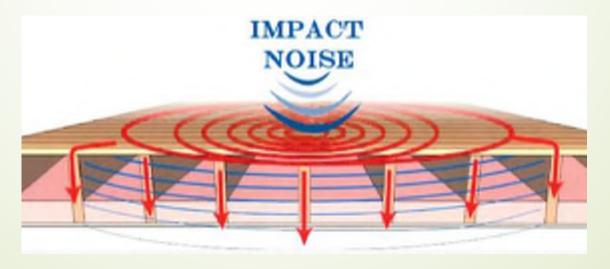
1206.2 Airborne sound. Walls, partitions and floor-ceiling assemblies separating dwelling units and sleeping units from each other or from public or service areas shall have a sound transmission class of not less than 50, or not less than 45 if field tested, for airborne noise where tested in accordance with ASTM E90. Alternatively, the sound transmission class of walls, partitions and floor-ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90



Chapter 12 – Sound Transmission Engineering

CHANGE: A new engineering analysis allowance has been added to airborne and structural borne sound requirements.

1206.3 Structure-borne sound. Floor-ceiling assemblies between dwelling units and sleeping units or between a dwelling unit or sleeping unit and a public or service area within the structure shall have an impact insulation class rating of not less than 50, or not less than 45 if field tested, where tested in accordance with ASTM E492. Alternatively, the impact insulation class of floor-ceiling assemblies shall be established by engineering analysis based on a comparison of floor-ceiling assemblies having impact insulation class ratings as determined by the test procedures in ASTM E492.



Chapter 12- Privacy Indicator (Single-user)

CHANGE: It was required, then removed from code, and now it has returned. Privacy indicators are back via a public proposal from a code official.

[P]1209.3 Privacy. Privacy at water closets, and urinals, and single user toilet and bathing rooms shall be provided in accordance with Sections 1209.3.1, and 1209.3.2 and 1209.3.3.

1209.3.1 Single-user toilet and bathing rooms. Doors to single-user toilet and bathing rooms, including family or assisted-use rooms, shall be securable from within the room and shall be provided with a privacy lock and an occupied indicator complying with Section 1010.1.9.6.



Chapter 13 - Energy

Big changes happened, see :

https://www.oregon.gov/bcd/codes-stand/Documents/19ozercc.pdf

Chapter 16 – Structural Design

CHANGE: New versions of structural design reference standards.

ASCE 7-16, Structural Design Loads and Criteria (Ch. 16)

Supplements and Errata: https://www.asce.org/structural-engineering/sei-supplements-and-errata/

ACI 318-14, Concrete (Ch. 19)

Errata: https://www.concrete.org/publications/documenterrata.aspx

TMS 402/602-16, Masonry (Ch. 21)

Errata: https://masonrysociety.org/errata/

AISC 360-16, Steel (Ch. 22)

- Free Download and Errata: https://www.aisc.org/publications/steel-standards/#30666
- Errata: https://www.aisc.org/publications/revisions-and-errata/

AISC 341-16, Seismic Provisions for Steel (Ch. 22)

- Free Download: https://www.aisc.org/publications/steel-standards/#30666
- Errata: https://www.aisc.org/publications/revisions-and-errata/

AISI S100-16, Cold-Formed Steel (Ch. 22)

Free View-only Download and Errata: https://www.clsei.org/free-publications-by-i-code

AISI S400-15/S1-16, Seismic Provisions for Cold-Formed Steel (Ch. 22)

Free View-only Download and Errata: https://www.clsei.org/free-publications-by-i-code

AISI S202, S220, S230, and S240-15 Cold-Formed Steel Framing (Ch. 22)

Free View-only Download and Errata: https://www.clsei.org/free-publications-by-i-code

AWC NDS-18, Wood (Ch. 23)

- Free View-only Download: https://www.awc.org/codes-standards/publications/nds-2018
- Errata: https://awc.org/codes-standards/publications/updates-errata.

AWC SDPWS-15, Wind and Seismic Provisions for Wood (Ch. 23)

- Free View-only Download: https://www.awc.org/codes-standards/publications/nds-2018
- Errata: https://awc.org/codes-standards/publications/updates-errata

Chapter 16 - Reference to ASCE 7

CHANGE: Move from ASCE 7-10 to ASCE 7-16 as referenced standard for structural design provisions.

Chapter 35 Referenced Standards

https://www.asce.org/structural-engineering/asce-7-and-sei-standards/



- MANY UPDATES BASED ON LATEST DATA AND RESEARCH INCLUDING BUT NOT LIMITED TO:
 - CH. 7 SNOW
 - > CH. 8 RAIN
 - CH. 10 ICE
 - CH.'S 11-23 SEISMIC (substantial updates)
 - CH.'S 26-31 WIND (substantial updates)
- ✓ NEW CHAPTER 6 TSUNAMI LOADS AND EFFECTS
 - See 2019 OSSC APPENDIX O for applicability
- ✓ NEW APPENDIX E PERFORMANCE-BASED DESIGN PROCEDURES FOR FIRE EFFECTS ON STRUCTURES

Chapter 16- Wind Speed Terminology

 CHANGE: Design wind speed terminology and notatios have been updated to match ASCE 7.

SECTION 1602

DEFINITIONS AND NOTATIONS

1602.1 Notations. The following notations are used in this chapter:

Vasd = Nominal Allowable stress design wind speed (3 second gust), [in] miles per hour (mph) (km/hr) where applicable.

Vult V = Ultimate <u>Basic</u> design wind speeds (3 second gust), miles per hour (mph) (km/hr)determined from Table 1609.3. Figures 1609.3(1) through 1609.3(8) or ASCE7.

Note: The code no longer contains lists of defined terms specific to each chapter; chapter 2 is now the sole placeholder for code defined terms.

Chapter 16 – Construction Documents (CDs)

CHANGE: New snow load reporting requirements; intent is to reduce the number of submitted applications with overlooked/ unaccounted for roof slope factor and/or snow drift in the design.

