



Department of Consumer and Business Services

TRAINING & OUTREACH PROGRAM

2022 Oregon Structural Specialty Code

Code Update Training

Covering significant changes to this iteration of the structural code



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PRESENTATION FORMAT

CHANGE SUMMARY: Highlights the change and provides a brief synopsis for quick reference.

Model code revisions from the 2018 IBC made in the 2021 IBC are shown as **red underline** for additions and as **red double-strikethrough** for deletions.

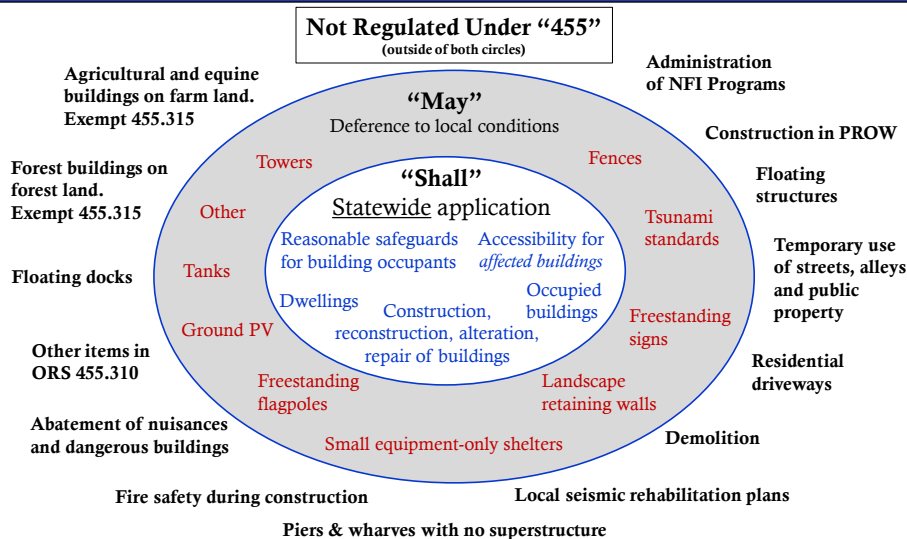
Oregon amendments are shown as **blue underline** for additions and **blue double-strikethrough** for deletions.

NOTES, DESCRIPTIONS & EXAMPLES

- Are captured in bold font
- Are bulleted when included in list format

CHAPTER 1 – SCOPE AND ADMINISTRATION

CHANGE SUMMARY: The chapter has been updated to reflect the April 1, 2021 interim amendments. Minor editorial adjustments have been made throughout the chapter.



CHAPTER 3 – OCCUPANCY CLASSIFICATION AND USE

CHANGE SUMMARY: Distilling and brewing of alcoholic beverages and the storage of beer, distilled spirits and wine have been added to Section 307.1.1 – clarifying that a Group H occupancy classification does not apply where the new technical provisions have been met.

307.1.1 Uses other than Group H. An occupancy that stores, uses or handles *hazardous materials* as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

(1 through 17 not shown)

18. [Distilling or brewing of beverages conforming to the requirements of the International Fire Code this code.](#)

19. [The storage of beer, distilled spirits and wines in barrels and casks conforming to the requirements of the International Fire Code this code.](#)

NOTES:

- New provisions in Chapters 4 & 9
- Aligns closely with existing distillery interpretation
- Does not impact existing *winery* amendments



CHAPTER 3 – OCCUPANCY CLASSIFICATION AND USE

CHANGE SUMMARY: Provisions for child care facilities located within dwelling units have been aligned with the July 1, 2022 interim amendments to the 2019 OSSC; allowing construction in accordance with the ORSC provided the specified parameters are met.

What facilities are covered?

- **NEW** registered family child care homes, as identified in ORS 329A
- **NEW** certified family child care homes, as identified in ORS 329A

[308.5.5 Child day care in a dwelling unit.](#) A registered or certified family child care facility, as defined in ORS 329A, located within a *dwelling* shall be classified as a Group R-3 occupancy. Where located within a detached one- or two-family *dwelling* or *townhouse*, the facility shall be permitted to be constructed in accordance with the *Residential Code*, provided that Section 420.12 is met, and accessibility is provided in accordance with Section 1103.2.12 for newly constructed facilities and Section 3403.4 for existing facilities.

[310.4.2 Licensed child care within a dwelling.](#) A registered or certified family child care facility, as defined in ORS 329A, located within a *dwelling* shall be classified as a Group R-3 occupancy. Where located within a one- or two-family *dwelling* or *townhouse* the care facility shall be permitted to be constructed in accordance with the *Residential Code*, provided that Section 420.12 is met, and accessibility is provided in accordance with Section 1103.2.12 for newly constructed facilities and Section 3403.4 for existing facilities.

CHAPTER 3 – OCCUPANCY CLASSIFICATION AND USE

CHANGE SUMMARY: Adult foster homes and residential training homes have been addressed with new provisions and a text box aligning with SB 1548.

310.4.3 Licensed adult foster care within a dwelling. Adult foster homes, as defined in ORS 443.705, located within a dwelling shall be classified as Group R-3 and shall be permitted to be constructed in accordance with the *Residential Code* provided that an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 and accessibility is provided in accordance with the applicable provisions of Chapter 11 for the function served.

BCD Technical Bulletin:
[Oregon.gov/bcd/codes-stand/Documents/techb-adultfostercare-SB1548.pdf](https://oregon.gov/bcd/codes-stand/Documents/techb-adultfostercare-SB1548.pdf)

Adult foster homes and residential training homes within detached one-family dwellings.

Adult foster homes as defined in ORS 443.705 and residential training homes as defined in ORS 443.400 licensed for five or fewer individuals prior to July 1, 2024, shall not require the installation of an automatic fire sprinkler system under application of the state building code.

See enrolled [Senate Bill 1548 \[2022\]](#) for more details.

CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS

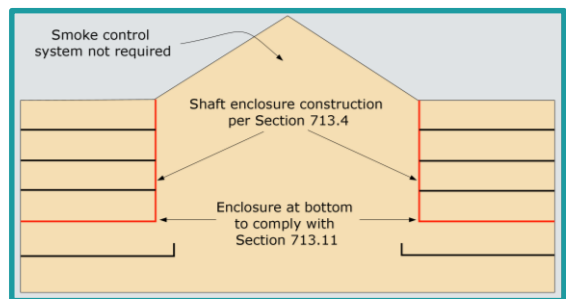
CHANGE SUMMARY: Model code modification related to the evaluation of whether a smoke control system is required for an atrium condition. Vertical opening protection consisting of a combination of both the atrium and a shaft enclosure is now recognized.

SECTION 404

404.5 Smoke control. A smoke control system shall be installed in accordance with Section 909.

Exceptions:

1. In other than Group I-2, and Group I-1, Condition 2, smoke control is not required for atriums that connect only two stories.
2. A smoke control system is not required for atriums connecting more than two stories when all of the following are met:
 - 2.1 Only the two lowest stories shall be permitted to be open to the atrium.
 - 2.2 All stories above the lowest two stories shall be separated from the atrium in accordance with the provisions for a shaft in Section 713.4.



CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: The mandate for a sloping floor in the vehicle areas of parking garages has been reinstated in the model IBC for those garages classified as Group S-2 occupancies.

SECTION 406

406.2.4 Floor surfaces. Floor surfaces shall be of concrete or similar approved noncombustible and nonabsorbent materials. The area of floor used for the parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway. The surface of vehicle fueling pads in motor fuel-dispensing facilities shall be in accordance with Section 406.7.1.

Exceptions:

1. (no change to exception)
- ~~2. Floors of Group S-2 parking garages shall not be required to have a sloped floor~~
- ~~3. 2.~~ (no change to exception)



CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model code modification that no longer requires horizontal assembly separation of an atrium from adjacent spaces at those openings created for complying escalators and/or exit access stairways.

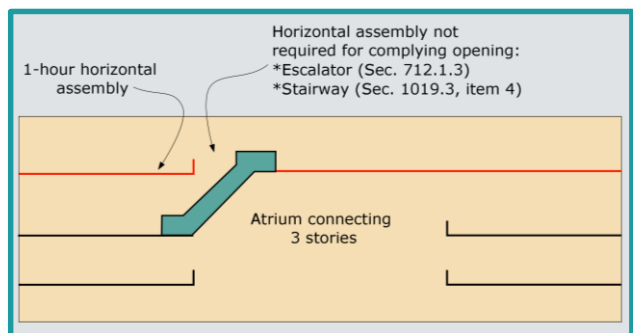
SECTION 404.6

404.6 Enclosure of atriums. Atrium spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

(no changes to Exceptions 1-4)

- ~~5. A horizontal assembly is not required between the atrium and openings for escalators complying with Section 712.1.3.~~
- ~~6. A horizontal assembly is not required between the atrium and openings for exit access stairways and ramps complying with Item 4 of Section 1019.3.~~



CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model code clarification adding several specific conditions related to corridor doors expanding the smoke-resistant criteria in order to address the various types of doors used in corridors of Group I-2 care facilities.

SECTION 407

407.3.1.1 Door construction. Doors in corridors not required to have a fire protection rating shall comply with the following:

1. Solid doors shall have close-fitting operational tolerances, head and jamb stops.
2. Dutch-style doors shall have an astragal, rabbet or bevel at the meeting edges of the upper and lower door sections. Both the upper and lower door sections shall have latching hardware. Dutch-style doors shall have hardware that connects the upper and lower sections to function as a single leaf.
3. To provide makeup air for exhaust systems in accordance with Section 1020.6, Exception 1, doors are permitted to have louvers or to have a clearance between the bottom of the door and the floor surface that is $\frac{2}{3}$ inch (19.1 mm) maximum.

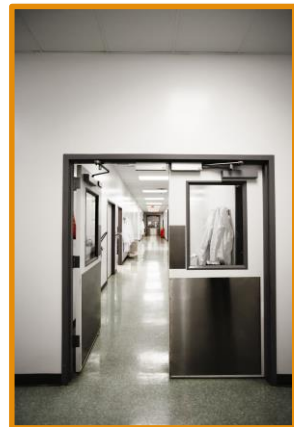


CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model code modification requiring automatic-closing doors on hold-open devices in Group I-2 occupancies to close upon activation of the fire alarm system or automatic sprinkler system.

SECTION 407

407.6.1 Activation of automatic-closing doors. Automatic-closing doors on hold-open devices in accordance with Section 716.2.6.6 shall also close upon activation of a fire alarm system, an automatic sprinkler system, or both. The automatic release of the hold-open device on one door shall release all such doors within the same smoke compartment



CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model code addition that regulates puzzle rooms in a manner consistent with traditional special amusement areas. In addition, special means of egress requirements have been established that are specific only to such puzzle rooms.

SECTION 411

411.5 Puzzle room exiting. Puzzle room exiting shall comply with one of the following:

1. Exiting in accordance with Chapter 10.
2. An alternative design approved by the building official.
3. Exits shall be open and readily available upon activation by the automatic fire alarm system, automatic sprinkler system, and a manual control at a constantly attended location.

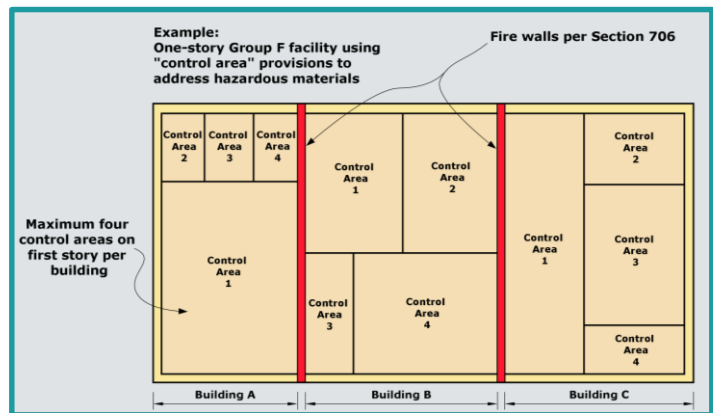


CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model code addition expanding the scoping limitations of a fire wall's used to create separate buildings with a new allowance for the number of control areas permitted.

SECTION 414

414.2.3 Number. The maximum number of control areas within a building shall be in accordance with Table 414.2.2. For the purposes of determining the number of control areas within a building, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered a separate building.



CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Oregon amendment adding special use requirements for child care facilities within dwellings

SECTION 420

420.12 Child care facilities within dwellings. Child care facilities located within *dwellings*, permitted by Chapter 3 to be constructed in accordance with the *Residential Code*, shall comply with either Section 420.12.1 or 420.12.2.

420.12.1 With automatic sprinkler system protection. An *automatic sprinkler system* in accordance with Section 903.3.1.3 shall be installed throughout the *fire area* of the *dwelling* where a child care facility is located.

420.12.2 Without automatic sprinkler system protection. Where an *automatic sprinkler system* is not installed throughout the *fire area* of the *dwelling* where a child care facility is located, both of the following shall be met:

1. All rooms where care is provided shall be located on a *level of exit discharge*.
2. No *exit access path* shall be located within 3 feet (914 mm) horizontally of any permanently installed cooking appliance, or be required to pass through a storage room, or through a room that can be locked to prevent egress.

Note:

The following text box precedes Section 420.12

Registered and certified family child care homes.

Section 420.12 applies to the following registered and certified family child care homes:

1. Newly constructed dwellings
2. Newly licensed existing dwellings
3. Additions to existing licensed dwellings

Section 420.12 does not apply to the following registered and certified family child care homes:

1. Existing dwellings currently licensed, or previously licensed at any time
2. Existing spaces within currently licensed dwellings

CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model code modification that regulates the interior finish materials of play structures for flame spread purposes. The scoping provisions have also been modified to include larger structures, and the requirements are no longer limited to play structures for children's use.

SECTION 424

CHILDREN'S PLAY STRUCTURES

424.2 Materials. ~~Children's play~~ Play structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

(no changes to Conditions 1 through 9)

10. Interior finishes for structures exceeding 600 square feet (56 m²) in area or 10 feet (3048 mm) in height shall have a flame spread index not greater than that specified in Table 803.13 for the occupancy group and location designated. Interior wall and ceiling finish materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.1.1.1 shall be permitted to be used where a Class A classification in accordance with ASTM E84 or UL 723 is required.

424.5 Area limits. ~~Children's play~~ Play structures shall not be greater than ~~300~~ 600 square feet (28 56 m²) in area, unless a special investigation, acceptable to the building official, has demonstrated adequate fire safety.

424.5.1 Design. Play structures exceeding 600 square feet (56 m²) in area or 10 feet (3048 mm) in height shall be designed in accordance with Chapter 16.



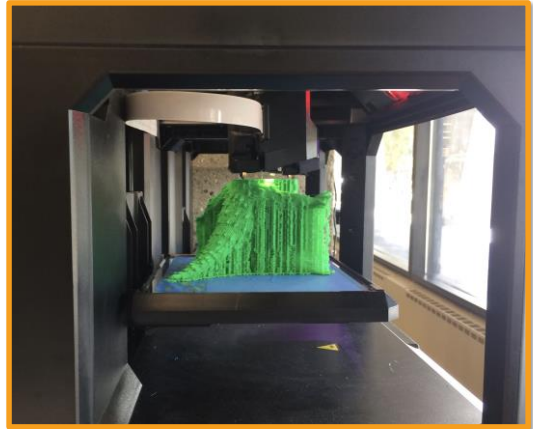
CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model IFC provisions added for 3D printing operations.

SECTION 455 ADDITIVE MANUFACTURING (3D PRINTING)

Notes:

- Nonindustrial (small machines) allowed in all occupancies
- Section 455 largely applies to industrial machines
- Combustible dust and metals are primary concern
- Hazardous materials MAQs apply
- Industrial machines only allowed in manufacturing occupancy groups



CHAPTER 4 — SPECIAL DETAILED REQUIREMENTS

CHANGE SUMMARY: Model IFC provisions added to address storage of distilled spirits and wines in barrels and casks.

