RULE-MAKING ORDER
PERMANENT RULE ONLY

CR-103P (December 2017)
(Implements RCW 34.05.360)

CODE REVISER USE ONLY

OFFICE OF THE CODE REVISER
STATE OF WASHINGTON
FILED

DATE: January 04, 2023
TIME: 10:53 AM

WSR 23-02-073

Agency: State Building Code Council

Effective date of rule:

Permanent Rules

☐ 31 days after filing.

☒ Other (specify) July 1, 2023 **(If less than 31 days after filing, a specific finding under RCW 34.05.380(3) is required and should be stated below)**

Any other findings required by other provisions of law as precondition to adoption or effectiveness of rule?

☐ Yes ☒ No If Yes, explain:

Purpose: The purpose of this permanent rulemaking is to adopt the 2021 International Building Code (structural provisions), and the 2021 International Existing Building Code, published by the International Code Council, with state amendments to incorporate proposed changes as adopted by the Washington State Building Code Council on November 18, 2022. The rules provide increased clarity and life safety measures for building construction in Washington State. The implementation date is July 1, 2023.

Citation of rules affected by this order:

New: 11
Repealed:
Amended: 42
Suspended:

Statutory authority for adoption: RCW 19.27.031, RCW 19.27.074

Other authority: RCW 19.27.540

PERMANENT RULE (Including Expedited Rule Making)

Adopted under notice filed as WSR 22-17-151 on August 23, 2022 (date).

Describe any changes other than editing from proposed to adopted version:

WAC	Section	Change	Rationale/Discussion
WAC 51-50-1615	IBC 1615	Replaces the initial proposal filed with CR-102.	After the initial proposal was filed, the Washington Department of Natural Resources has finalized the development of tsunami design zone maps for all coastal areas of the state. The revised proposal adopts the latest tsunami hazard maps into the state building code and brings forward the latest published tsunami design zone requirements contained in the American Society of Civil Engineers Standard 7-22, which would otherwise be adopted as part of the 2024 International Building Code.
WAC 51-50-21070	IBC 2107.2	Removes Section 2107.2 and saves WAC 51-50-21070 as reserved.	After further review, it was considered that this section is no longer needed. The existing amendment is addressed in the model code. The existing amendment refers to TMS 402/ACI 530/ASCE 5 Section 2.1.8.7.1.1. This standard and this section are obsolete; the correct reference, as it appears in the model code, is TMS 402, Section 6.1.6.1.1.
WAC 51-50-2304	IBC 2304.11.3.1	Removes the phrase "discussion at committee level"	Editorial correction; this phrase was inadvertently added to the initial proposal.
WAC 51-50-480200	IEBC 202	Modifies the definitions for SUBSTANTIAL DAMAGE and SUBSTANTIAL IMPROVEMENT.	Both definitions are revised to provide an option to comply with the latest FEMA guidance or use of the Building Valuation Data. (See detailed rationale here).
WAC 51-50-480306	IEBC 306.7.1	Combines Option 1 and Option 2.	Two Options for modified language in Section 306.7.1 were initially proposed and filed with the CR-102. The Council voted to combine both options.

WAC 51-50-480401	IEBC 401.4	Modifies the language in Section 401.4 (deletes the phrase "or remaining foundation as approved by the code official) and adds a new exception.	The intent of the initial proposal (21-GP2-055) was to allow the reuse of existing foundations, where approved by the Code Official. This modification provides the specific language, so it is clear to the code user on the reuse of existing foundations.
WAC 51-50-480503	IEBC 503.13	The text is moved out of the exception into paragraph 2, section 2.1, and "where approved" is added to section 2.1. Adds sub-sections 2.1.1 and 2.1.2.	Clarifies the applicability of the proposal and overall improves it, it does not change its original intent. It reflects comments heard from the ICC committee during the April 2022 Committee Action Hearings in Rochester NY and includes another IEBC proposed change (EB68) that is anticipated to be incorporated in the 2024 IEBC. Identical changes are made in Section 805.4.
WAC 51-50-480805	IEBC 805.4	The text is moved out of the exception into paragraph 2, section 2.1, and "where approved" is added to section 2.1. Adds sub-sections 2.1.1 and 2.1.2.	Clarifies the applicability of the proposal and overall improves it, it does not change its original intent. It reflects comments heard from the ICC committee during the April 2022 Committee Action Hearings in Rochester NY and includes another IEBC proposal change (EB68) that is anticipated to be incorporated in the 2024 IEBC. Identical changes are made in Section 503.13.
WAC 51-50-481401	IEBC 1401.2	• Deletes references which no longer exists: 51-54 WAC, 51-57 WAC, 51-11WAC, 51-13WAC. • Adds the correct references: 51-54A WAC, 51-11C WAC, 51-11R WAC.	The modification is intended to correct references to building codes that no longer exist.