1603.1.3 Roof snow load data. The ground snow load, pg, shall be indicated. In areas where the ground snow load, pg, exceeds 10 pounds per square foot (psf) (0.479 kN/m2), the following additional information shall also be provided, regardless of whether snow loads govern the design of the roof:

- 1. Flat-roof snow load, pf.
- 2. Snow exposure factor, Ce.
- 3. Snow load importance factor, Is.
- 4. Thermal factor, Ct.
- 5. Slope factor(s), Cs.
- 6. Drift surcharge load(s), pd, where the sum of pd and pf exceeds 20 psf (0.96 kN/m2).
- 7. Width of snow drift(s), w.

Chapter 16 – Construction Documents (CDs)

CHANGE: Additional CD reporting requirements for designs utilizing the conventional light frame construction provisions of Section 2308.

1603.1 General. Construction documents shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.8 shall be indicated on the construction documents.

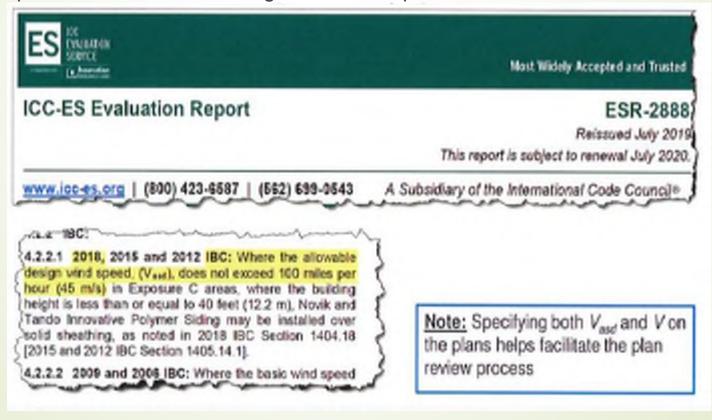
Exception: Construction documents for buildings constructed in accordance with the <u>conventional light-frame construction provisions of Section 2308</u> shall indicate the following structural design information:

- 1. Floor and roof dead and live loads.
- 2. Ground snow load, pg.
- 3. Ultimate Basic design wind speed, V, miles per hour (mph) (km/hr) and nominal allowable stress design wind speed, Vasd, as determined in accordance with Section 1609.3.1 and wind exposure.
- 4. Seismic design category and site class.
- 5. Flood design data, if located in flood hazard areas established by the flood plain administrator.
- 6. Design load-bearing values of soils.
- 7. Rain load data, where pertinent to the structural design (see Section 1611).

Chapter 16 – Specifying Vasd on CD's

Why does the code still require Vasd to be specified on construction documents?: Codecompliant evaluation reports and test methods for various products have been developed based on allowable design wind speeds.

Example from exterior wall siding evaluation report:



Chapter 16 – Listing PV dead loads on CD's

CHANGE: Rooftop-mounted PV solar panel system dead loads are now required to be specified on the construction documents.

<u>1603.1.7.1 Photovoltaic Panel Systems</u>. The dead load of rooftop-mounted photovoltaic panel systems, including rack support systems, shall be indicated on the construction documents.



- ✓ Helps facilitate the plan review process
- ✓ The dead loads from these systems and associated ballast can affect large areas of a structure's roof.

Chapter 16 – Rain Loads on CD's

CHANGE: Model code now requires rain loads to be indicated on the construction documents Oregon amendment clarifies only when applicable to the design.

1603.1.8 Roof rain load data. Rain intensity, i (in/hr) (cm/hr), shall be shown where pertinent to the structural design (see Section 1611).

SECTION 1611 RAIN LOADS

1611.1 Design rain loads. Each portion of a roof shall be designed to sustain the load of rainwater that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow. The design rainfall shall be based on the 100-year hourly rainfall rate indicated in Figure 1611.1.



- ✓ Facilitates the plan review process
- ✓ Although rain loads rarely governs the structural design, it impacts the design of the primary and secondary roof drainage systems (see Section 1611).
- ✓ Oregon amendment to avoid unnecessary requirement when not applicable.

Chapter 16 - Deflections

CHANGE: New model code subsection added to clarify the allowable deflection for exterior wall framing members supporting glass.

1604.3.7 Framing supporting glass. The deflection of framing members supporting glass subjected to 0.6 times the "component and cladding" wind loads shall not exceed either of the following:

- 1. 1/175 of the length of span of the framing member, for framing members having a length not more than 13 feet 6 inches (4115 mm).
- 2. 1/240 of the length of span of the framing member + ½ inch (6.4 mm), for framing members having a length greater than 13 feet 6 inches (4115 mm).

- √ ∆ ≤ L/175 for L ≤ 13'-6"
- √ ∆ ≤ L/240 + ½" for L > 13'-6"
- Codified the criteria in the American Architectural Manufacturers Association (AAMA)
 Technical Information Report, A11, which has been referenced by the fenestration industry for decades.

Chapter 16 – Risk Category

CHANGE: OSSC Table 1604.5 trumps ASCE 7 Table 1.5-1 for assignment of risk category.

1604.5 Risk category. Each building and structure shall be assigned a risk category in accordance with Table 1604.5. Where a referenced standard specifies an occupancy category, the risk category shall not be taken as lower than the occupancy category specified therein. Where a referenced standard specifies that the assignment of a risk category be in accordance with ASCE 7, Table 1.5-1, Table 1604.5 shall be used in lieu of ASCE 7, Table 1.5-1.

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

NATURE OF OCCUPANCY

I other structures that represent a low hazard to human life in the event of failure, i

- ✓ Both have same intent, however OSSC is more specific
- ✓ Provides consistent application of Risk Category assignment

Chapter 16 – Design Live Loads

CHANGE: Minimum design live loads for balconies and decks have increased by a factor of 1.5 up to 100 psf.