SECTION 456 STORAGE OF DISTILLED SPIRITS AND WINES

Notes:

- Applies only to alcohol content over 16% (F-1 & S-1)
- Does not affect current *winery* provisions
- Exempt from Group H and Sections 414 and 444
- Applies to storage in barrels and casks of any material

Key Provisions:

- Spill Control
- Ventilation at or below 25% of LFL
- Basement storage limited
- Automatic sprinklers required
- Empty barrels and casks treated as full
- NFPA 704 signage



CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: The tall wood building provisions previously captured in Appendix P of the 2019 OSSC have been integrated into the body of the code, including Chapters 5 – 8, 17 and 23 – aligning with the 2021 IBC.

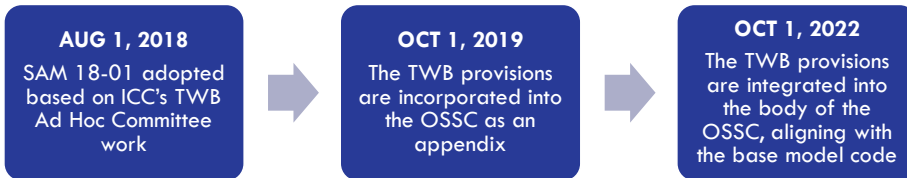


TABLE 504.3
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE^a

OCCUPANCY CLASSIFICATION	See Footnotes	TYPE OF CONSTRUCTION											
		Type I		Type II		Type III		Type IV			Type V		
		A	B	A	B	A	B	A	B	C	HT	A	B
		110	160	55	55	55	55	65	65	65			

CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: A model clarification has been added to Section 503.1.4 regarding occupied roofs, building height and number of stories. Existing Exception 1 has been expanded to include EVACS notification where such system is required in the building.

503.1.4 Occupied roofs. A roof level or portion thereof shall be permitted to be used as an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roofs shall not be included in the building area as regulated by Section 506. An occupied roof shall not be included in the building height or number of stories as regulated by Section 504, provided that the penthouses and other enclosed rooftop structures comply with Section 1511.

Exceptions:

1. The occupancy located on an occupied roof shall not be limited to the occupancies allowed on the story immediately below the roof where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Sections 907.5.2.1 and 907.5.2.3 is provided in the area of the occupied roof. Emergency voice/alarm communication system notification per Section 907.5.2.2 shall also be provided in the area of the occupied roof where such system is required elsewhere in the building.

(EXC 2 is unchanged)

CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: A model modification has been added to Sections 506.3.2 and 506.3.3 along with two new tables for determining frontage increases to allowable building areas in a simpler and more efficient way.

506.3.2 Minimum frontage distance. To qualify for an area factor increase based on frontage, the public way or open space adjacent to the building perimeter shall have a minimum distance (*W*) of 20 feet (6096 mm) measured at right angles from the building face to any of the following:

1. The closest interior lot line.
2. The entire width of a street, alley or public way.
3. The exterior face of an adjacent building on the same property.

The frontage increase shall be based on the smallest public way or open space that is 20 feet (6096 mm) or greater, and the percentage of building perimeter having a minimum 20 feet (6096 mm) public way or open space.

506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with ~~Equation 5-5~~ Table 506.3.3.

CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: A model modification has been added to Sections 506.3.2 and 506.3.3 along with two new tables for determining frontage increases to allowable building areas in a simpler and more efficient way.

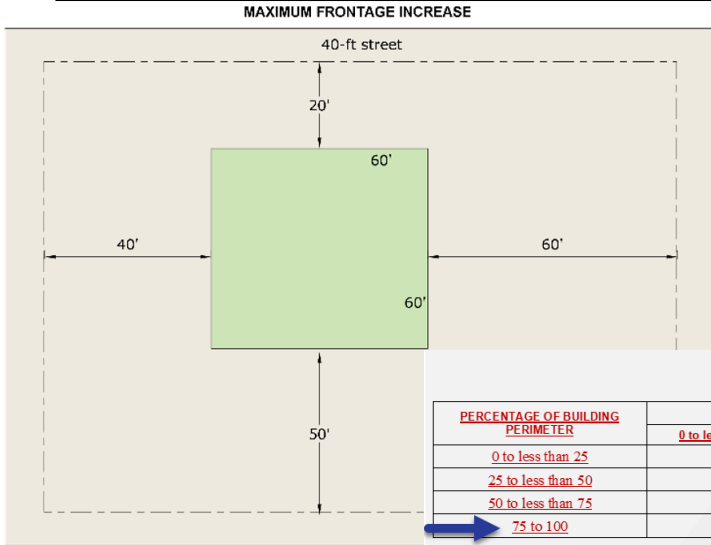
506.3.3 Amount of increase. The area factor increase based on frontage shall be determined in accordance with ~~Equation 5-5~~ Table 506.3.3.

**TABLE 506.3.3
FRONTAGE INCREASE FACTOR^a**

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)			
	0 to less than 20	20 to less than 25	25 to less than 30	30 or greater
0 to less than 25	0	0	0	0
25 to less than 50	0	0.17	0.21	0.25
50 to less than 75	0	0.33	0.42	0.50
75 to 100	0	0.50	0.63	0.75

CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS

EXAMPLE – MAXIMUM FRONTAGE INCREASE



When considering increases to the allowable area for open yards surrounding the example 60' by 60' building, a minimum of 30 feet of frontage is provided for the entire perimeter.

The increase is based on NEW Table 506.3.3. In this example, we would use the 75-100 percent of the building perimeter row and the open space column of 30 feet or greater, resulting in a frontage increase factor of 0.75.

TABLE 506.3.3
FRONTAGE INCREASE FACTOR^a

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)			
	0 to less than 20	20 to less than 25	25 to less than 30	30 or greater
0 to less than 25	0	0	0	0
25 to less than 50	0	0.17	0.21	0.25
50 to less than 75	0	0.33	0.42	0.50
75 to 100	0	0.50	0.63	0.75

CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: The model modification for determining frontage increases to allowable building areas also addresses buildings complying with Section 507 other than for the minimum 60-foot yard requirement. A separate table is used for determining frontage increases for these buildings.

506.3.3.1 Section 507 buildings. Where a building meets the requirements of Section 507, as applicable, except for compliance with the minimum 60-foot (18 288 mm) *public way* or *yard* requirement, ~~and the value of W is greater than 30 feet, the value of W shall not exceed 60 feet~~ the area factor increase based on frontage shall be determined in accordance with Table 506.3.3.1.

TABLE 506.3.3.1
SECTION 507 BUILDINGS^a

PERCENTAGE OF BUILDING PERIMETER	OPEN SPACE (feet)					
	30 to less than 35	35 to less than 40	40 to less than 45	45 to less than 50	50 to less than 55	55 to less than 60
0 to less than 25	0	0	0	0	0	0
25 to less than 50	0.29	0.33	0.38	0.42	0.46	0.50
50 to less than 75	0.58	0.67	0.75	0.83	0.92	1.00
75 to 100	0.88	1.00	1.13	1.25	1.38	1.50

a. Interpolation is permitted.

CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: The provisions governing live/work units have been moved from Chapter 4 Section 419 to the mixed occupancy provisions of Chapter 5 Section 508, with no change to the technical requirements.

508.5 Live/work units A *live/work unit* shall comply with Sections 508.5 through 508.5.11.

Exception: *Dwelling or sleeping units* that include an office that is less than 10 percent of the area of the *dwelling unit* are permitted to be classified as *dwelling units* with accessory occupancies in accordance with Section 508.2.

508.5.1 Limitations. The following shall apply to live/work areas:

1. The *live/work unit* is permitted to be not greater than 3,000 square feet (279 m²) in area.
2. The nonresidential area is permitted to be not more than 50 percent of the area of each *live/work unit*.
3. The nonresidential area function shall be limited to the first or main floor only of the *live/work unit*.
4. Not more than five nonresidential workers or employees are allowed to occupy the nonresidential area at any one time.

508.5.2 Occupancies. *Live/work units* shall be classified as a Group R-2 occupancy. Separation requirements found in Sections 420 and 508 shall not apply within the *live/work unit* where the *live/work unit* is in compliance with Section 508.5. Nonresidential uses that would otherwise be classified as either a Group H or S occupancy shall not be permitted in a *live/work unit*.

Exception: Storage shall be permitted in the *live/work unit* provided that the aggregate area of storage in the

CHAPTER 5 — GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: Where the live/work unit is governed by the ORSC scope of application (*i.e., located in a detached one- or two-family dwelling, or townhouse*), a new Oregon amendment has been added to clarify required fire protection system.

508.5.7 Fire protection. The *live/work unit* shall be provided with a monitored *fire alarm* system where required by Section 907.2.9 and an *automatic sprinkler system* in accordance with Section 903.2.8.

508.5.7.1 Detached dwellings or townhouses. *Live/work units* located within detached one-family and two-family dwellings or townhouses regulated by the *Residential Code* shall be provided with an *automatic sprinkler system* complying with Section 903.3.1.3.



CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS

CHANGE SUMMARY: A model modification has been added to address combustible stairway construction allowances for podium buildings in Section 510.2.



510.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where the following conditions are met:

(no changes to conditions 1 through 3)

4. Interior exit stairways located within the Type IA building are permitted to be of combustible materials where the following requirements are met:

4.1. The building above the Type IA building is of Type III, IV, or V construction.

4.2. The stairway located in the Type IA building is enclosed by 3-hour fire-resistance-rated construction with opening protectives in accordance with Section 716.

(no changes to conditions 5 through 7)

CHAPTER 6 – TYPES OF CONSTRUCTION

CHANGE SUMMARY: A new model code modification from the 2024 IBC process was introduced by Terry Whitehill and approved as a new Oregon amendment, based on the RISE tests for mass timber.

602.4.2.2.2 Protected area. Interior faces of *mass timber* elements, including the inside face of exterior *mass timber walls* and *mass timber roofs*, shall be protected in accordance with Section 602.4.2.2.1.

Exceptions: Unprotected portions of mass timber ceilings and walls complying with Section 602.4.2.2.4 and the following:

1. Unprotected portions of mass timber ceilings and walls complying with one of the following:
 - 1.1. Unprotected portions of mass timber ceilings, including attached beams, shall be permitted and shall be limited to an area less than or equal to ~~20~~ 100 percent of the floor area in any dwelling unit or fire area.
 - 1.2. Unprotected portions of mass timber walls, including attached columns, shall be permitted and shall be limited to an area less than or equal to 40 percent of the floor area in any dwelling unit or fire area.
 - 1.3. Unprotected portions of both walls and ceilings of mass timber, including attached columns and beams, in any dwelling unit or fire area shall be permitted in accordance with Section 602.4.2.2.3.

Public Hearing Results

PROPOSAL NUMBER: G147-21



Committee Action: As Submitted

Committee Reason:

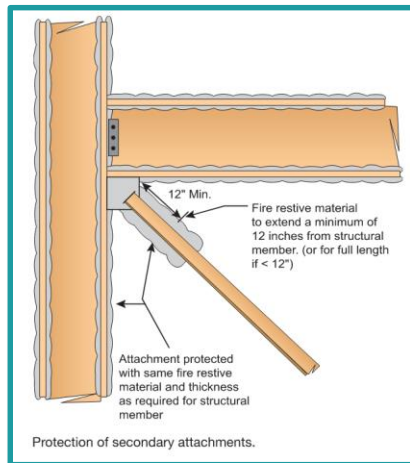
The proposal was approved as submitted since the provided preliminary RISE test report indicated that the test met or exceeded the requirements. (Vote: 9-5)

CHAPTER 7 — FIRE AND SMOKE PROTECTION FEATURES

CHANGE SUMMARY: This model code modification provides guidance to ensure continuity of fire-resistive protection where secondary steel attaches to either primary or secondary fire-resistance-rated structural members.

SECTION 704.6.1

704.6.1 Secondary attachments to structural members. Where primary and secondary structural steel members require fire protection, secondary steel attachments to those structural members shall be protected with the same fire resistive material and thickness as required for the structural member. The protection shall extend away from the structural member a distance of not less than 12 inches (305 mm), or shall be applied to the entire length where the attachment is less than 12 inches (305 mm) long. Where an attachment is hollow and the ends are open, the fire-resistive material and thickness shall be applied to both the exterior and interior of the hollow steel attachment.



CHAPTER 7 — FIRE AND SMOKE PROTECTION FEATURES

CHANGE SUMMARY: The Oregon deletion of Exception 2 to Section 706.1.1 for party walls, proposed by OBOA, has been retained. Additional information regarding local approval of similar configurations.

SECTION 706.1.1

706.1.1 Party walls. Any wall located on a *lot line* between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a *fire wall* in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

Exception~~s~~

- ~~1. Openings in a party wall separating an *anchor building* and a mall shall be in accordance with Section 402.4.2.2.1.~~
- ~~2. Party walls and fire walls are not required on lot lines dividing a building for ownership purposes where the aggregate height and area of the portions of the building located on both sides of the lot line do not exceed the maximum height and area requirements of this code. For the building official's review and approval, the official shall be provided with copies of dedicated access easements and contractual agreements that permit the owners of portions of the building located on either side of the lot line access to the other side for purposes of maintaining fire and life safety systems necessary for the operation of the building.~~

NOTE:

The general concept of the model allowance is still potentially achievable locally, but will vary based on the local land use requirements, recording methods, determinations of legal sufficiency, etc.

Instead of being an outright codified allowance (in the construction standards of our OSSC); it is a case-by-case, municipality-specific consideration that would require a locally acceptable approach.

CHAPTER 7 — FIRE AND SMOKE PROTECTION FEATURES

In the past, we have provided general guidance that other local legal instruments for recording the land use approval (acceptable to local legal counsel) should be recognizable and that we would not prevent a building from crossing property lines as long as there was local approval and appropriate recording of the configuration.

Both the OSSC and the ORSC regulate the construction of buildings, in large part, based upon the proximity of a building to a lot line. In general, the required exterior fire resistance of buildings as well as how large a building can be are greatly affected by its proximity to a lot line.

However, neither code directly contemplates scenarios where a single entity either owns or has legal control of adjacent lots or where adjacent lot owners enter into a private agreement regarding lot lines. The obvious solution is to either adjust the lot line or create an easement which provides the necessary yards as determined by the design of a proposed building.

Where the entity or party chooses to maintain the established lot lines, it is still possible to build across the lines and satisfy code requirements through the use of “recorded restrictive covenants” or other local legal instruments which are binding on the properties, and determined sufficient for local documentation and approval purposes.

Such determinations are beyond the scope of the state building code and applicants must work with the local municipality in the execution of a legally sufficient recording for the site.

CHAPTER 7 — FIRE AND SMOKE PROTECTION FEATURES

CHANGE SUMMARY: This model code navigational change has moved Table 602 to Section 705 – becoming Table 705.5.

TABLE 705.5

TABLE 705.5
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE^{a, d, g}

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H ^e	OCCUPANCY GROUP F-1, M, S-1 ^f	OCCUPANCY GROUP A, B, E, F-2, I, R ⁱ , S-2, S-3, U ^h
X < 5 ^b	All	3	2	1
5 ≤ X < 10	I-A, IV-A	3	2	1
	Others	2	1	1
10 ≤ X < 30	I-A, I-B, IV-A, IV-B	2	1	1 ^c
	II-B, V-B	1	0	0
	Others	1	1	1 ^c
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. See Section 706.1.1 for party walls.

c. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

CHAPTER 7 — FIRE AND SMOKE PROTECTION FEATURES

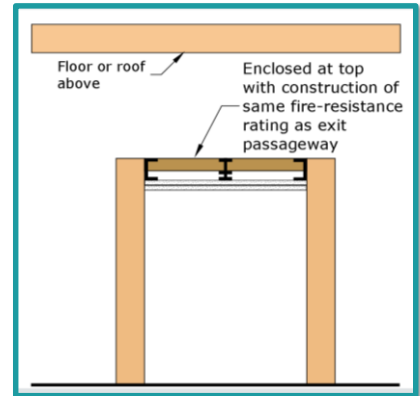
CHANGE SUMMARY: Model code modification that allows fire barriers creating an exit passageway to now terminate at a fire-resistance-rated top (lid) instead of continuing to the underside of the roof slab above.