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS⁹

5. Balconies and decksh 1.5 times the live load for the area served, not required to exceed 100	OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (pounds)
	5. Balconies and decksh	live load for the area served, not required to	

h. See Section 1604.8.3 for decks attached to exterior walls



Chapter 16 – Partition Loads

CHANGE: No longer requires partition load where 80 psf LL is specified.

1607.5 Partition loads. In office buildings and in other buildings where partition locations are subject to change, provisions for partition weight shall be made, whether or not partitions are shown on the construction documents, unless the specified live load exceeds is 80 psf (3.83 kN/m2) or greater. The partition load shall be not less than a uniformly distributed live load of 15 psf (0.72 kN/m2).

2014 OSSC: LL ≥ 81 psf = exempt 2019 OSSC: LL ≥ 80 psf = exempt

OCCUPANCY OR USE	UNIFORM (PSF)	
22. Office buildings Corridors above first floor	80	

(from Table 1607.1 Minimum Live Loads)

- ✓ Common practice to design entire upper floors of office buildings for a live load of 80 psf
 so there is no concern about future changes in the locations of corridors
 - 2014 OSSC would have required the additional 15 psf partition load to be applied, whereas 2019 OSSC does not

Chapter 16 – Facade access equipment

CHANGE: New minimum live load provisions for façade access and building maintenance equipment.

1607.10.3 Elements supporting hoists for facade access and building maintenance equipment. In addition to any other applicable live loads, structural elements that support hoists for façade access and building maintenance equipment shall be designed for a live load of 2.5 times the rated load of the hoist or the stall load of the hoist, whichever is larger.

- ✓ Consistent with OSHA loading criteria
- ✓ Now provides clear write it cite it path

Chapter 16 – Fall Arrest Anchorage

CHANGE: New minimum design live load provisions for fall arrest and lifeline anchorages.

1607.10.4 Fall arrest and lifeline anchorages. In addition to any other applicable live loads, fall arrest and lifeline anchorages and structural elements that support these anchorages shall be designed for a live load of not less than 3,100 pounds (13.8 kN) for each attached lifeline, in every direction that a fall arrest load can be applied.

- Consistent with OSHA loading criteria
- Now provides clear write it, cite it path.



Chapter 16 –Interior Walls and Partitions

CHANGE: New subsection added to clarify minimum horizontal loading requirements for fire walls.

1607.15.2 Fire walls. In order to meet the structural stability requirements of Section 706.2 where the structure on either side of the wall has collapsed, fire walls and their supports shall be designed to withstand a minimum horizontal allowable stress load of 5 psf (0.240 kN/m2).

706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of the structure on either side without collapse of the wall under fire conditions. Fire walls

Note

- ✓ Provides consistent application
 - ✓ Some jurisdictions across the country have required consideration of potential wind loads upon collapse on one side.
 - ✓ Now clarifies that this is not required.
- ✓ Alignments with NFPA
 - ✓ This 5 psf lateral load is consistent with NFPA 221, Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls.

Chapter 16 – Snow Loads

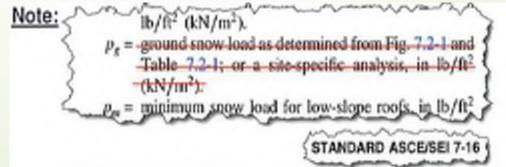
CHANGE: Updated path for design snow load determination, which is consistent with SAM 15-02 Electronic Snow Load Locater (rescinded with this update), and aligns with ASCE 7-16 design snow load path. No longer referencing portions of the SEAO Snow Load Analysis for Oregon (to reduce misapplication).

1608.1 General. Design snow loads shall be determined in accordance with Chapter 7 of ASCE 7, as modified by Section 1608.2.

1608.2 Modifications to ASCE 7. The text of ASCE 7 shall be modified as indicated in Sections 1608.2.1 through 1608.2.5.

1608.2.1 ASCE 7, Section 7.1. Modify ASCE 7, Section 7.1.2, Symbols, meaning of pg, to read as follows:

pg = ground snow load as determined from Section 1608.2.2 or 1608.3 of the Building Code, in lb/ft2 (kN/m2)



Chapter 16 – Snow Loads

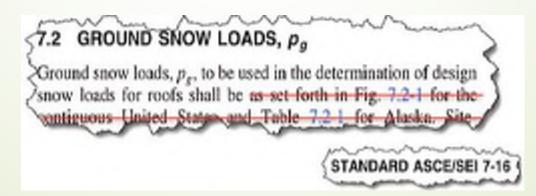
CHANGE: Oregon amendments to clarify design snow load determination; collaborative effort with SEAO to provide a clear path.

1608.2.2 ASCE 7, Section 7.2. Modify ASCE 7, Section 7.2, Ground Snow Loads, pg, to read as follows:

Ground snow loads, pg, to be used in the determination of design snow loads for roofs shall be those set forth in the online lookup tool at http://snowload.seao.org/ lookup.html published by the Structural Engineers

Association of Oregon. 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 7.2. The importance factor times the ground snow load, Is pg, shall be used as the balanced snow load for snow accumulation surfaces, such as decks, balconies, and other near-ground level surfaces or roofs of subterranean spaces, whose height above the ground surface is less than the depth of the ground snow, h_g ($h_g = p_g / \Box$).

Exception: Ground snow loads determined in accordance with Section 1608.3 of the Building Code.

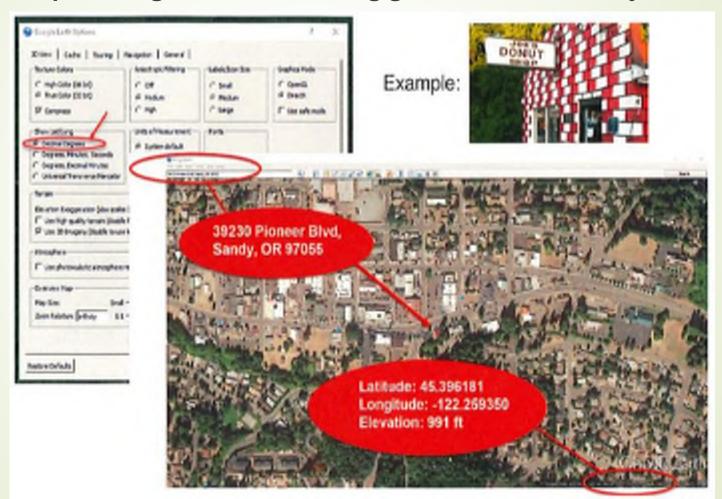


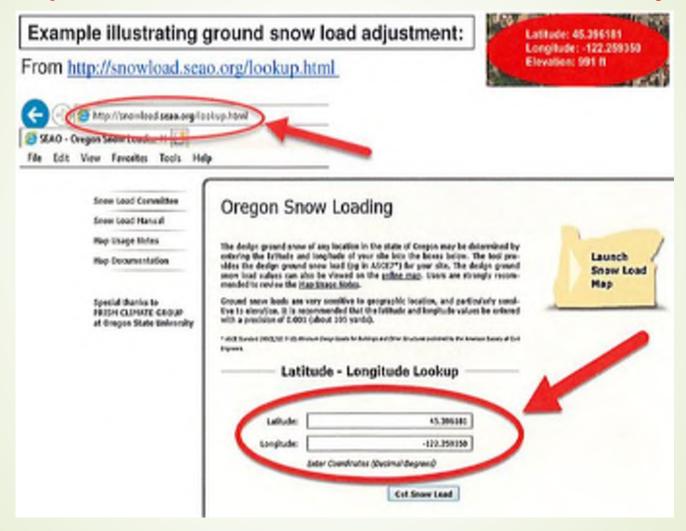
CHANGE: Oregon amendment to clarify design snow load determination; collaborative effort with SEAO to provide a clear path.

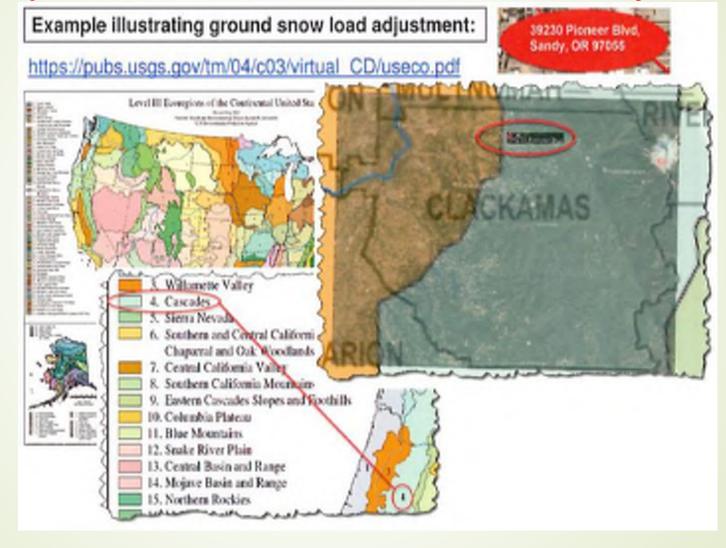
REGION GROUND SNOW ADJUSTM				
	(psf per foot of elevation gain)			
Oregon Coast Mountains	0.07			
Interior and Willamette Valleys	0.04			
Cascade Mountains	0.07			
Siskiyou and Kalmiopsis Mountains	0.04			
Plains east of the Cascades	0.007			
Klamath Basin	0.008			
Eastern Oregon Mountains	0.04			

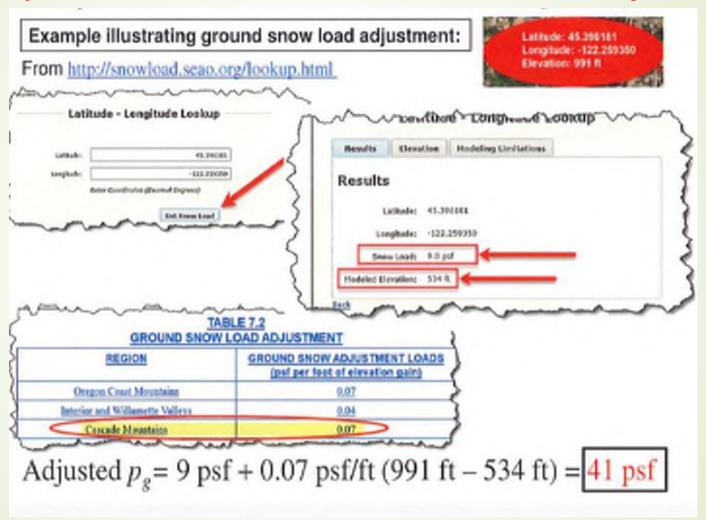
Note: These are basically the same adjustments that designers had to use when using SAM 15-02, Electronic Snow Load Locator, which will be rescinded. The difference is that it's a per foot basis instead of per 100-ft basis.

Example: Google Earth illustrating ground snow load adjustment









Chapter 16 – Minimum Snow Load

CHANGE: Oregon amendments sets the minimum roof snow load for low-slope roofs to 20 psf times the importance factor plus rain-on-snow surcharge (consistent with SEAO Snow Load Analysis for Oregon).

1608.2.3 ASCE 7, Section 7.3.4. Modify ASCE 7, Section 7.3.4, Minimum Snow Load for Low-Slope Roofs, *pm*, to read as follows:

The roof snow load for monoslope, hip and gable roofs with slopes less than 15 degrees and for curved roofs where the vertical angle from the eaves to the crown is less than 10 degrees shall be not less than 20 psf times the importance factor, *Is*, plus the rain-on-snow surcharge determined from Section 7.10. This minimum roof snow load is a separate uniform load case and need not be used in determining or in combination with drift, sliding, unbalanced or partial loads.