SECTION 707.5

707.5 Continuity. *Fire barriers* shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such *fire barriers* shall be continuous through concealed space, such as the space above a suspended ceiling. Joints and voids at intersections shall comply with Sections 707.8 and 707.9

Exceptions:

1. *Shaft enclosures* shall be permitted to terminate at a top enclosure complying with Section 713.12.
2. *Interior exit stairway* and *ramp* enclosures required by Section 1023 and *exit access stairway* and *ramp* enclosures required by Section 1019 shall be permitted to terminate at a top enclosure complying with Section 713.12.
3. An exit passageway enclosure required by Section 1024.3 that does not extend to the underside of the roof sheathing, slab or deck above shall be enclosed at the top with construction of the same fire-resistance rating as required for the exit passageway.



CHAPTER 7 — FIRE AND SMOKE PROTECTION FEATURES

CHANGE SUMMARY: This model code modification expands the access requirements for fire and smoke dampers. A new requirement added in 717.4.1 for a 12" by 12" access door or removable duct section where fusible links and internal operators are used.

SECTION 717.4.1

717.4.1 Access. Fire and smoke dampers shall be provided with an approved means of access that is large enough to permit inspection and maintenance of the damper and its operating parts. Dampers equipped with fusible links, internal operators, or both shall be provided with an access door that is not less than 12 inches (305 mm) square or provided with a removable duct section.

717.4.1.1 Access openings. The access shall not affect the integrity of fire-resistance-rated assemblies. The access openings shall not reduce the fire-resistance rating of the assembly. Access doors in ducts shall be tight fitting and suitable for the required duct construction.

717.4.1.2 Restricted access. Where space constraints or physical barriers restrict access to a damper for periodic inspection and testing, the damper shall be a single- or multi-blade type damper and shall comply with the remote inspection requirements of NFPA 80 or NFPA 105.

CHAPTER 8 — INTERIOR FINISHES

CHANGE SUMMARY: New Oregon amendments in Chapters 8 and 16 are intended to clarify the technical path for suspended ceiling systems.

SECTION 808 ACOUSTICAL CEILING SYSTEMS

808.1 Acoustical ceiling systems. The quality, design, fabrication and erection of metal suspension systems for acoustical tile and lay-in panel ceilings in buildings or structures shall conform to generally accepted engineering practice, the provisions of this chapter and other applicable requirements of this code.

[See Section 1613.1.1 for the design and construction of suspended acoustical tile and lay-in panel ceiling systems in structures assigned to *Seismic Design Category C, D, E or F.*](#)

NOTE:

- Updated code path
- Updated SCI #10-01
- Clarified requirements in Chapter 16



CHAPTER 9 — FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code modification to the sprinkler provisions for upholstered furniture and mattresses to clearly indicate the scope of the required protection.

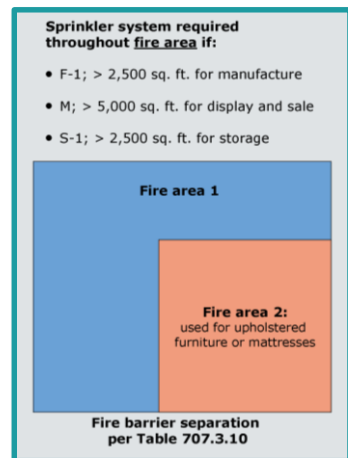
SECTION 903

903.2.4.3 Group F-1 upholstered furniture or mattresses. An automatic sprinkler system shall be provided throughout a Group F-1 fire area that exceeds 2,500 square feet (232 m²) used for the manufacture of upholstered furniture or mattresses.

903.2.7.2 Group M upholstered furniture or mattresses. An automatic sprinkler system shall be provided throughout a Group M fire area where the area used for the display and sale of upholstered furniture or mattresses exceeds 5,000 square feet (464 m²).

903.2.9.4 Group S-1 upholstered furniture and mattresses. An automatic sprinkler system shall be provided throughout a Group S-1 fire area where the area used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).

Exception: Self-service storage facilities no greater than one story above grade plane where all storage spaces can be accessed directly from the exterior.



CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code addition that imposes a sprinkler requirement for both the manufacturing and bulk storage of distilled spirits.

SECTION 903

903.2.4.2 Group F-1 Distilled Spirits. An automatic sprinkler system shall be provided throughout a Group F-1 fire area used for the manufacture of distilled spirits.

903.2.9.3 Group S-1 Distilled spirits or wine. An automatic sprinkler system shall be provided throughout a Group S-1 fire area used for the bulk storage of distilled spirits or wine.



CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code modification that now requires an automatic sprinkler system to be installed in an open parking garage where a specific fire area or height threshold is exceeded.

SECTION 903

903.2.10 Group S-2 enclosed parking garages. An automatic sprinkler system shall be provided throughout buildings classified as **enclosed** parking garages ~~in accordance with Section 406.6~~ where either where any of the following conditions exists:

1. Where the fire area of the enclosed parking garage in accordance with Section 406.6 exceeds 12,000 square feet (1115 m²).
2. Where the enclosed parking garage in accordance with Section 406.6 is located beneath other groups.

Exception: Enclosed parking garages located beneath Group R-3 occupancies.

3. Where the fire area of the open parking garage in accordance with Section 406.5 exceeds 48,000 square feet (4460 m²).



CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code addition that now defines mechanical-access enclosed parking garages and requires an automatic sprinkler system.

SECTIONS 903 & 202

903.2.10.2 Mechanical-access enclosed parking garages. An approved automatic sprinkler system shall be provided throughout buildings used for the storage of motor vehicles in a mechanical-access enclosed parking garage. The portion of the building that contains the mechanical-access enclosed parking garage shall be protected with a specially engineered automatic sprinkler system.

202 MECHANICAL-ACCESS ENCLOSED PARKING GARAGE An enclosed parking garage which employs parking machines, lifts, elevators or other mechanical devices for vehicle moving from and to street level and in which public occupancy in the garage is prohibited in all areas except the vehicle access bay.

CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

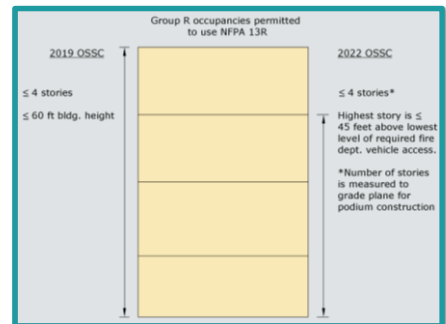
CHANGE SUMMARY: Model code modification and Oregon amendment that reduces the maximum building height where an NFPA 13R sprinkler system is permitted. Also changes the measuring point for podium construction to grade plane.

SECTION 903

903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies up to and including four stories in height in buildings not exceeding 60 feet (18 288 mm) in height above grade plane shall be permitted to be installed throughout in accordance with NFPA 13R where the Group R occupancy meets all of the following conditions:

1. Four stories or fewer above grade plane.
2. For other than Group R-2 occupancies, the floor level of the highest story is 30 feet (9144 mm) or less above the lowest level of required fire department vehicle access.
For Group R-2 occupancies, the roof assembly is less than 45 feet (13716 mm) above the lowest level of required fire department vehicle access. The height of the roof assembly shall be determined by measuring the distance from the lowest required fire vehicle access road surface adjacent to the building to the eave of the highest pitched roof, the intersection of the highest roof to the exterior wall, or the top of the highest parapet, whichever yields the greatest distance.
3. The floor level of the lowest story is 30 feet (9144 mm) or less below the lowest level of required fire department vehicle access. The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from grade plane.

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from ~~the horizontal assembly creating separate buildings~~ grade plane.



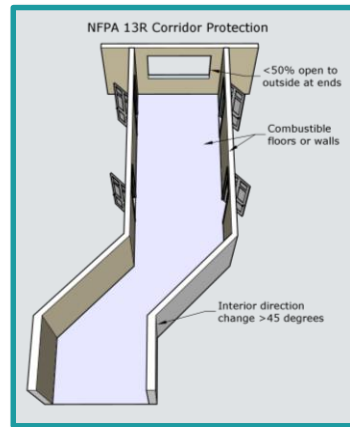
CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code modification that requires sprinkler protection to be extended into corridors and balconies used in the means of egress, even though the location may be exempt based upon the NFPA 13R standard.

SECTION 903

903.3.1.2.2 ~~Open-ended corridors~~ Corridors and balconies in the means of egress. Sprinkler protection shall be provided in corridors and for balconies in the means of egress where any of the following conditions apply:

1. Corridors with combustible floor or walls.
2. Corridors with an interior change of direction exceeding 45 degrees (0.79 rad).
3. Corridors that are less than 50 percent open to the outside atmosphere at the ends.
4. Open-ended corridors and associated exterior stairways and ramps as specified in Section 1027.6, Exception 3.
5. Egress balconies not complying with Sections 1021.2 and 1021.3.



CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code addition that now requires a manual fire alarm system in self-storage facilities that are three stories or more in height and have interior corridors.

SECTION 907 & 105.1

SECTION 105 PERMITS

105.1 Required. Any *owner* or owner's authorized agent who intends to construct, enlarge, alter, *repair*, move, or change the occupancy of a building or structure, 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*. Any owner or owner's authorized agent who intends to repair an existing fire protection system or life safety system shall first notify the local building official and obtain any necessary building permit, where required by the municipality. See ORS 455.020(2).



CHAPTER 9 — FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code addition that now requires a manual fire alarm system in self-storage facilities that are three stories or more in height and have interior corridors.

SECTION 907

907.2.10 Group S. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group S public- and self-storage occupancies three stories or greater in height for interior corridors and interior common areas. Visible notification appliances are not required within storage units.

Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.



CHAPTER 9 — FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Model code modification requiring 520-Hz low frequency smoke alarms and Oregon amendment limiting the application for Groups R-1 and R-2 occupancies to when a fire alarm system is otherwise required.

SECTION 907

907.2.11 Single- and multiple-station smoke alarms. *Listed* single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.7 and NFPA 72. In accordance with Section 907.5.2.1.3.2, Section 29.5.10 of NFPA 72 shall only apply to sleeping rooms of Group R-1 and R-2 occupancies required by Section 907.2.8 or 907.2.9 to have a fire alarm system.

907.5.2.1.3.2 Smoke alarm signal in sleeping rooms. In sleeping rooms of Group R-1 and R-2 occupancies that are required by Section 907.2.8 or 907.2.9 to have a fire alarm system, the audible alarm signal activated by single- or multiple-station smoke alarms in the dwelling unit or sleeping unit shall be a 520-Hz signal complying with NFPA 72. Where a sleeping room smoke alarm is unable to produce a 520Hz signal, the 520-Hz alarm signal shall be provided by a listed notification appliance or a smoke detector with an integral 520-Hz sounder.



CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Oregon amendments and alignment with the model code carbon monoxide requirements.

SECTION 915

NOTES:

- Now includes model code provisions for Group E classrooms
- Scope covers Groups R, I-1, I-2, I-4 and classrooms in Group E
- Group R requirements broken out due to Oregon specific statutory requirements



CHAPTER 9 – FIRE PROTECTION AND LIFE SAFETY SYSTEMS

CHANGE SUMMARY: Oregon amendments and alignment with the model code emergency responder communication systems requirements.

SECTION 918

NOTES:

- Now referred to as emergency responder communications coverage
- Scope and exceptions remain the same
- New provisions for nonrequired systems
- Survivability now aligns with model code and NFPA 1221
- More specific requirements for signal boosters from IFC
- System monitoring now required
- Standby power at 100% capacity for 12 hours now required per Chapter 27



CHAPTER 10 — MEANS OF EGRESS

CHANGE SUMMARY: Model code modification for single-exit stories, the travel distance limits are now based on the exit access travel distance as opposed to the common path of egress travel.

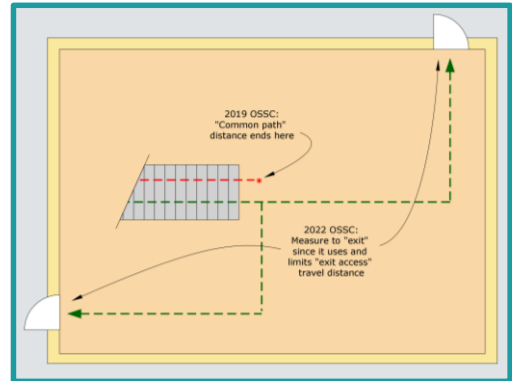
SECTION 1006.3.4

1006.3.4 Single exits. A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and ~~common path of egress exit access~~ travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

NOTES:

- Tables 1006.3.4(1) and 1006.3.4(2) both deleted “common path of egress” and replaced with “exit access”.



CHAPTER 10 — MEANS OF EGRESS

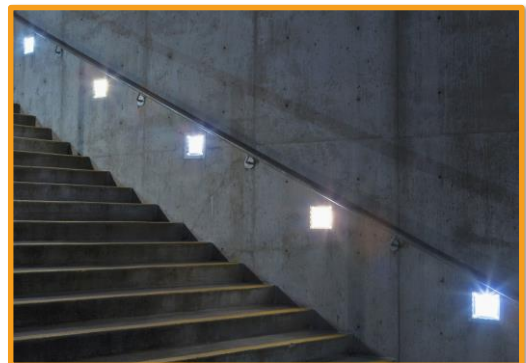
CHANGE SUMMARY: Model code modification increasing the minimum illumination level for both exit and exit access stairways from 1 foot-candle to 10 foot-candles

SECTION 1008.2.1

1008.2.1 Illumination level under normal power. The *means of egress* illumination level shall be not less than 1 footcandle (11 lux) at the walking surface. Along exit access stairways, exit stairways and at their required landings, the illumination level shall not be less than 10 footcandles (108 lux) at the walking surface when the stairway is in use.

NOTES:

- Does not include stairs or steps in exit discharge
- “When the stairway is in use” allows for sensors
- Assembly occupancy performance exceptions still apply



CHAPTER 10 — MEANS OF EGRESS

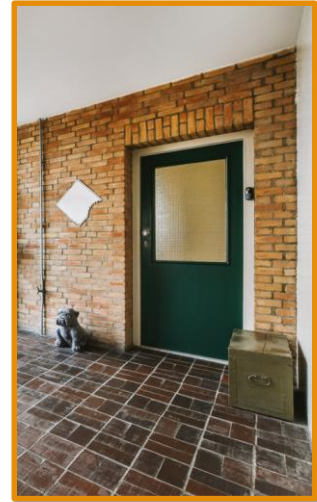
CHANGE SUMMARY: Model code modification removing the maximum width for a swinging door.

SECTION 1010.1.1

1010.1.1 Size of doors. The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear opening width of 32 inches (813 mm). The clear opening width of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear opening width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a minimum clear opening width of 32 inches (813 mm). In Group I-2, doors serving as *means of egress* doors where used for the movement of beds shall provide a minimum clear opening width of 41½ inches (1054 mm). ~~The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal.~~ The minimum clear opening height of doors shall be not less than 80 inches (2032 mm).

NOTES:

- Previous limitation was based on the weight of the door.
- Opening force is still limited, which limits overall door weight



CHAPTER 11 — ACCESSIBILITY

CHANGE SUMMARY: The referenced design standard (ICC/ANSI A117.1) has changed from the 2009 iteration to the 2017 iteration.

NOTES:

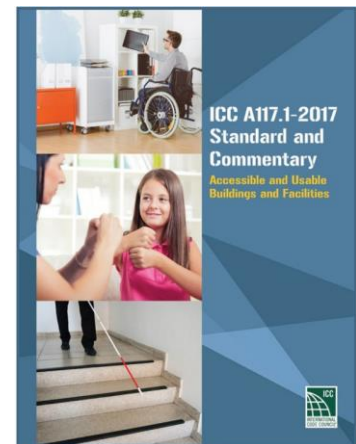
Changes include new dimensional requirements for **new construction**:

- Circular turning space
- T-shaped turning space
- Clear floor space
- Route clear width
- 180 degree turn clear width
- 90 degree turn clear width

Existing buildings and facilities remain under previously existing dimensional requirements:

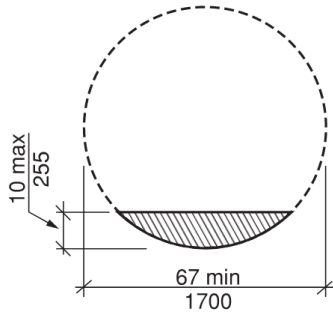
existing building: A building erected prior to the date of adoption of this standard, or one for which a legal building permit has been issued.

existing facility: A facility completed prior to the date of adoption of this standard, or one for which a legal permit has been issued.



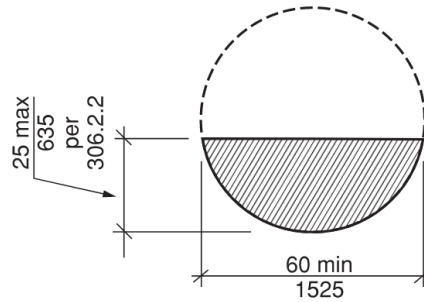
CHAPTER 11 – ACCESSIBILITY – A117.1 REQUIREMENTS

CHANGE SUMMARY: In new construction, the circular turning space has been increased to 67 inches, and the knee/toe space allowance beneath an obstruction has become more limited.



Overlap of knee and toe

FIGURE 304.3.1.1
CIRCULAR TURNING SPACE - NEW BUILDINGS
SIZE AND OVERLAP



Overlap of knee and toe clearance

FIGURE 304.3.1.2
CIRCULAR TURNING SPACE - EXISTING BUILDINGS - SIZE
AND OVERLAP

CHAPTER 11 – ACCESSIBILITY – A117.1 REQUIREMENTS

CHANGE SUMMARY: In new construction, three new T-turn space options are provided. The result of all three is an increased size for the turning space.

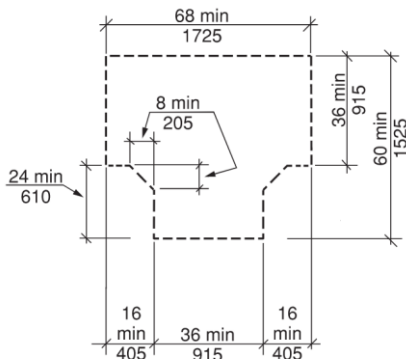


FIGURE 304.3.2.1(A)
T-SHAPED TURNING SPACE
NEW BUILDINGS - OPTION 1

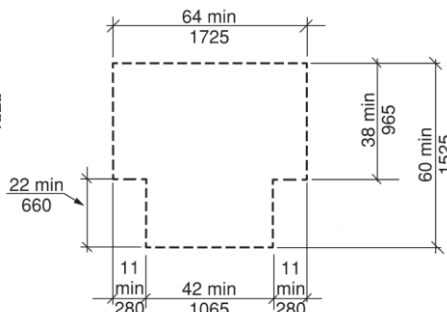


FIGURE 304.3.2.1(B)
T-SHAPED TURNING SPACE
NEW BUILDINGS - OPTION 2

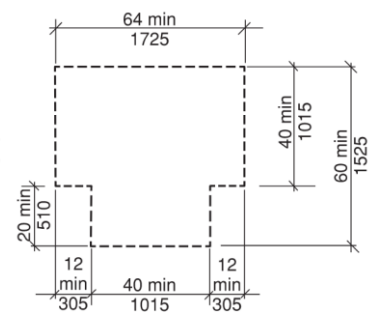


FIGURE 304.3.2.1(C)
T-SHAPED TURNING SPACE
NEW BUILDINGS - OPTION 3

CHAPTER 11 – ACCESSIBILITY – A117.1 REQUIREMENTS

CHANGE SUMMARY: In new construction, the clear floor space length has been increased to 52 inches, to provide the necessary space for additional wheeled mobility devices such as power chairs and scooters.

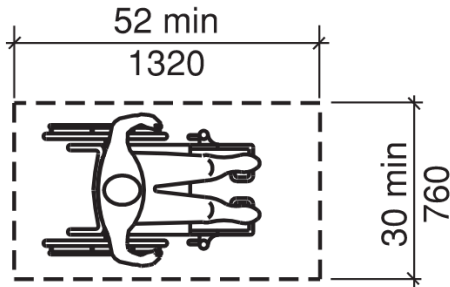


FIGURE 305.3.1
SIZE OF CLEAR FLOOR SPACE - NEW BUILDINGS

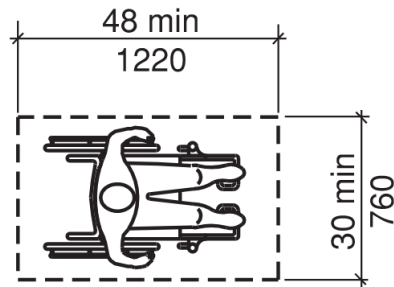


FIGURE 305.3.2
SIZE OF CLEAR FLOOR SPACE - EXISTING BUILDINGS

CHAPTER 11 – ACCESSIBILITY

CHANGE SUMMARY: This Oregon amendment clarifies how the A117.1 standard is used when evaluating accessible parking spaces and ORS 447.233.

[1102.1.2.7 Parking spaces – ICC A117.1 Section 502. ICC A117.1 Sections 502.5, 502.6, 502.10 and 502.11 are adopted. The remaining provisions of ICC A117.1 Section 502 are deleted. Accessible parking spaces, dimensions, markings and signs shall be designed in compliance with the Standards for Accessible Parking Places set forth by the Oregon Transportation Commission. See ORS 447.233.](#)

NOTE:

The OTC Standards for Accessible Parking Places document is available here:

Oregon.gov/ODOT/Engineering/DOCS_ADA/ADA_Standards-Accessible-Parking.pdf

**OREGON TRANSPORTATION COMMISSION
Standards for Accessible Parking Places
August 2018**

In accordance with Oregon Revised Statute (ORS) 447.233, the Oregon Transportation Commission (OTC) adopted standards for accessible person parking places, which took effect on January 22, 1992. All new construction or re-stripping of accessible parking spaces and access aisles is required to meet new minimum standards.

CHAPTER 11 – ACCESSIBILITY

CHANGE SUMMARY: This Oregon amendment from a public proposal allows for receptacle outlets to be located over countertops of 25-1/2" maximum depth in Type A Units.

1103.9 Operable parts. Lighting controls, electrical panelboards, electrical switches and receptacle outlets, environmental controls, appliance controls, operating hardware for operable windows, plumbing fixture controls, and user controls for security or intercom systems shall comply with Section 309.

[1102.1.2.9 Type A unit operable parts – ICC A117.1 Section 1103.9.](#) ICC A117.1, Section 1103.9 is revised by adding the following exception:

[Exception:](#) In a kitchen, receptacle outlets are permitted to be located over countertops 25½ inches maximum in depth, provided that there is at least one countertop with an accessible outlet compliant with this section.

NOTES:

Still requires at least one countertop with an accessible outlet meeting Section 309

Meets the intent of Type A Unit adaptability through possible future addition of receptacle extenders.

Was developed by local design experts with guidance from Senior ICC staff

CHAPTER 11 – ACCESSIBILITY

CHANGE SUMMARY: This Oregon amendment from a public proposal adds an exemption for counter spaces less than 18" in width between the range and refrigerator in Type B Units.

[1102.1.2.10 Type B unit operable parts – ICC A117.1 Section 1104.9.](#) ICC A117.1, Section 1104.9 is replaced with the following:

[Lighting controls, electrical switches and receptacle outlets, environmental controls, electrical panelboards, and user controls for security or intercom systems shall comply with Sections 309.3 and 1104.1.1.](#)

[Exceptions:](#)

- [1. Receptacle outlets serving a dedicated use.](#)
- [2. In a kitchen where two or more receptacle outlets are provided above a length of countertop that is uninterrupted by a sink or appliance, only one receptacle outlet shall be required to comply with this section.](#)
- [3. In a kitchen where a clear floor space for a parallel approach cannot be located at a countertop in a corner between appliances, receptacle outlets over the countertop shall not be required to comply with this section, provided that the countertop area does not exceed 9 square feet \(0.835 m²\) maximum and there is at least one other countertop with an accessible outlet compliant with this section.](#)
- [4. In a kitchen where a clear floor space for a parallel approach cannot be located at a countertop between range and refrigerator, receptacle outlets over the countertop shall not be required to comply with this section, provided that the countertop area does not exceed 18 inches \(460 mm\) in width and there is at least one other countertop with an accessible outlet compliant with this section.](#)

(The remaining exceptions are retained – and renumbered)

CHAPTER 12 – INTERIOR ENVIRONMENT

CHANGE SUMMARY: Model code addition that now requires educational occupancies to meet the enhanced classroom acoustic requirements of Section 808 of ICC A117.1.

SECTION 1207

SECTION 1207 ENHANCED CLASSROOM ACOUSTICS

1207.1 General. Enhanced classroom acoustics, where required by this section, shall comply with Section 808 of ICC A117.1.

1207.2 Where required. In Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms with a volume of 20,000 cubic feet (566 m³) or less.



CHAPTER 12 – INTERIOR ENVIRONMENT

CHANGE SUMMARY: Model code addition intended to address concerns regarding privacy within public restrooms by requiring a screening element at the entry to the restroom.

SECTION 1210.3

1210.3 Privacy. Public restrooms shall be visually screened from outside entry or exit doorways to ensure user privacy within the restroom. Privacy at water closets, single-user toilet and bathing rooms and urinals shall be provided in accordance with Sections 1210.3.1, 1210.3.2 and 1210.3.3.

Exception: Visual screening shall not be required for single-occupant toilet rooms with a lockable door.



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Latest versions of commonly referenced structural design standards (See Chapter 35 Referenced Standards).

ASCE 7-16 With Supplements 1, 2 & 3, Structural Design Loads and Criteria (Ch. 16)

Supplements and Errata: <https://ascelibrary.org/doi/book/10.1061/9780784414248>

ACI 318-~~14~~ 19, 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, Structural Steel (Ch. 22)

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

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

Free Download and Errata: <https://www.aisc.org/publications/steel-standards/#31443>

AISI S100-16 (2020) With Supplement 2, S202-20, S220-20, S230-19, S240-20, and S400-20, Cold-Formed Steel (Ch. 22)

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

AWC NDS-18, Wood (Ch. 23)

Free View-only access: <https://www.awc.org/codes-standards/publications/nds-2018>

Errata: <https://awc.org/wp-content/uploads/2021/12/AWC-2018NDS-Updates-Errata.pdf>

Errata to Supplement: https://awc.org/wp-content/uploads/2021/12/AWC-2018NDS-Supplement-Updates-Errata_22-4-18.pdf

AWC SDPWS-~~14~~ 21, Wind and Seismic Provisions for Wood Design (Ch. 23)

Free View-only access: <https://awc.org/publications/2021-sdpws/>

Errata: <https://awc.org/wp-content/uploads/2022/06/2021SDPWS-Errata-20220624.pdf>



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Oregon amendment that cleans up a long-standing conflict between ASCE 7 and the IBC regarding lateral force resisting system structural analysis requirements.

SECTION 1604 GENERAL DESIGN REQUIREMENTS

1604.4 Analysis. ...

...

The total lateral force shall be distributed to the various vertical elements of the lateral force-resisting system in proportion to their rigidities, considering the rigidity of all horizontal and vertical elements part of the lateral force-resisting system ~~the horizontal bracing system or diaphragm~~. Rigid elements assumed not to be a part of the lateral force-resisting system are permitted to be incorporated into buildings provided that their effect on the action of the system is considered and they are detailed to accommodate the building drift provided for in the design. A diaphragm ~~is~~ may be considered rigid for the purpose of distribution of *story* shear and torsional moment as allowed by ASCE 7 Section 12.3 when the lateral deformation of the diaphragm is less than or equal to two times the average story drift.



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: New addition to Risk Category III designation in Table 1604.5.

TABLE 1604.5 RISK CATEGORY OF BUILDINGS AND OTHER STRUCTURES

RISK CATEGORY	NATURE OF OCCUPANCY
III	<ul style="list-style-type: none"> Buildings and other structures containing one or more assembly spaces, each having an occupant load greater than 300 and a cumulative occupant load of these assembly spaces of greater than 2,500.

Example

- 5-story hotel with conference center; total occupant load < 5,000
 - 440 guest rooms
 - 2 ballrooms, each with an occupant load of 1,200
 - 5 meeting rooms, each with an occupant load of 90
- The cumulative occupant load of the assembly spaces having occupant loads greater than 300 is 2,400 (the two ballrooms). This is less than the 2,500 cumulative threshold in this new Risk Category III designation, therefore this example building is to be assigned to Risk Category II.



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: The strength (LRFD) and allowable stress design (ASD) load combinations have been removed from the IBC and replaced with a pointer to ASCE 7 Sections 2.3 and 2.4 for those combinations. The Alternative ASD load combinations from the UBC have been retained in the IBC, but note that the omega factor, ω , that was applied to the wind loads in those equations has been removed.

SECTION 1605

LOAD COMBINATIONS

1605.1 General. Buildings and *other structures* and portions thereof shall be designed to resist the strength load combinations specified in ASCE 7, Section 2.3, the allowable stress design load combinations specified in ASCE 7, Section 2.4, or the alternative allowable stress design load combinations of Section 1605.2.

1605.2 Alternative ~~basic~~ allowable stress design load combinations. In lieu of the load combinations in ASCE 7, Section 2.4, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations.

$D + L + 0.6W$	(Equation 16- 18 2)
$D + L + 0.6W + S/2$	(Equation 16- 19 3)
$D + L + S + 0.6W/2$	(Equation 16- 20 4)

CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: The IBC section on dead loads has been expanded to clarify intent and a pointer to the new solar-ready provisions in Section 3111.4 was added as an OR amendment, which requires a 5 psf collateral dead load over the solar-ready zone of the roof to be included in the structural design.

SECTION 1606

DEAD LOADS

1606.2 ~~Design dead load~~ Weights of materials of construction. For purposes of design, the actual weights of materials of construction ~~and fixed service equipment~~ shall be used. In the absence of definite information, values used shall be subject to the approval of the *building official*.

1606.3 Weight of fixed service equipment. In determining dead loads for purposes of design, the weight of fixed...

1606.4 Photovoltaic panel systems. The weight of photovoltaic panel systems, their support system, and ballast...

1606.4.1 Solar-ready roofs. Where roofs are required to be provided with a *solar-ready zone*, a collateral dead load shall be included in the gravity design of the building in accordance with Section 3111.4.

1606.5 Vegetative and landscaped roofs. The weight of all landscaping and hardscaping materials for vegetative...

CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Section 1607 and Table 1607.1 have been updated for clarity. Twelve of the previous footnotes from the table have been with pointers in the table to more explicit language that has been added to the body of Section 1607 and Item 6 was amended for clarification.

TABLE 1607.1 - MINIMUM UNIFORMLY DISTRIBUTED LIVE LOAD, L_p AND MINIMUM CONCENTRATED LIVE LOADS

OCCUPANCY OR USE		UNIFORM (psf)	CONCENTRATED (pounds)	ALSO SEE SECTION
6.	Catwalks, mechanical rooms, and elevated platforms for maintenance and service access	40 ^d	300	-
14.	Fixed ladders	See Section 1607.17		-
27.	Roofs	Roof areas used for assembly purposes	100 ^a	Section 1607.14
		Roof areas used for occupancies other than assembly	Same as occupancy served	

a. Live load reduction is not permitted.

b. Live load reduction is only permitted in accordance with Section 1607.12.1.2 or Item 1 of Section 1607.12.2.

c. Live load reduction is only permitted in accordance with Section 1607.12.1.3 or Item 2 of Section 1607.12.2.

d. [Weight of mechanical equipment shall be included as dead loads in accordance with Section 1606.3.](#)

CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Oregon amendment that clarifies occupiable roofs used for assembly occupancies are not included in the live load reduction option for occupiable roofs.

SECTION 1607

LIVE LOADS

1607.14.2.2 Occupiable roofs. Areas of occupiable roofs, other than those used for assembly purposes that are occupiable, such as vegetative roofs, landscaped roofs or for assembly or other similar purposes, and marquees are permitted to have their uniformly distributed *live loads* reduced in accordance with Section 1607.12.



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Live loads for fixed ladders were added to the IBC and coordinated with ASCE 7-16.

SECTION 1607

LIVE LOADS

1607.17 Fixed ladders. Fixed ladders with rungs shall be designed to resist a single concentrated load of 300 pounds (1.33 kN) in accordance with Section 4.5.4 of ASCE 7. Where rails of fixed ladders extend above a floor or platform at the top of the ladder, each side rail extension shall be designed to resist a single concentrated load of 100 pounds (0.445 kN) in accordance with Section 4.5.4 of ASCE 7. Ship's ladders shall be designed to resist the *stair loads* given in Table 1607.1.