1608.2.4 ASCE 7, Section 7.4. Modify ASCE 7, Section 7.4, Sloped Roof Snow Loads, p_s , to add the following: The sloped roof snow load, p_s , used for design shall be not less than 20 psf times the importance factor, l_s , plus the rain-on-snow surcharge determined from Section 7.10. This minimum sloped roof snow load is a separate uniform load case and need not be used in determination of or in combination with drift, sliding, unbalanced or partial loads.

Chapter 16 – Site Specific Snow Load Study

CHANGE: Oregon amendment requires site-specific study when ground snow loads exceed those set forth in Table 1608.3.

1608.3 Site-specific snow load study. Where ground snow loads determined from Section 1608.2.2 exceed the location specific threshold loads in Table 1608.3, an approved site specific snow load study is required to determine the ground snow load used for design. The ground snow load determination from a site-specific study shall be based on an extreme value statistical analysis of data available in the vicinity of the site using a value with a 2-percent annual probability of being exceeded (50-year mean recurrence interval).

TABLE 1608.3 LOCATIONS AND CRITERIA FOR SITE-SPECIFIC GROUND SNOW LOAD STUDY REQUIREMENT

The table
Is a new
Oregon
Amendment:

SITE-SITECIFIC GROUND SHOW LOAD STOD! REGUINEMENT				
LOCATION	GROUND SNOW THRESHOLD LOADS FOR SITE-SPECIFIC STUDY (psf)			
Oregon Coast Mountains	100			
Cascade Mountains	350			
Siskiyou and Kalmiopsis Mountains	200			
Eastern Oregon Mountains	200			

Chapter 16 – Design Wind Speed

CHANGE: Oregon amendment – provides tabular wind speeds and mapped special wind regions for each jurisdiction.

1609.3 Basic design wind speed. The basic design wind speed, V, in mph, for the determination of the wind loads shall be determined by Table 1609.3.

Partial Table: (footnotes are on the next slide)

TABLE 1609.3 BASIC DESIGN WIND SPEED, V.	
FOR RISK CATEGORY I, II, III, AND IV BUILDINGS AND OTHER STRU	CTURES

COUNTY	PC I BASIC DESIGN WIND SPEED (MPH)	PC II BASIC DESIGN WIND SPEED (MPH)	PC III BASIC DESIGN WIND SPEED (MPH)	PC IV BASIC DESIGN WIND SPEED (MPH)
Lane special wind region**	91	98	105	110
	115 ^b	120h	130 ^b	130 ^b
Multnomahs Multnomah special wind regiona c	91	98	105	110
	115 ^b	120 ^b	130 ^b	130 ^b
Wasco ^d Wasco special wind region ^a	93 ^d	99 ^d	106 ⁸	110 ⁴
	100	110	115	115
Washington	91	97	103	107

Chapter 16 – Table 1609.3 Footnotes

 CHANGE: Oregon amendment – Sends user to special wind region map and specifically addresses exposure category D regions along coast and Columbia River Gorge.

(Table 1609.3 footnotes)

- a. Refer to Figure 1609.3 for mapped special wind regions.
- b. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Ocean winds shall be 125 mph for Risk Category I, 135 mph for Risk Category II, and 145 mph for Risk Categories III and IV.
- c. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Columbia River Gorge winds shall be 125 mph for Risk Category I, 135 mph for Risk Category II, and 145 mph for Risk Categories III and IV.
- d. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Columbia River Gorge winds shall be 115 mph for Risk Category I, 120 mph for Risk Category II, and 130 mph for Risk Categories III and IV.

Chapter 16 – Special Wind Regions

 CHANGE: Oregon amendments that provides tabular wind speeds and mapped special wind regions for each jurisdiction.



FIGURE 1609.3 OREGON SPECIAL WIND REGIONS a, b

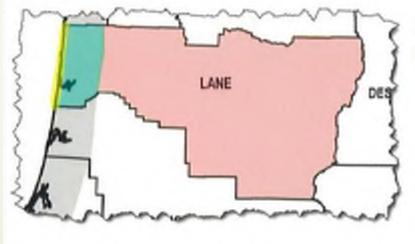
a. Sites on the periphery of the identified special wind regions shall be verified using https://hazards.atcouncil.org.
b. Basic design wind speeds shall be obtained from Table 1609.3; see Notes b, c and d for buildings and structures with full exposure (wind exposure category D) to Ocean or Columbia River Gorge winds.

Chapter 16 – Table 1609.3 Footnotes

CHANGE: Oregon amendment – Footnote "b" specifically addresses regions with full exposure (exp. Cat. D) to ocean winds. (http://hazards.atcouncil.org)

COUNTY	RC I	RC II	RC III	RC IV
Lane	91	98	105	110
Lane special wind region*.b	115 ⁶	120	130b	130b

b. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Ocean winds shall be 125 mph for Risk Category I, 135 mph for Risk Category II, and 145 mph for Risk Categories III and IV.

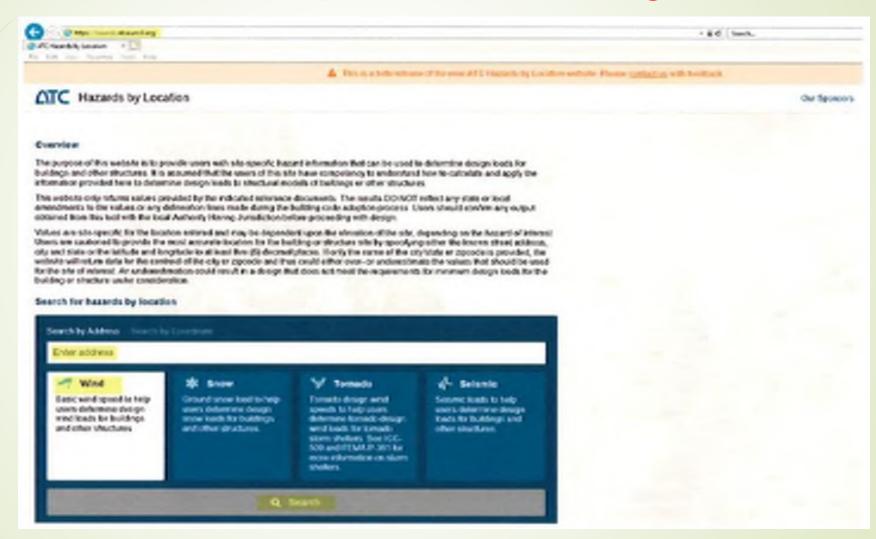


(Note "a" From Figure 1609.3)