ASCE 7-16

4.5.4 Fixed ladders. Fixed ladders with rungs shall be designed to resist a single concentrated load of 300 lb (1.33 kN) applied at any point to produce the maximum load effect on the element being considered. The number and position of additional concentrated live load units shall be a minimum of 1 unit of 300lb (1.33kN) for every 10ft (3.05m) of ladder height. Where rails of fixed ladders extend above a floor or platform at the top of the ladder, each side rail extension shall be designed to resist a single concentrated live load of 100lb (0.445kN) applied in any direction at any height up to the top of the side rail extension.

CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: This existing ASCE modification has been moved from Section 1613 (seismic) to Section 1609 (wind) for consistency, and updated to clarify the peer reviewer's responsibility to confirm that the product/panel-specific wind tunnel test results are appropriate for and have correctly been applied to the project/situation-specific design.

SECTION 1609 WIND LOADS

~~1613.4.14~~ **1609.2 ASCE 7, Section 31.6.1.2.** Modify ASCE 7, Section 31.6.1.2, *Peer Review Requirements for Wind Tunnel Tests of Roof-Mounted Solar Collectors*, last paragraph to read as follows:

The peer reviewer shall submit a written report to the *municipality* and the client. The report shall include, at a minimum, statements regarding the following: scope of peer review with limitations defined; status of wind tunnel test at the time of review; conformance of wind tunnel study with requirements of ASCE 49 and Section 31.6.1; conclusion of the reviewer identifying areas that need further review, investigation and/or clarification; recommendations; and statement from the reviewer that in their opinion the results of the wind tunnel tests have correctly been applied to the specific situation/project that the results of the wind tunnel tests are being applied to and that the final design conforms to the requirements of ASCE 7-16 for the intended use(s).



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Section 1609.3 was amended to add a pointer to Figure 1609.3 for special wind region identification, and Sections 1609.4.2 and 1609.4.3 were amended to point to ASCE 7-16 for surface roughness and exposure categories.

SECTION 1609 WIND LOADS

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. Areas of special wind regions in Table 1609.3 shall be identified using Figure 1609.3.

1609.4.2 Surface roughness categories. A ground surface roughness shall be established in accordance with ASCE 7.

1609.4.3 Exposure categories. An exposure category shall be determined in accordance with ASCE 7.

ASCE 7-16

26.7.2 Surface Roughness Categories. A ground surface roughness within each 45° sector shall be...

Surface Roughness B: Urban and suburban...

Surface Roughness C: Open terrain with...

Surface Roughness D: Flat, unobstructed areas...

26.7.3 Exposure Categories.

Exposure B: For buildings or other structures with a mean roof height less than or equal to 30 ft...

Exposure C: Exposure C shall apply for all cases where Exposure B or D does not apply.

Exposure D: Exposure D shall apply where...

CHAPTER 16 – STRUCTURAL DESIGN

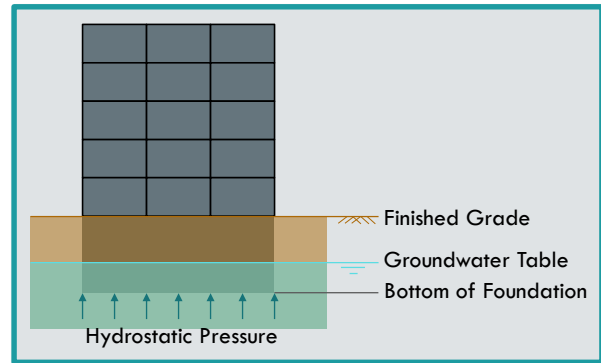
CHANGE SUMMARY: This new subsection was added to address uplift loads from hydrostatic pressure or expansive soils based on Section 3.2.2 of ASCE 7-16.

SECTION 1610

SOIL LOADS AND HYDROSTATIC PRESSURE

1610.2 Uplift loads on floor and foundations.

Basement floors, slabs on ground, foundations, and similar approximately horizontal elements below grade shall be designed to resist uplift loads where applicable. The upward pressure of water shall be taken as the full hydrostatic pressure applied over the entire area. The hydrostatic load shall be measured from the underside of the element being evaluated. The design for upward loads caused by expansive soils shall comply with Section 1808.6.



CHAPTER 16 – STRUCTURAL DESIGN

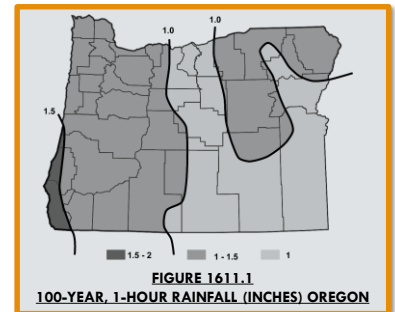
CHANGE SUMMARY: Aligns 2021 IBC with ASCE 7; For roofs with drainage systems, the design rain load for structural design is now based on a design rainfall rate that is double what it was per the 2018 IBC.

SECTION 1611 RAIN LOADS

1611.1 Design rain loads. Each portion of a roof shall be designed to sustain the *load* of rainwater as per the requirements of Chapter 8 of ASCE 7. The design rainfall shall be based on the 100-year hourly rainfall rate indicated in Figure 1611.1 15-minute duration event. Alternatively, a design rainfall of twice the 100-year hourly rainfall rate indicated in Figures 1611.1(1) through 1611.1(5) shall be permitted.

ASCE 7-16

8.2 Roof Drainage. Roof drainage systems shall be designed in accordance with the provisions of the code that has jurisdiction. **The design flow rate of the secondary (overflow) drains (including roof drains and downstream piping) or scuppers, and their resulting hydraulic head (d_h) shall be based on a rainfall intensity equal to or greater than the 15-min duration/100-year return period (frequency) storm.** Primary drainage systems shall be designed for a rainfall intensity equal to or greater than the 60-min duration/100-year return period (frequency) storm.



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Amendment clarifying the suspended acoustical tile or lay-in panel ceiling provisions.

SECTION 1613 EARTHQUAKE LOADS

1613.1.1 Suspended acoustical tile or lay-in panel ceilings. Suspended acoustical tile or lay-in panel ceilings in structures assigned to *Seismic Design Category C, D, E, or F* shall meet the prescriptive design provisions of ASCE 7 Section 13.5.6.2 unless designed in accordance with ASCE 7 Section 13.5.6.3 or seismically qualified in accordance with ASCE 7 Section 13.2.5 or 13.2.6.

Exception: Suspended acoustical tile or lay-in panel ceiling areas less than or equal to 144 square feet (13.4 m²) enclosed by walls or soffits, provided that the walls or soffits are laterally braced to the structure above.


nwcb.org/401-document.html

NWCB Technical Document 03/22
SUSPENDED CEILINGS 401 Suspension Systems for Acoustical Lay-in Ceilings
Seismic Design Categories D, E & F

oregon.gov/bcd/codes-stand/Documents/interp-10-01-suspendceiling.pdf

Statewide Code Interpretation
No. 10-01

Suspended ceiling systems—construction requirements

 BCD Building Codes Division
Department of Consumer and Business Services

In accordance with OAR 918-008-0110, the information contained in this statewide code interpretation is legally binding on any party involved in activities regulated by applicable Oregon law, applicable Oregon regulations or the state building code. If the information contained in this statewide code interpretation is cited as a basis for a civil infraction, a representative of the jurisdiction must cite the interpretation number found in this document.

Code/edition/section: 2022 Oregon Structural Specialty Code (OSSC)—Sections 808 and 1613
ASCE 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures—Sections 13.4.5 and 13.5.6

Date: Issued—July 1, 2010
Last updated—Oct. 1, 2022

Subject: Construction requirements for suspended ceiling systems

CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Aligns 2021 IBC with ASCE 7; For roofs with drainage systems, the design rain load for structural design is now based on a design rainfall rate that is double what it was per the 2018 IBC.

SECTION 1613 EARTHQUAKE LOADS

1613.3 Photovoltaic panel systems.

1613.3.1 ~~1613.3~~ Ballasted photovoltaic panel systems. Ballasted, roof-mounted *photovoltaic panel systems*...

1613.3.2 Rigidly attached photovoltaic panel systems. The mass of nonballasted *photovoltaic panel systems* shall be considered in the seismic design of the supporting structure.

1613.3.3 Solar-ready roofs. Where roofs are required to be provided with a *solar-ready zone*, a collateral *dead load* shall be included in the seismic design of the building in accordance with Section 3111.4.



CHAPTER 16 – STRUCTURAL DESIGN

CHANGE SUMMARY: Modification to ASCE 7 clarifying the overstrength factor for discontinuous shear wall supports includes their associated connections as part of the intended load path.

SECTION 1613 EARTHQUAKE LOADS

1613.4.9 ASCE 7, Section 12.3.3.3. Modify ASCE 7, Section 12.3.3.3, *Elements Supporting Discontinuous Walls or Frames*, to read as follows:

Structural elements **and their connections** supporting discontinuous walls or frames of structures that have horizontal irregularity Type 4 of Table 12.3-1 or vertical irregularity Type 4 of Table 12.3-2 shall be designed to resist the seismic load effects including overstrength of Section 12.4.3. The connections of discontinuous walls or frames to the supporting members shall be adequate to transmit the forces for which the discontinuous walls or frames were required to be designed.

ASCE 7-16

12.4.3.1 Horizontal Seismic Load Effect Including Over-strength. The effect of horizontal seismic forces including overstrength, E_{mh} , shall be determined in accordance with Eq. (12.4-7) as follows:

$$E_{mh} = \Omega_0 Q_E \quad (12.4-7)$$

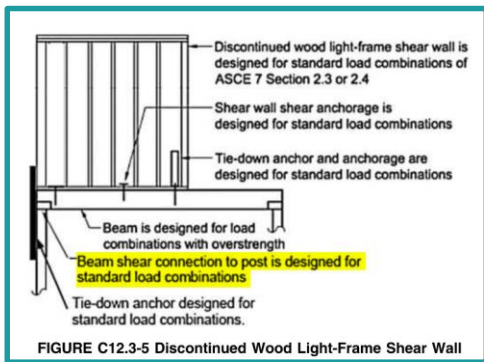
Where

Q_E = effects of horizontal seismic forces from V, F_{px} , or F_p as specified in Sections 12.8.1, 12.10, or 13.3.1; and
 Ω_0 = overstrength factor.

CHAPTER 16 – STRUCTURAL DESIGN

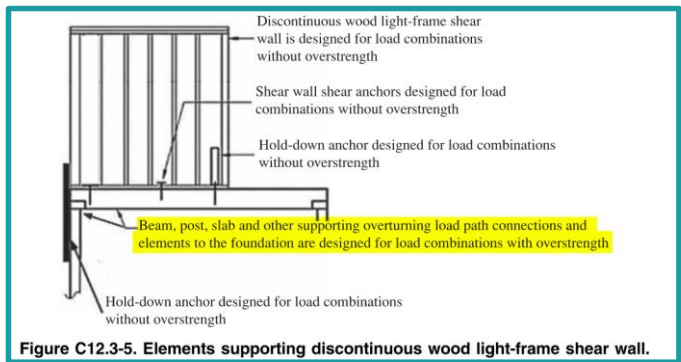
CHANGE SUMMARY: Continued from previous slide: Modification to ASCE 7 Section 12.3.3.3 clarifying the overstrength factor for discontinuous shear wall supports includes their associated connections as part of the intended load path.

ASCE 7-16 COMMENTARY



vs.

ASCE 7-22 COMMENTARY



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: A structural observer must now visually observe the construction of structural systems for general design conformance for all buildings assigned to Risk Category III or IV.

SECTION 1704: SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION

1704.6 Structural observations. Where required by the provisions of Section 1704.6.1, the owner or the owner's authorized agent shall employ a *registered design professional* to perform *structural observations*. The structural observer shall visually observe representative locations of structural systems, details and load paths for general conformance to the approved construction documents. *Structural observation* does not include or waive the responsibility for the inspections in Section 110 or the *special inspections* in Section 1705 or other sections of this code. . .

1704.6.1 Structural observations for structures.

Structural observations shall be provided for those structures where one or more of the following conditions exist:

1. The structure is classified as *Risk Category III or IV*.
2. The structure is a *high-rise building*.
3. The structure is assigned to *Seismic Design Category E*, and is greater than two stories above the grade plane.
4. Such observation is required by the *registered design professional* responsible for the structural design.
5. Such observation is specifically required by the *building official*.

CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: This change clarifies model code intent of Section 1705.3, Exception 2, Items 2.1, 2.2 and 2.3.

SECTION 1705: REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.3 Concrete construction.

Exceptions: *Special inspections* and tests shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above *grade plane* that are fully supported on earth or rock.
2. Continuous concrete footings supporting walls of buildings three stories or less above *grade plane* that are fully supported on earth or rock where:
 - 2.1. The footings support walls of *light-frame construction*; and either
 - 2.2. The footings are designed in accordance with Table 1809.7; or
 - 2.3. The structural design of the footing is based on a ~~specified~~ compressive strength, f'_c , not more than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the *approved construction documents* or used in the footing construction.



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: Special inspection requirements for precast concrete diaphragm connections have been added to the list of general concrete special inspections and tests.

**TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION**

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD ^a	IBC REFERENCE
<p><u>11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category C, D, E or F, inspect such connections and reinforcement in the field for:</u></p> <p><u>a. Installation of the embedded parts</u></p> <p><u>b. Completion of the continuity of reinforcement across joints.</u></p> <p><u>c. Completion of connections in the field.</u></p>	<p>X</p> <p>X</p> <p>X</p>	<p>=</p> <p>=</p> <p>=</p>	<p>ACI 318: 26.13.1.3</p> <p>ACI 550.5</p>	<p>=</p>

(Full table not shown for clarity and brevity.)

CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

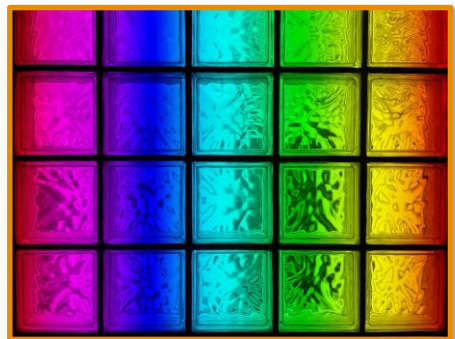
CHANGE SUMMARY: Empirically designed masonry is no longer allowed in Risk Category IV buildings.

SECTION 1705

REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.4.1 ~~Empirically designed masonry.~~ **Glass unit masonry and masonry veneer in Risk Category IV.** *Special inspections and tests for ~~empirically designed masonry~~, glass unit masonry or masonry veneer designed in accordance with Section 2110 or Chapter 14, respectively, where they are part of a structure classified as Risk Category IV shall be performed in accordance with TMS 602 Level 2.*

CHANGE SIGNIFICANCE: Special inspection of empirically designed masonry in Risk Category IV buildings is no longer required because the masonry standard, TMS 402, *Building Code Requirements and Specification for Masonry Structures*, does not allow Risk Category IV buildings to be designed following the empirical design method.



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: Section 1705.10 has been added to address the installation of deep foundation elements and which appear to be understrength due to quality, location or alignment. An engineering assessment must now be done. This additional section includes Oregon amendments to clarify the determination of structural integrity and enforceability.

SECTION 1705

REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.10 Structural integrity of deep foundation elements. ~~Whenever there is a reasonable doubt as documented concern is submitted to the municipality regarding the structural integrity of a deep foundation element, or where notification of such concern is provided by the registered design professional in responsible charge, the building official is authorized to require an engineering assessment shall be required. The engineering assessment shall include tests for defects performed in accordance with ASTM D4945, ASTM D5882, ASTM D6760 or ASTM D7949, or other approved method.~~



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: To capture the original intent of the Oregon amendment to Exception 2 in Section 1705.13.5, Exception 2 has been updated to align with model code and instead Exception 3 was amended to include exterior nonbearing wall assemblies weighing 15 psf or less.