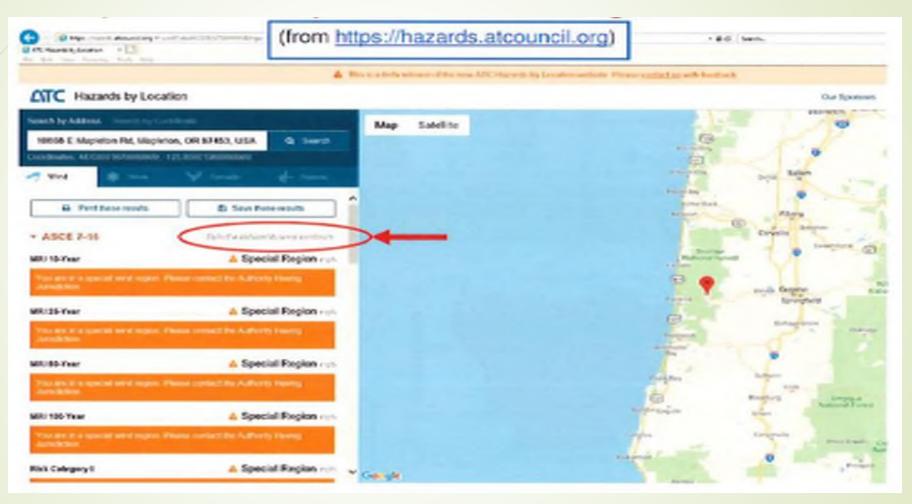
 Sites on the periphery of the identified special wind regions shall be verified using https://hazards.atcouncil.org.

Example (see next slides): Mapleton Middle/High School 10868 E Mapleton Rd, Mapleton, Lane County OR 97453

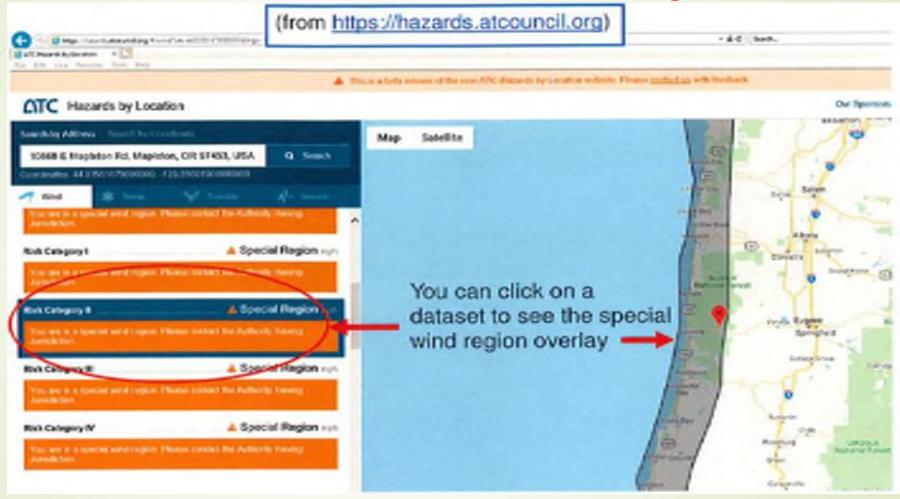
Chapter 16 – Special Wind Region Check



Chapter 16 – Special Wind Region Check



Chapter 16 – Special Wind Region Check



Chapter 16 – Table 1609.3 & Footnotes

CHANGED: Oregon amended Table 1609.3— Footnote "c" specifically addresses Multnomah and Hood River County regions with full exposure (exp. Cat. D) to Columbia River Gorge winds. Footnote "b" specifically addresses regions with full exposure (exp. Cat. D) to Columbia River Gorge winds east of Hood River County.

Multnomah ^c	92°	98°	105°	110 ^c
Multnomah special wind region ^{a, c}	115°	120°	130°	130°

TABLE 1609.3—continued BASIC DESIGN WIND SPEED, V, FOR RISK CATEGORY I, II, III AND IV BUILDINGS AND OTHER STRUCTURES

COUNTY	RISK CATEGORY I BASIC DESIGN WIND SPEED (MPH)	RISK CATEGORY II BASIC DESIGN WIND SPEED (MPH)	RISK CATEGORY III BASIC DESIGN WIND SPEED (MPH)	RISK CATEGORY IV BASIC DESIGN WIND SPEED (MPH)
Sherman ^d	93 ^d	99 ^d	106 ^d	111 ^d
Tillamook Tillamook special wind region ^a	91 125	96 135	102 145	107 145
Umatilla ^c	95°	102°	109°	113°
Union	96	102	109	113
Wallowa	97	103	110	115
Wasco ^d Wasco special wind region ^a	93 ^d 100	99 ^d 110	106 ^d 115	110 ^d 115
Washington	91	97	103	107
Wheeler	94	100	107	111
Yamhill	91	97	103	107

For SI: 1 mile per hour = 0.45 m/s.

Refer to Figure 1609.3 for mapped special wind regions.

b. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Ocean winds shall be 125 mph for Risk Category I, 135 mph for Risk Category II, and 145 mph for Risk Categories III and IV.

c. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Columbia River Gorge winds shall be 125 mph for Risk Category I, 135 mph for Risk Category II, and 145 mph for Risk Categories III and IV.

d. The basic design wind speed for buildings and structures in this region with full exposure (wind exposure category D) to Columbia River Gorge winds shall be 115 mph for Risk Category I, 120 mph for Risk Category II, and 130 mph for Risk Categories III and IV.