SECTION 1705: REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.13.5 Architectural components. *Periodic special inspection* is required for the erection and fastening of exterior cladding, interior and exterior nonbearing walls and interior and exterior *veneer* in structures assigned to *Seismic Design Category* D, E or F.

Exception: *Periodic special inspection* is not required for the following:

1. Exterior cladding, interior and exterior nonbearing walls and interior and exterior *veneer* 30 feet (9144 mm) or less in height above grade or walking surface.
2. Exterior cladding and interior and exterior *veneer* weighing ~~45~~ 5 psf (0.24 kN/m²) or less.
3. Interior ~~and exterior~~ nonbearing wall ~~+~~ assemblies weighing 15 psf (0.72 kN/m²) or less.



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: Steel storage rack special inspection duties have been clarified with the addition of special inspection tasks. Updates have been reflected in the additional Table 1705.13.7.

SECTION 1705

REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.13.7 Storage racks. Steel storage racks and steel cantilevered storage racks that are 8 feet (2438 mm) in height or greater and assigned to *Seismic Design Category D, E or F* shall be provided with periodic special inspection as required by Table 1705.13.7.



NEW TABLE: Requires periodic special inspections to verify steel storage rack materials, fabrication, anchorage installation, and overall compliance with the approved construction documents.



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: The installation of firestops, fire-resistant joint systems and perimeter fire barrier systems in residential-use buildings now requires special inspection in those Group R fire areas having an occupant load exceeding 250.

SECTION 1705

REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.18 Fire-resistant penetrations and joints. In high-rise buildings, in buildings assigned to *Risk Category III or IV*, or in fire areas containing Group R occupancies with an occupant load greater than 250, special inspections for *through-penetrations, membrane penetration firestops, fire-resistant joint systems* and perimeter fire containment systems that are tested and *listed* in accordance with Sections 714.4.1.2, 714.5.1.2, 715.3.1 and 715.4 shall be in accordance with Section 1705.18.1 or 1705.18.2.

CHANGE SIGNIFICANCE: When through-penetration firestop systems and fire-resistant joint systems are not properly installed, the integrity of the fire-rated separations is compromised. For adequately protection, special inspection has been expanded to include larger R-2 buildings.



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: Special inspection requirements have been added to address the anchorage and connection of mass timber structural elements.

SECTION 1705

REQUIRED SPECIAL INSPECTIONS AND TESTS

1705.5.3 Mass timber construction. Special inspections of mass timber elements in Types IV-A, IV-B and IV-C construction shall be in accordance with Table 1705.5.3.



NEW TABLE: REQUIRED SPECIAL INSPECTIONS OF MASS TIMBER CONSTRUCTION

1705.20 Sealing of mass timber. Periodic special inspections of sealants or adhesives shall be conducted where sealant or adhesive required by Section 703.7 is applied to mass timber building elements as designated in the approved construction documents.



Courtesy of Mike Brewington

CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: Testing standards and analysis procedures have been clarified for exterior door and window assemblies, including garage door assemblies.

SECTION 1709

PRECONSTRUCTION LOAD TESTS

1709.5 Exterior window and door assemblies. The design pressure of...

Exception: Structural wind load design pressures for window ~~units smaller~~ or door assemblies other than the size tested in accordance with Section 1709.5.1 or 1709.5.2 shall be permitted to be ~~higher~~ different than the design value of the tested ~~unit~~ assembly, provided that such ~~higher~~ pressures are determined by accepted engineering analysis or validated by an additional test of the window or door assembly to the alternative allowable design pressure in accordance with Section 1709.5.2. Components of the ~~small-unit~~ alternate size assembly shall be the same as the tested ~~unit~~ or labeled assembly. Where engineering analysis is used, it shall be performed in accordance with the analysis procedures of AAMA 2502.



CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS

CHANGE SUMMARY: Testing standards and analysis procedures have been clarified for exterior door and window assemblies, including garage door assemblies.

SECTION 1709

PRECONSTRUCTION LOAD TESTS

1709.5 Exterior window and door assemblies.

1709.5.2.1 Garage doors and rolling doors. Garage doors and rolling doors shall be tested in accordance with either ASTM E330 or ANSI/DASMA 108, and shall meet the pass/fail criteria of ANSI/DASMA 108. Garage doors and rolling doors shall be labeled with a permanent label identifying the door manufacturer, the door model/series number, the positive and negative design wind pressure rating, the installation instruction drawing reference number, and the applicable test standard.



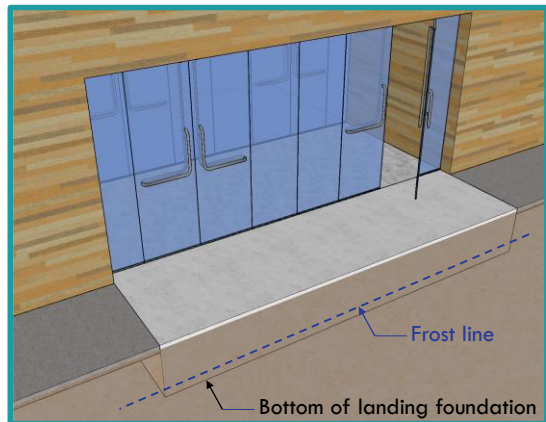
CHAPTER 18 – SOILS AND FOUNDATIONS

CHANGE SUMMARY: New model code provision requiring landing areas immediately adjacent to egress doors be provided with frost protection to prevent heaving of the landing, thereby compromising normal operation of the required egress doors. An amendment was made limiting this new requirement to sites above 4,000 feet in elevation.

SECTION 1809

SHALLOW FOUNDATIONS

1809.5.1 Frost protection at required exits. For sites located at elevations above 4,000 feet (1219.2 m), frost protection shall be provided at exterior landings for all required exits with outward-swinging doors.



CHAPTER 18 – SOILS AND FOUNDATIONS

CHANGE SUMMARY: Model code change to include shaft friction for determination of allowable helical pile loads.

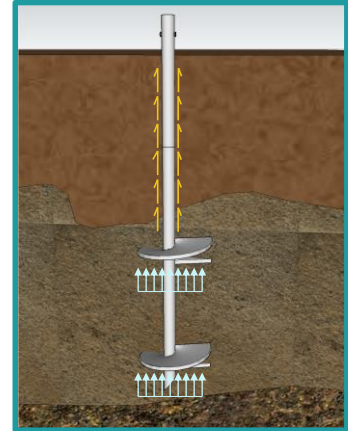
SECTION 1810 DEEP FOUNDATIONS

1810.3.3.1.9 Helical piles. The allowable axial design load, P_a , of helical piles shall be determined as follows:

$$P_a = 0.5 P_u \quad \text{(Equation 18-4)}$$

where P_u is the least value of:

1. Base capacity plus shaft resistance of the helical pile. The base capacity is equal to the sum of the areas of the helical bearing plates times the ultimate bearing capacity of the soil or rock comprising the bearing stratum. The shaft resistance is equal to the area of the shaft above the uppermost helical bearing plate times the ultimate skin resistance.
3. Ultimate capacity determined from load tests where required by Section 1810.3.3.1.2.



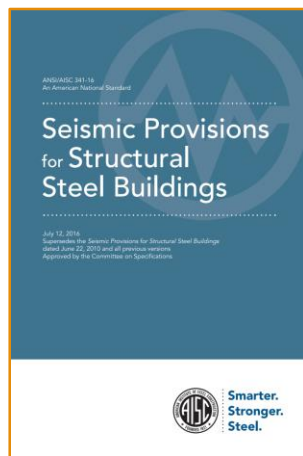
CHAPTER 18 – SOILS AND FOUNDATIONS

CHANGE SUMMARY: Model code change that now requires the design and detailing of H-Piles conform with AISC 341 requirements for structures assigned to SDC D, E or F.

SECTION 1810 DEEP FOUNDATIONS

1810.3.5.3.1 Structural steel H-piles. Sections of structural steel H-piles shall comply with...

For structures assigned to Seismic Design Category D, E or F, design and detailing of H-piles shall also conform to the requirements of AISC 341.



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Seismic Provisions for Structural Steel Buildings, July 12, 2016

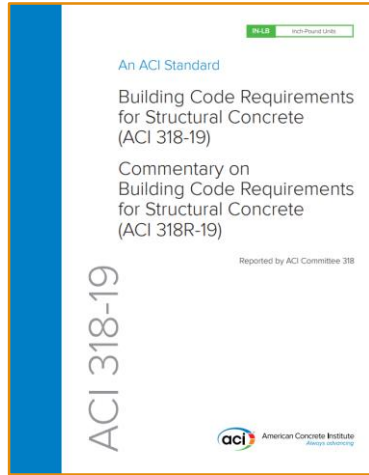
[aisc.org/globalassets/aisc/publications/standards/aisc-341-16_january-2020.pdf](https://www.aisc.org/globalassets/aisc/publications/standards/aisc-341-16_january-2020.pdf)

CHAPTER 18 — SOILS AND FOUNDATIONS

CHANGE SUMMARY: The precast concrete pile provisions have been moved from the IBC to ACI 318.

SECTION 1810 DEEP FOUNDATIONS

1810.3.8 Precast concrete piles. Precast concrete piles shall be designed and detailed in accordance with [Sections 1810.3.8.1 through 1810.3.8.3 ACI 318](#).



PART 3: MEMBERS CHAPTER 13—FOUNDATIONS

13.4.5 Precast concrete piles

13.4.5.1 Precast concrete piles supporting buildings assigned to SDC A or B shall satisfy the requirements of 13.4.5.2 through 13.4.5.6.

PART 5: EARTHQUAKE RESISTANCE CHAPTER 18—EARTHQUAKE-RESISTANT STRUCTURES

18.13.5 Deep foundations

18.13.5.1 This section shall apply to the following types of deep foundations

(d) Precast concrete piles

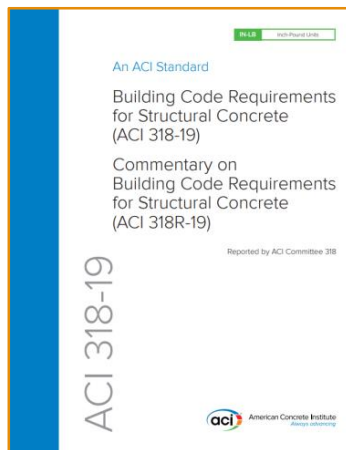
concrete.org/store/productdetail.aspx?ItemID=318U19

CHAPTER 18 — SOILS AND FOUNDATIONS

CHANGE SUMMARY: The precast concrete pile provisions have been moved from the IBC to ACI 318.

SECTION 1810 DEEP FOUNDATIONS

1810.3.11 Pile caps. [Pile caps shall conform with ACI 318 and this section](#). Pile caps shall be of reinforced concrete, and shall...



PART 3: MEMBERS CHAPTER 13—FOUNDATIONS

13.1.1 This chapter shall apply to the design of nonprestressed and prestressed foundations, including shallow foundations (a) through (f), deep foundations (g) through (i), and retaining walls (j) and (k):

(f) Pile caps

PART 5: EARTHQUAKE RESISTANCE CHAPTER 18—EARTHQUAKE-RESISTANT STRUCTURES

18.13—Foundations 18.13.1 Scope

18.13.1.1 This section shall apply to foundations resisting earthquake-induced forces or transferring earthquake-induced forces between structure and ground.

18.13.2 Footings, foundation mats, and pile caps

18.13.2.1 The provisions of this section shall apply to structures assigned to SDC D, E, or F.

concrete.org/store/productdetail.aspx?ItemID=318U19

CHAPTER 19 – CONCRETE

CHANGE SUMMARY: ACI 318 has been updated from the 2014 to 2019 edition; substantive changes.

SECTION 1901 GENERAL

1901.2 Plain and reinforced concrete. Structural concrete shall be designed and constructed in accordance with the requirements of this Chapter and ACI 318 as amended in Section 1905 of this code.

A few highlights of the ACI 318 changes/updates:

- Section 7.7.7 – Structural integrity reinforcement in cast-in-place one-way slabs
- Section 8.6.1 – Minimum flexural reinforcement in nonprestressed slabs
- Section 8.7.4.1.3 – Minimum extensions for reinforcement in two-way slabs without beams
- Section 9.7.6.2 – Maximum spacing of legs of shear reinforcement
- Section R10.1 – Composite steel-concrete column provisions removed; see AISC 360
- Section 11.5.4 – In-plane shear equations for ordinary shear walls
- Section 13.3.6 – Wall components of cantilever retaining walls
- Section 13.4 – Deep foundations
- Section 15.2 – Beam-column and slab-column joint detailing and strength requirements
- Section 16.2.2.3 & 16.2.2.4 – Restraint force requirements for all bearing connections
- Section 17.1.3 – Prohibits the removal and resetting of post-installed mechanical anchors
- Section 17.1.6 – Concrete breakout check when using reinforcing bars as anchorage
- Section 17.11 – Provisions for attachments with shear lugs
- Section 18.4.4 – Intermediate moment frame beam-column joint detailing
- Section 18.8 – Joints of special moment frames
- Section 18.10.2 – Special structural walls reinforcement
- Section 18.10.3 – Special structural walls design shear amplification
- Section 18.10.6 – Boundary elements of special structural walls
- Section 18.10.9 – Ductile coupled walls
- Section 18.12.11 – Precast concrete diaphragms
- Section 18.13.4 – Foundation seismic ties
- Section 18.13.5 – Deep foundations
- Section 18.13.6 – Anchorage of piles, piers, and caissons
- Section 19.2 – Concrete design properties
- Section 19.3 – Concrete durability requirements
- Section 20.2 – Nonprestressed reinforcement requirements
- Section 22.5.5.1 – Shear strength attributed to concrete
- Chapter 23 – Strut-and-tie modeling provisions
- Section 24.2.3.5 – Effective moment of inertia
- Chapter 25 – Reinforcement detailing and development lengths
- Appx. A – Design verification using nonlinear response history analysis

CHAPTER 19 – CONCRETE

CHANGE SUMMARY: ACI 318 has been updated from the 2014 to 2019 edition; e.g. design shear force.

ACI 318-19

18.10.3 Design forces

18.10.3.1 The design shear force V_e shall be calculated by:

$$V_e = \Omega_v \omega_v V_u \leq 3V_u \quad (18.10.3.1)$$

Where V_u , Ω_v , and ω_v are defined in 18.10.3.1.1, 18.1.3.1.2, and 18.10.3.1.3, respectively.

18.10.3.1.1 V_u is the shear force obtained from code lateral load analysis with factored load combinations.

18.10.3.1.2 Ω_v shall be in accordance with Table 18.10.3.1.2.

Table 18.10.3.1.2 – Overstrength factor Ω_v at critical section

Condition	Ω_v	
$h_{wcs}/l_w > 1.5$	Greater of	$M_{pr}/M_u^{[1]}$
		1.5 ^[2]
$h_{wcs}/l_w \leq 1.5$	1.0	

[1] For the load combination producing the largest value of Ω_v .

[2] Unless a more detailed analysis demonstrated a smaller value, but not less than 1.0.

18.10.3.1.3 For walls with $h_{wcs}/l_w \leq 2.0$, ω_v shall be taken as 1.0. Otherwise, ω_v shall be calculated as:

$$\omega_v = 0.9 + \frac{n_s}{10} \quad n_s \leq 6$$

$$\omega_v = 1.3 + \frac{n_s}{30} \quad n_s > 6$$

Where n_s shall not be taken less than the quantity $0.007h_{wcs}$

CHAPTER 19 – CONCRETE

CHANGE SUMMARY: ACI 318 has been updated from the 2014 to 2019 edition; e.g. high strength rebar.

Table 20.2.2.4(a)—Nonprestressed deformed reinforcement

Usage	Application		Maximum value of f_y or f_r permitted for design calculations, psi	Applicable ASTM specification			
				Deformed bars	Deformed wires	Welded wire reinforcement	Welded deformed bar mats
Flexure; axial force; and shrinkage and temperature	Special seismic systems	Special moment frames	60,000 80,000	A706 ^[2]	Not permitted	Not permitted	Not permitted
		Special structural walls ^[1]	60,000 100,000				
	Other		80,000 100,000 ^{[3][4]}	A615, A706, A955, A996, A1035	A1064, A1022	A1064, A1022	A184 ^[5]
Shear	Special seismic systems ^[7]	Special moment frames ^[8]	60,000 80,000	A615, A706, A955, A996	A1064, A1022	A1064 ^[6] , A1022 ^[6]	Not permitted
		Special structural walls ^[9]	60,000 100,000				

CHAPTER 19 – CONCRETE

CHANGE SUMMARY: ACI 318 has been updated from the 2014 to 2019 edition; e.g. shear strength.

ACI 318-19

22.5.5.1 For nonprestressed members, V_c shall be calculated ~~by~~ in accordance with Table 22.5.5.1 and 11.5.5.1.1 through 22.5.5.1.3. ~~$V_c = 2\lambda\sqrt{f'_c}b_wd$ (22.5.5.1)~~

Table 22.5.5.1 – V_c for nonprestressed members

Criteria		V_c	
$A_v \geq A_{v,min}$	Either of:	$\left[2\lambda\sqrt{f'_c} + \frac{N_u}{6Ag}\right] b_wd$	(a)
		$\left[8\lambda(\rho_w)^{1/3}\sqrt{f'_c} + \frac{N_u}{6Ag}\right] b_wd$	(b)
$A_v < A_{v,min}$		$\left[8\lambda_s\lambda(\rho_w)^{1/3}\sqrt{f'_c} + \frac{N_u}{6Ag}\right] b_wd$	(c)

concrete.org/publications/internationalconcreteabstractsportal.aspx?m=details&ID=51716911

CHAPTER 19 – CONCRETE

CHANGE SUMMARY: ACI standards 117-10 and ITG-7-09 have been added by reference to provide acceptable tolerances for concrete construction.

SECTION 1901 GENERAL

1901.7 Tolerances for structural concrete. Where not indicated in construction documents, structural tolerances for concrete structural elements shall be in accordance with this section.

1901.7.1 Cast-in-place concrete tolerances. Structural tolerances for cast-in-place concrete structural elements shall be in accordance with ACI 117.

Exceptions:

1. Group R-3 detached one- or two-family dwellings are not required to comply with this section.
2. Shotcrete is not required to comply with this section.

1901.7.2 Precast concrete tolerances. Structural tolerances for precast concrete structural elements shall be in accordance with ACI ITG-7.

Exception: Group R-3 detached one- or two-family dwellings are not required to comply with this section.



CHAPTER 22 – STEEL

CHANGE SUMMARY: AISC 358 is now directly referenced by the code instead of indirectly through AISC 341 to ensure the intended edition (2016 with 2018 supplement) is being referenced/used for design.

SECTION 2205 STRUCTURAL STEEL

2205.2.1 Structural steel seismic force-resisting systems....

2205.2.1.1 SDC B or C and 2205.2.1.2 SDC D, E or F....

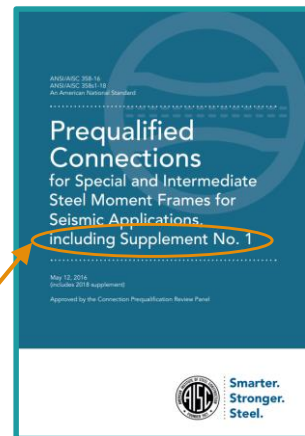
... Beam-to-column moment connections in special moment frames and intermediate moment frames shall be prequalified in accordance with AISC 341, Section K1, qualified by testing in accordance with AISC 341, Section K2, or shall be prequalified in accordance with AISC 358.

FROM CHAPTER 35 REFERENCED STANDARDS

AISC

ANSI/AISC 341—16: Seismic Provisions for Structural Steel Buildings

ANSI/AISC 358—16/s1—18: Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications Including Supplement No. 1



aisc.org/globalassets/aisc/publications/standards/a358-18w.pdf

CHAPTER 23 – WOOD

CHANGE SUMMARY: New figures have been added as a compliance option where permanent lateral restraint and diagonal bracing of individual wood truss members is specified on truss submittals.

SECTION 2303

MINIMUM STANDARDS AND QUALITY

2303.4.1.2 Permanent individual truss member restraint (PITMR) and permanent individual truss member diagonal bracing (PITMDB). Where the truss design drawings designate the need for *permanent individual truss member restraint*, it shall be accomplished by one of the following methods:

1. *PITMR and PITMDB* installed using standard industry lateral restraint and diagonal bracing details in accordance with TPI 1, Section 2.3.3.1.1, accepted engineering practice, or Figures 2303.4.1.2(1), (3), and (5).
2. *Individual truss member reinforcement in place of the specified lateral restraints* (i.e., buckling reinforcement such as T-reinforcement, L-reinforcement, proprietary reinforcement, etc.) such that the buckling of any individual truss member is resisted internally by the individual truss. The buckling reinforcement of individual truss members shall be installed as shown on the truss design drawing, on supplemental truss member buckling reinforcement details provided by the truss designer or in accordance with Figures 2303.4.1.2 (2) and (4).
3. A project-specific PITMR and PITMDB design provided by any *registered design professional*.

CHAPTER 23 – WOOD

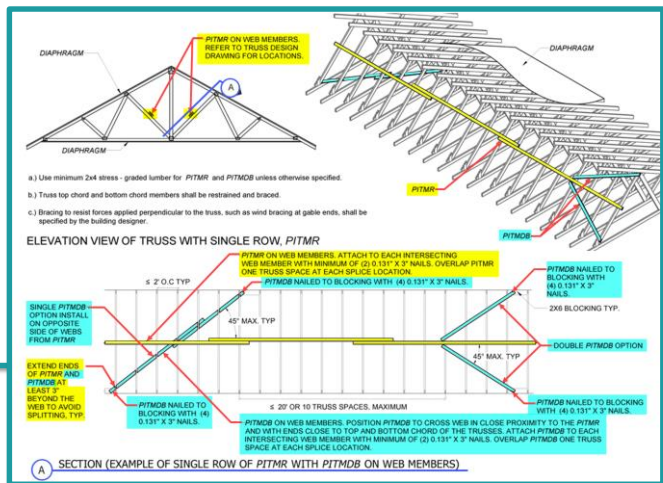
CHANGE SUMMARY: New details/figures have been added as a compliance option where permanent lateral restraint and diagonal bracing of individual wood truss members is specified on truss submittals.

SECTION 2303

MINIMUM STANDARDS AND QUALITY

2303.4.1.2 Permanent individual truss member restraint (PITMR) and permanent individual truss member diagonal bracing (PITMDB).

**FIGURE 2303.4.1.2(1)
PITMR AND PITMDB
FOR TRUSS WEB
MEMBERS REQUIRING
ONE ROW OF PITMR**

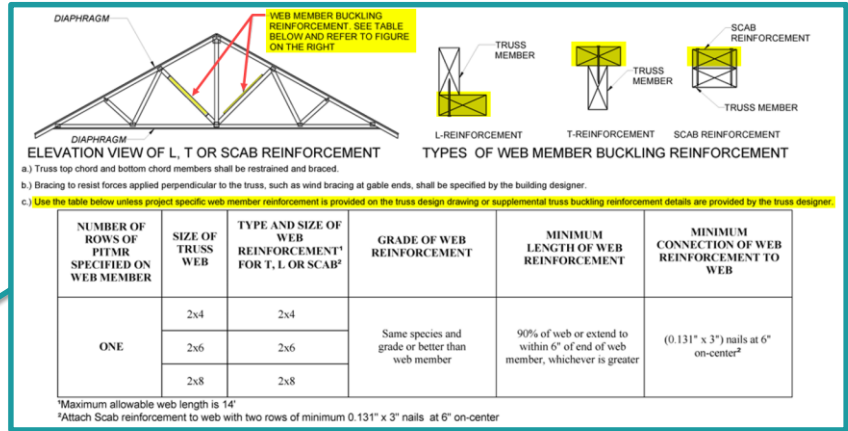


CHAPTER 23 – WOOD

CHANGE SUMMARY: New details/figures have been added as a compliance option where permanent lateral restraint and diagonal bracing of individual wood truss members is specified on truss submittals.

2303.4.1.2 Permanent individual truss member restraint (PITMR) and permanent individual truss member diagonal bracing (PITMDB).

FIGURE 2303.4.1.2(2) ALTERNATIVE INSTALLATION USING BUCKLING REINFORCEMENT FOR TRUSS WEB MEMBERS IN LIEU OF ONE ROW OF PITMR



CHAPTER 23 – WOOD

CHANGE SUMMARY: Additional fastener options have been added to Table 2304.10 and sheathing fastening patterns have been updated to current industry standards and ASCE 7-16 component and cladding wind loads.

TABLE 2304.10 FASTENING SCHEDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ^a	SPACING AND LOCATION	
		Edges (inches)	Intermediate supports (inches)
Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing ^a			
30. $3/8'' - 1/2''$	6d common or deformed ($2'' \times 0.113''$); or $2 \times 3/8'' \times 0.113''$ nail (subfloor and wall)	6	12
	8d common or deformed ($2 \times 1/2'' \times 0.131'' \times 0.281''$ head) (roof) or RSR5-01 ($2 \times 3/8'' \times 0.113''$) nail (roof) ^d	6 ^e	12 ^e
	$1 \times 3/4''$ 16 gage staple, $7/16''$ crown (subfloor and wall)	4	8
	$2 \times 3/8'' \times 0.113'' \times 0.266''$ head nail (roof)	4 ^f	8 ^f
	$1 \times 3/4''$ 16 gage staple, $7/16''$ crown (roof)	3 ^f	6 ^f
31. $19/32'' - 3/4''$	8d common ($2'' \times 0.131''$); or 6d deformed ($2'' \times 0.113''$) (subfloor and wall)	6	12
	8d common or deformed ($2 \times 1/2'' \times 0.131'' \times 0.281''$ head) (roof) or RSR5-01 ($2 \times 3/8'' \times 0.113''$) nail (roof) ^d	6 ^e	12 ^e
	$2 \times 3/8'' \times 0.113'' \times 0.266''$ head nail; or $2''$ 16 gage staple, $7/16''$ crown (subfloor and wall)	4	8

CHAPTER 23 – WOOD

CHANGE SUMMARY: New footnotes added to Table 2304.10 for clarification and to align with current industry standards and ASCE 7-16 component and cladding wind loads.

TABLE 2304.10 FASTENING SCHEDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER ^a	SPACING AND LOCATION
Wood structural panels (WSP), subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing ^a		

- a. ...
- b. ...
- c. ...
- d. ...
- e. Tabulated fastener requirements apply where the ultimate design wind speed is less than 140 mph. For wood structural panel roof sheathing attached to gable-end roof framing and to intermediate supports within 48 inches of roof edges and ridges, nails shall be spaced at 4 inches on center where the ultimate design wind speed is greater than 130 mph in Exposure B or greater than 110 mph in Exposure C. Spacing exceeding 6 inches on center at intermediate supports shall be permitted where the fastening is designed per the AWC NDS.
- f. Fastening is only permitted where the ultimate design wind speed is less than or equal to 110 mph.
- g. Nails and staples are carbon steel meeting the specifications of ASTM F1667. Connections using nails and staples of other materials, such as stainless steel, shall be designed by acceptable engineering practice or approved under Section 104.11.

CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SECTION 2305

GENERAL DESIGN REQUIREMENTS FOR LATERAL FORCE-RESISTING SYSTEMS

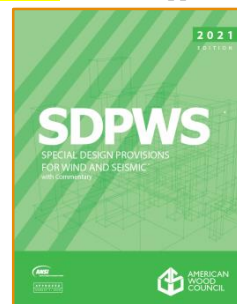
2305.1 General. Structures using wood-frame *shear walls* or wood-frame *diaphragms* to resist wind, seismic or other lateral *loads* shall be designed and constructed in accordance with **AWC SDPWS** and the applicable provisions of Sections 2305, 2306 and 2307.

FROM CHAPTER 35 REFERENCED STANDARDS

AWC

ANSI/AWC SPDWS—~~2015~~2021: Special Design Provisions for Wind and Seismic

awc.org/publications/2021-sdpws/



CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SDPWS 2021

Chapter 4

LATERAL FORCE-RESISTING SYSTEMS

4.1 General

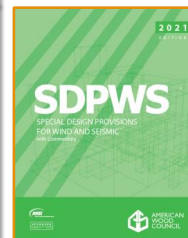
4.2 **Sheathed** Wood-Frame Diaphragms

4.3 **Sheathed** Wood-Frame Shear Walls

4.4 Wood Structural Panels Designed to Resist Combined Shear and Uplift from Wind

4.5 **Cross-Laminated Timber (CLT) Diaphragms**

4.6 **Cross-Laminated Timber (CLT) Shear Wall**



CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SDPWS 2021

Table 4.3A Nominal Unit Shear Capacities for Sheathed Wood-Frame Shear Walls ^{1,3,6}

Sheathing Material	Minimum Nominal Panel Thickness (in.)	Minimum Nail Bearing Length in Framing Member or Blocking, l_m (in.)	Nail Type & Size ⁹ Length (in.) x Shank diameter (in.) x Head diameter (in.)	Panel Edge Nail Spacing (in.)			
				6	4	3	2
				V_n (plf)	V_n (plf)	V_n (plf)	V_n (plf)
Wood Structural Panels – Sheathing ^{4,5}	5/16 3/8	1-1/4	6d common nail (2 x 0.113 x 0.266) ⁸	505	755	980	980
				560	840	1090	1090
	3/8 ² 7/16 ² 15/32	1-3/8	8d common nail (2-1/2 x 0.113 x 0.281) ⁸	615	895	1150	1485
				670	980	1260	1640
				730	1065	1370	1790
	15/32 19/32	1-1/2	10d common nail (3 x 0.148 x 0.312) ^{8,10}	870	1290	1680	2155
950				1430	1860	2435	

1. Nominal unit shear capacities shall be adjusted in accordance with [4.1.4](#) to determine...

10. Where tension force induced by shear wall overturning is resisted by a hold-down attached to the inside face of the end post, nominal unit shear capacity for shear walls using 10d common nails shall be multiplied by 0.92.

CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SDPWS 2021

4.1.4 Shear Capacities

4.1.4.1 For seismic design of diaphragms and shear walls, the ASD allowable shear capacity shall be determined by dividing the nominal shear capacity in 4.1.2 by the ASD reduction factor of 2.8 and the LRFD factored shear resistance shall be determined by multiplying the nominal shear capacity by a resistance factor, ϕ_p , of 0.50. No further increase shall be permitted.

4.1.4.2 For wind design of diaphragms and shear walls, the ASD allowable shear capacity shall be determined by dividing the nominal shear capacity in 4.1.2 by the ASD reduction factor of 2.0 and the LRFD factored shear resistance shall be determined by multiplying the nominal shear capacity by a resistance factor, ϕ_p , of 0.80. No further increases shall be permitted.

SEISMIC

$$v_{ASD} = \frac{v_n}{2.8}$$

$$v_{LRFD} = v_n(0.5)$$

WIND

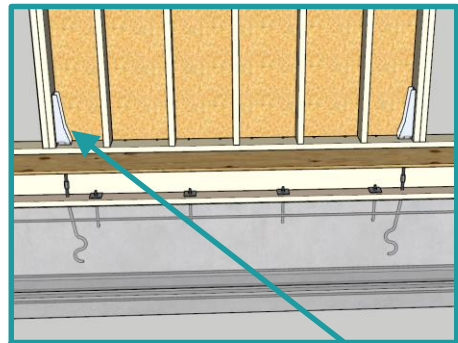
$$v_{ASD} = \frac{v_n}{2.0}$$

$$v_{LRFD} = v_n(0.8)$$

CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SDPWS 2021 - Table 4.3A Nominal Unit Shear Capacities for Sheathed Wood-Frame Shear Walls, **Footnote 10**



10. Where tension force induced by shear wall overturning is resisted by a hold-down attached to the inside face of the end post, nominal unit shear capacity for shear walls using 10d common nails shall be multiplied by 0.92.

CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC - 2021

4.5 Cross-Laminated Timber (CLT) Diaphragms

4.5.1 Application Requirements

4.5.2 Deflection

4.5.3 Unit Shear Capacity

4.5.4 Additional CLT Diaphragm Design Requirements

4.6 Cross-Laminated Timber (CLT) Shear Walls

4.6.1 Application

4.6.2 Deflection

4.6.3 Shear Capacities

APPENDIX B – Prescriptive Requirements for CLT Shear Walls



CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC - 2021

4.6 Cross-Laminated Timber (CLT) Shear Walls

4.6.3 Shear Capacities

4.6.3.1 ASD allowable shear capacity or LRFD factored shear resistance for CLT shear wall systems shall be determined in accordance with 4.1.1.