Chapter 16 – Table 1609.3 Footnotes

CHANGE: Oregon amendment that provides tabular wind speeds and mapped special wind regions for each jurisdiction.

TABLE 1609.3
BASIC DESIGN WIND SPEED, V, FOR RISK CATEGORY I, II, III AND IV BUILDINGS AND OTHER STRUCTURES

COUNTY	RISK CATEGORY I	RISK CATEGORY II	RISK CATEGORY III	RISK CATEGORY IV
	BASIC DESIGN WIND	BASIC DESIGN WIND	BASIC DESIGN WIND	BASIC DESIGN WIND
	SPEED (MPH)	SPEED (MPH)	SPEED (MPH)	SPEED (MPH)
Deschutes	93	99	106	110
Deschutes special wind region ^a	100	110	115	115



CHANGE: Oregon amendment that sends user directly to https://hazards.atcouncil.org (instead of figures) to obtain the USGS mapped, short and long period acceleration parameters.

1613.2.1 Mapped acceleration parameters. The parameters SS and S1, as illustrated in Figures 1613.2.1(1) and 1613.2.1(2), shall be determined using the Applied Technology Council (ATC) Hazards by Location Tool at https://hazards.atcouncil.org, with ASCE 7-16 selected as the "Reference Document."

Note:

*It is recommended (from figures 1613.2.1(1) and 1613.2.1(2) that the USGS web tool: http://earthquake.usgs.gov/hazards/designmaps/ or http://content.seinstitute.org be used to determine the mapped value for a specific location.

(Background on arrival at https://hazards.atcouncil.org for mapped parameters)



"Due to insufficient resources and the recent development of similar web tools by third parties, the USGS has replaced its former U.S. Seismic Design Maps web applications with web services that can be used through third-party tools. Your options for using the replacement USGS web services, which still provide seismic design parameter values from numerous design code editions, are:

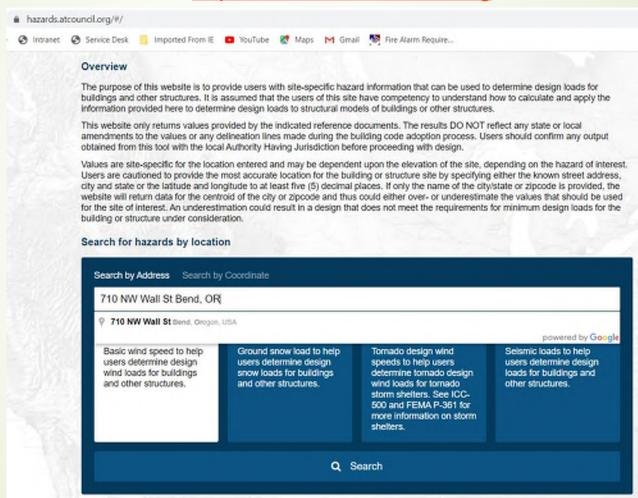
Third-party Graphical User Interfaces (GUIs)

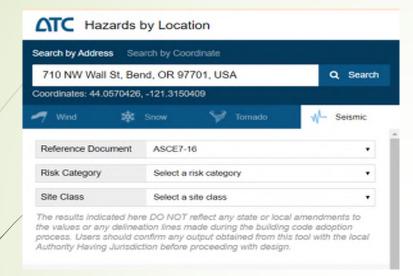
Most users obtain seismic design parameter values from the USGS web services through third-party GUIs like the following:

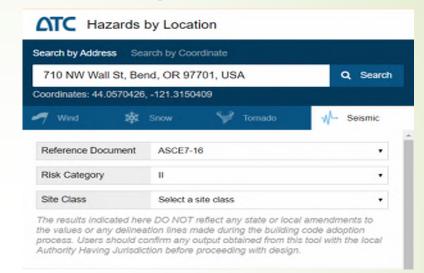
ASCE 7 Hazard Tool [Requires subscription \$\$]
SEAOC/OSHPD Seismic Design Maps Tool [California]

ATC Hazards by Location Tool (https://hazards.atcouncil.org/)"

Per Section 1613.2.1 – https://hazards.atcouncil.org









Chapter 16 – Short-Period Site Coefficient

► CHANGE: Changes to the short-period site coefficient values, Fa, and new minimum set where site class D is selected as the default site class.

TABLE 1613.2.3(1)
VALUES OF SITE COEFFICIENT F.*

SITE CLASS				M CONSIDERED		
	$S_s \le 0.25$	$S_s = 0.50$	$S_s = 0.75$	$S_s = 1.00$	$S_s = 1.25$	$S_s \ge 1.5$
A	0.8	0.8	0.8	0.8	0.8	0.8
В	1.0 <u>0.9</u>	4.0 0.9	4.0 0.9	4.0 <u>0.9</u>	4-0 <u>0.9</u>	4-0 <u>0.9</u>
С	+-2 <u>1.3</u>	4-3 1.3	+++ 1.2	4.0 <u>1.2</u>	4-0 <u>1.2</u>	4.0 1.2
D	1.6	1.4	1.2	(1.1	1.0	1.0
Е	2.5 2.4	1.7	4.2 1.3	0.0 Note b	0.9 Note b	0.9 Note b
F	Note b	Note b	Note b	Note b	Note b	Note b

Use straight-line interpolation for intermediate values of mapped spectral response acceleration at short period, S_s.

b. Values shall be determined in accordance with Section 11.4.8 of ASCE 7.

(From Section 1613.2.3) -

Where Site Class D is selected as the default site class per Section 1613.2.2, the value of F_a shall be not less than 1.2.

Chapter 16 – Long-Period Site Coefficient

CHANGE: Changes to the long-period site coefficient values, Fv Site specific ground motion determination.

TABLE 1613.2.3(2)					
VALUES OF SITE COEFFICIENT	F_v^a				

SITE CLASS				CONSIDERED TON PARAMET		
	$S_I \leq 0.1$	$S_1 = 0.2$	$S_I = 0.3$	$S_I = 0.4$	$S_I = 0.5$	$S_I \ge 0.6$
A	0.8	0.8	0.8	0.8	0.8	0.8
В	1.0 <u>0.8</u>	4.0 <u>0.8</u>	+.0 <u>0.8</u>	4.0 <u>0.8</u>	1.0 <u>0.8</u>	1.0 <u>0.8</u>
С	1.7 <u>1.5</u>	1.6 <u>1.5</u>	1.5	4.4 <u>1.5</u>	1.3 <u>1.5</u>	1.3 <u>1.4</u>
D	2.4	2.0 2.2°	1.8 2.0°	4.8 1.9°	4.5 <u>1.8°</u>	4.5 1.7°
Е	3.5 <u>4.2</u>	3.3°	2.85	2.45	2.4 2.2°	2.4 2.0°
F	Note b	Note b	Note b	Note b	Note b	Note b

a. Use straight-line interpolation for intermediate values of mapped spectral response acceleration at 1-second period, S_I.

Note: F_a and F_v now range between 80% to 120% of the 2014 OSSC values

b. Values shall be determined in accordance with Section 11.4.8 of ASCE 7.

c. See requirements for site-specific ground motions in Section 11.4.8 of ASCE 7.

Chapter 16 – Site-Specific Ground Motion

CHANGE: Changes to the triggers for the requirement of a site specific ground motion hazard analysis in accordance with ASCE 7 Section 21.2.

(From ASCE 7-16)

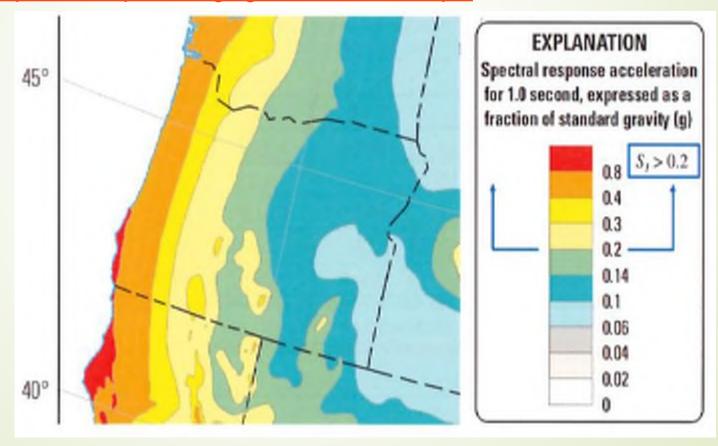
11.4.8 Site-Specific Ground Motion Procedures. A site response analysis shall be performed in accordance with Section 21.1 for structures on Site Class F sites, unless exempted in accordance with Section 20.3.1. A ground motion hazard analysis shall be performed in accordance with Section 21.2 for the following:

- seismically isolated structures and structures with damping systems on sites with S₁ greater than or equal to 0.6,
- structures on Site Class E sites with S, greater than or equal to 1.0, and.
- structures on Site Class D and E sites with S₁ greater than or equal to 0.2.

Chapter 16 – Site Specific Ground Motion

CHANGE: Changes to the triggers for the requirement of a site specific ground motion hazard analysis in accordance with ASCE 7 Section 21.2.

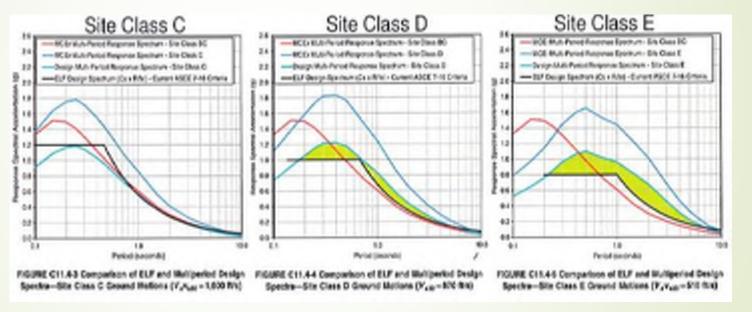
From https://earthquake.usgs.gov/hazard/hazmaps/ for reference



Chapter 16 – Site Specific Ground Motion

CHANGE: Changes to the triggers for the requirements of a site specific ground motion hazard analysis in accordance with ASCE 7 Section 21.2.

From ASCE 7-16 Commentary:



- ✓ This change impacts much of our state however, there are exceptions to this requirement (see next slide)
- ✓ Future codes will likely include multiperiod response spectra to provide reliable values of seismic demand at all design periods of interest.

Chapter 16 – Site-Specific Response Analysis

CHANGE: To lessen the impact on the design practice for structures that previously wouldn't have required site specific ground motion hazard analysis, three exceptions have been added, which permit the use of conservative values of design parameters under certain conditions.

From ASCE 7-16, Section 11.4.8 for reference:

EXCEPTION: A ground motion hazard analysis is not required for structures other than seismically isolated structures and structures with damping systems where:

- Structures on Site Class E sites with S_S greater than or equal to 1.0, provided the site coefficient F_d is taken as equal to that of Site Class C.
- Structures on Site Class D sites with S₁ greater than or equal to 0.2, provided the value of the seismic response coefficient C_s is determined by Eq. (12.8-2) for values of T≤1.5T_s and taken as equal to 1.5 times the value computed in accordance with either Eq. (12.8-3) for T_L≥ T>1.5T, or Eq. (12.8-4) for T>T_L.
- Structures on Site Class E sites with S₁ greater than or equal to 0.2, provided that T is less than or equal to T_s and the equivalent static force procedure is used for design.