4.6.3.2 Nominal Unit Shear Capacities: Nominal unit shear capacities for CLT shear wall systems used to resist wind or seismic forces shall be in accordance with the requirements in Appendix B, where design and construction is in accordance with Appendix B.

Exception: Approved CLT shear wall systems, other than those in accordance with Appendix B, shall be permitted to resist wind forces, and to resist seismic forces in Seismic Design Category A (see 2.1.2) and in Seismic Design Category B where $R=1.5$, $C_d=1.5$ and $\Omega_o=2.5$, and with structural height limit of 65', unless other values are approved.

SAM 15-01: oregon.gov/bcd/codes-stand/Documents/sam-15-01-crosslaminatedtimber.pdf

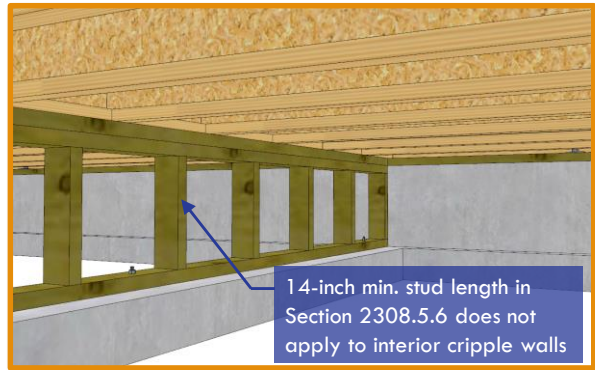
CHAPTER 23 – WOOD

CHANGE SUMMARY: The 2015 Special Design Provisions for Wind and Seismic standard has been replaced with the 2021 edition.

SECTION 2308

CONVENTIONAL LIGHT-FRAME CONSTRUCTION

2308.5.6 Cripple walls. Foundation *cripple walls* shall be framed of studs that are not less than the size of the studding above ~~and~~. *Exterior cripple wall studs shall be* not less than 14 inches (356 mm) in length, or shall be framed of solid blocking. Where exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional story. See Section 2308.6.6 for *cripple wall* bracing



CHAPTER 29 – PLUMBING SYSTEMS

CHANGE SUMMARY: Multiple model code clarifications and modifications have been made to the regulation of plumbing facilities to address issues of gender and access.

NOTES:

- Multiple changes to address nonseparated multiple-user facilities
- Privacy requirements for urinals
- Flexibility added for fixture count calculation at 100% rather than split
- Footnote added for Group R-2
- New allowance for Group S location flexibility and travel distance increase



CHAPTER 31 — SPECIAL CONSTRUCTION

CHANGE SUMMARY: Updated and reorganized the prescriptive rooftop solar provisions for clarity.

SECTION 3111 SOLAR ENERGY SYSTEMS

3111.3.5.3 Prescriptive installations. Rooftop-mounted installations on *Risk Category I* or *Risk Category II* structures of *conventional light-frame construction* that comply with this section shall qualify as prescriptive and shall not require an engineered design where all of the following criteria are met:

1. ~~Roof structure~~ Structure requirements:
 - 1.1. For other than detached one- and two-family dwellings and townhouses classified as Group R-3 and Group U occupancies...
 - 1.2 For detached one- and two-family dwellings and townhouses classified as Group R-3 and Group U occupancies, the following criteria shall be met...
2. Roof materials:
3. ~~Loading~~ Installation:
4. ~~Height~~ Loading:
5. ~~Submittal requirement~~ Attachments:
6. Height:
7. Submittal requirement:

CHAPTER 31 — SPECIAL CONSTRUCTION

CHANGE SUMMARY: Updated and reorganized the prescriptive rooftop solar provisions for clarity.

SECTION 3111 SOLAR ENERGY SYSTEMS

3111.3.5.3 Prescriptive installations. Rooftop-mounted installations on *Risk Category I* or *Risk Category II* structures of *conventional light-frame construction* that comply with this section shall qualify as prescriptive and shall not require an engineered design where all of the following criteria are met:

1. Structure requirements:
 - 1.1. For other than detached one- and two-family dwellings and townhouses classified as Group R-3 and Group U occupancies, the following criteria shall be met:...
 - 1.1.5 Existing roof rafters and ceiling joists comply with Sections 2308.7.1, 2308.7.2 and 2308.7.3. Where rafter spans, as determined by Section 2308.7.2, are based on purlins provided between the ridge and eave, such purlins shall be supported by braces to bearing partitions in accordance with Section 2308.7.7 and Figure 3111.3.5.3.1(1). Where ceiling joists do not run parallel to rafters, rafters are tied across with rafter ties complying with Section 2308.7.3.1.
 - 1.1.6 Existing valley and hip rafters comply with Section 2308.7.3 and are supported at the ridge by a brace to a bearing partition. Where roof rafters require purlins between the ridge and eave to comply with the rafter span tables, hip and valley rafters shall also be supported by a brace to a bearing partition.

CHAPTER 31 – SPECIAL CONSTRUCTION

CHANGE SUMMARY: Updated and reorganized the prescriptive rooftop solar provisions for clarity.

SECTION 3111 SOLAR ENERGY SYSTEMS

3111.3.5.3 Prescriptive installations. Rooftop-mounted installations on *Risk Category I* or *Risk Category II* structures of *conventional light-frame construction* that comply with this section shall qualify as prescriptive and shall not require an engineered design where all of the following criteria are met:

1. Structure requirements:

1.2. For detached one- and two-family dwellings and townhouses classified as Group R-3 and Group U occupancies, the following criteria shall be met:...

1.2.4. Existing rafters and ceiling joists comply with Sections R802.4.1, R802.5.1 and R802.5.2 of the *Residential Code*. Where rafter spans are based on purlins provided between the ridge and eave, such purlins shall be supported by braces to bearing partitions in accordance with Figure 3111.3.5.3.1(1) and Section R802.4.5 of the *Residential Code*.

1.2.5. Existing valley and hip rafters comply with Section R802.4.1 of the *Residential Code* and are supported at the ridge by a brace to a bearing partition. Where roof rafters require purlins between the ridge and eave to comply with the rafter span tables, hip and valley rafters shall also be supported by a brace to a bearing partition.

CHAPTER 31 – SPECIAL CONSTRUCTION

CHANGE SUMMARY: Updated and reorganized the prescriptive rooftop solar provisions for clarity.

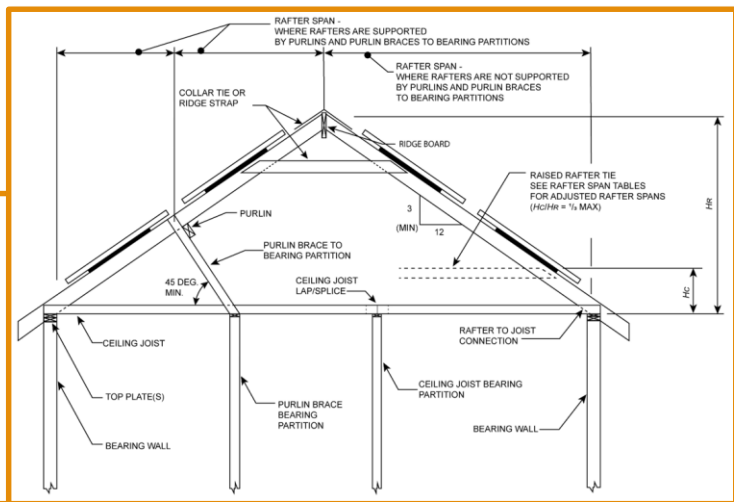
SECTION 3111 SOLAR ENERGY SYSTEMS

3111.3.5.3 Prescriptive installations.

H_C = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls.

H_R = Height of roof ridge measured vertically above the top of rafter support walls.

**FIGURE 3111.3.5.3(1)
BRACED ROOF RAFTERS FOR
PRESCRIPTIVE ROOFTOP-MOUNTED
PHOTOVOLTAIC PANEL SYSTEMS**



CHAPTER 31 — SPECIAL CONSTRUCTION

CHANGE SUMMARY: Updated and reorganized the prescriptive rooftop solar provisions for clarity.

SECTION 3111 SOLAR ENERGY SYSTEMS

3111.3.5.3 Prescriptive installations.

5. Attachments: *Photovoltaic modules or racking shall be directly attached to the roof framing or blocking...*

Exceptions:

2. Photovoltaic modules or racking shall be permitted to be attached directly to standing seam metal panels using clamps and roofing materials where all of the following criteria are met:

2.1. The allowable uplift capacity of clamps spaced greater than or equal to 48 inches (1219 mm) on center along a seam shall be not less than 115 pounds (52 kg). The allowable uplift capacity of clamps spaced less than 48 inches (1219 mm) on center along a seam shall be not less than 75 pounds (34 kg).

2.2. Spacing of clamps along a seam shall be not less than 24 inches (610 mm) on center and not more than 60 inches (1525 mm) on center. Clamp spacing perpendicular to seams shall be such that the spacing measurement along a seam multiplied by the spacing measurement perpendicular to seams is not greater than 10 square feet (0.93m²) in area.

CHAPTER 31 — SPECIAL CONSTRUCTION

CHANGE SUMMARY: Updated and reorganized the prescriptive rooftop solar provisions for clarity.

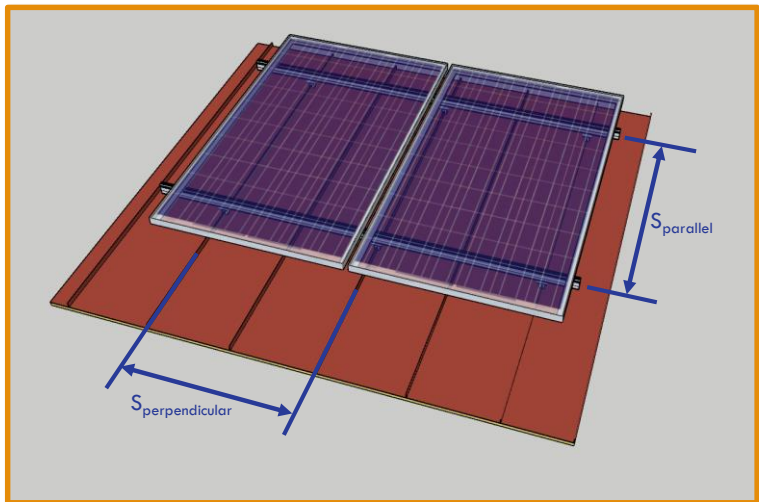
SECTION 3111 SOLAR ENERGY SYSTEMS

3111.3.5.3 Prescriptive installations.

Item 5, Exception 2.2:
Attachment to standing seam metal roofs

$$24'' \text{ o.c.} \leq S_{\text{parallel}} < 60'' \text{ o.c.}$$

$$S_{\text{parallel}} \times S_{\text{perpendicular}} \leq 10\text{ft}^2$$



CHAPTER 31 — SPECIAL CONSTRUCTION

CHANGE SUMMARY: A new model code section has been added to address the use of intermodal shipping containers as regulated buildings.

SECTION 3114 INTERMODAL SHIPPING CONTAINERS



3114.1 General. The provisions of Section 3114 and other applicable sections of this code shall apply to *intermodal shipping containers* that are repurposed for use as buildings or structures, or as a part of *buildings or structures*.

Exceptions:

1. Stationary storage battery arrays located in intermodal shipping containers complying with Chapter 4.
2. Intermodal shipping containers that are listed as equipment complying with the standard for equipment, such as air chillers, engine generators, modular data centers, and other similar equipment.
3. Intermodal shipping containers housing or supporting experimental equipment are exempt from the requirements of Section 3114, provided that they comply with the following:
 - 3.1. Such units shall be single stand-alone units supported at grade level and used only for occupancies as specified under Risk Category I in Table 1604.5.
 - 3.2. Such units are located a minimum of 8 feet (2438 mm) from adjacent structures, and are not connected to a fuel gas system or fuel gas utility.

CHAPTER 34 — EXISTING BUILDINGS

CHANGE SUMMARY: International Existing Building Code now integrated into OSSC Chapter 34

NOTES:

- 2021 IEBC now integrated into Chapter 34 in its entirety.
- Mostly editorial changes
- Definitions found in Chapter 2



CHAPTER 34 — EXISTING BUILDINGS

CHANGE SUMMARY: Oregon amendments intended to clarifying the allowance for continued use of buildings following vacancy

SECTION 3401.3.3 & 3401.3.4

3401.3.3 Discontinued use and vacancy. The continuation of a legal occupancy shall be permitted regardless of the length of vacancy or discontinuation of use provided such continuation is not subject to a required *change of occupancy*.

3401.3.4 Change of occupancy. A building shall not be used or occupied in whole or in part, and a *change of occupancy* of a building or portion thereof shall not be made until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other laws. Discontinued use of a legal occupancy, in accordance with Section 3401.3.3, shall not require issuance of a new certificate of occupancy upon continuation of the use. See Chapter 1 for certificate of occupancy requirements.



CHAPTER 34 — EXISTING BUILDINGS

CHANGE SUMMARY: Oregon amendment requiring notification to the local building official for repairs to fire protection or life safety systems.

SECTION 3401.4.1

3401.4.1 Permits required. Any owner or owner's authorized agent who intends to *repair*, add to, alter, relocate, or *change the occupancy* of a building shall first make application to the *building official* and obtain the required *permit*. Any owner or owner's authorized agent who intends to *repair an existing fire protection system or life safety system* shall first notify the *local building official* and obtain any necessary building permit, where required by the *municipality*.



CHAPTER 34 — EXISTING BUILDINGS

CHANGE SUMMARY: Oregon amendment intended to clarify when permits are not required for repairs.

SECTION 3401.5



3401.5 Repairs. Application or notice to the *building official* is not required for *repairs* to structures and items listed in Section 105.2, provided that such *repairs* do not include any of the following:

1. The removal or cutting away of any wall, partition, floor, ceiling or portion thereof.
2. The removal, modification or cutting of any structural beam or load-bearing support.
3. The removal or change of any required means of egress elements or rearrangement of parts of a building that would affect the existing egress path.
4. Any addition to, alteration of, replacement or relocation of any standpipe.

CHAPTER 34 — EXISTING BUILDINGS

CHANGE SUMMARY: Model code change clarifying the minimum horizontal and vertical separation requirements related to changes of occupancy

SECTION 3410.11.2



3410.11.2 Fire protection systems. *Fire protection systems* shall be provided in accordance with Sections [3410.11.2.1](#) and [3410.11.2.2](#).

3410.11.2.1 Fire sprinkler system. An *automatic sprinkler system* shall be provided where a *change in occupancy in a building or* within a space where there is a different fire protection system threshold requirement in Chapter 9 that requires an *automatic fire sprinkler system* to be provided based on the new occupancy in accordance with Chapter 9. The *installation of the automatic sprinkler system* shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the area of the *change of occupancy* by one of the following:

1. *Nonrated permanent partition and horizontal assemblies.*
2. *Fire partition.*
3. *Smoke partition.*
4. *Smoke barrier.*
5. *Fire barrier.*
6. *Fire wall.*

CHAPTER 34 — EXISTING BUILDINGS

CHANGE SUMMARY: Oregon amendment clarifying the performance compliance method is not allowed for Group R-3 occupancies constructed under the ORSC.

SECTION 3413.1.2



3413.1.2 Applicability. Existing buildings in which there is work involving additions, alterations or changes of occupancy shall be made to conform to the requirements of this [section](#) or the provisions of [Section 3406 through 3412](#). The provisions of Sections [3413.1.2.1](#) through [3413.1.2.6](#) shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R and S. These provisions shall also apply to Group U occupancies where such occupancies are undergoing a change of occupancy or a partial change in occupancy with separations in accordance with Section 3413.1.2.2. These provisions shall not apply to buildings with occupancies in Group H, I-1, I-3 or I-4 or Group R-3 occupancies constructed in accordance with the *Residential Code*.



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