If a preliminary cost-benefit analysis was prepared under RCW 34.05.328, a final cost-benefit analysis is available by contacting:

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Other:

Note: If any category is left blank, it will be calculated as zero. No descriptive text.

Count by whole WAC sections only, from the WAC number through the history note. A section may be counted in more than one category.

The number of sections adopted in order to comply with:

Federal statute:	New	____	Amended	____	Repealed	____
Federal rules or standards:	New	____	Amended	____	Repealed	____
Recently enacted state statutes:	New	____	Amended	____	Repealed	____

The number of sections adopted at the request of a nongovernmental entity:

New	11	Amended	42	Repealed	____

The number of sections adopted on the agency's own initiative:

New	____	Amended	____	Repealed	____

The number of sections adopted in order to clarify, streamline, or reform agency procedures:

New	____	Amended	____	Repealed	____

The number of sections adopted using:

Negotiated rule making:	New	____	Amended	____	Repealed	____
Pilot rule making:	New	____	Amended	____	Repealed	____
Other alternative rule making:	New	____	Amended	____	Repealed	____

Date Adopted: November 18, 2022	**Signature:** 
Name: Tony Doan	
Title: Chair, State Building Code Council	

NEW SECTION

WAC 51-50-0107 Section 107—Construction documents.

107.2 Construction documents. Construction documents shall be in accordance with Sections 107.2.1 through 107.2.9.

107.2.9 Nonstructural components. Construction documents shall indicate if structural support and anchoring documentation for nonstructural components is part of the design submittal or a deferred submittal. The construction documents for nonstructural components shall at a minimum identify the following:

1. All nonstructural components required by ASCE 7 Section 13.1.3 to have an importance factor of, Ip, of 1.5.

2. All mechanical equipment, fire sprinkler equipment, electrical equipment, and other nonstructural components required by ASCE 7 Section 13.1.3 Item 1 to be operational following a seismic event that require designated seismic systems per ASCE 7 Section 13.2.2 and special inspections per Section 1705.13.4.

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1604 ((~~Section 1604 General design requirements.~~)) Reserved.

((**~~Table 1604.5~~**
~~Risk Category of Buildings and Other Structures~~

~~RISK CATEGORY~~	~~NATURE OF OCCUPANCY~~
~~I~~	~~Buildings and other structures that represent a low hazard to human life in the event of failure including, but not limited to:~~ ~~• Agricultural facilities.~~ ~~• Certain temporary facilities.~~ ~~• Minor storage facilities.~~
~~II~~	~~Buildings and other structures except those listed in Risk Categories I, III, and IV.~~
~~III~~	~~Buildings and other structures that represent a substantial hazard to human life in the event of failure including, but not limited to:~~ ~~• Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.~~ ~~• Buildings and other structures containing Group E or Group I-4 occupancies with an occupant load greater than 250.~~ ~~• Buildings and other structures containing educational occupancies for students above the 12th grade with an occupant load greater than 500.~~

RISK CATEGORY	NATURE OF OCCUPANCY
	• Group I-2 occupancies with an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities. • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000.[a] • Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the *International Fire Code*; and Are sufficient to pose a threat to the public if released.[b]
IV	Buildings and other structures designated as essential facilities including, but not limited to: • Group I-2 occupancies having surgery or emergency treatment facilities. • Structures that house private emergency power generation, medical gas systems, HVAC systems or related infrastructure systems that support emergency surgery or emergency treatment. • Fire, rescue, ambulance and police stations, and emergency vehicle garages. • Designated earthquake, hurricane, or other emergency shelters. • Designated emergency preparedness, communications and operations centers, and other facilities required for emergency response. • Power-generating stations and other public utility facilities required as emergency backup facilities for Risk Category IV structures. • Buildings and other structures containing quantities of highly toxic materials that: Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the *International Fire Code*; and Are sufficient to pose a threat to the public if released.[b]

~~RISK CATEGORY~~	~~NATURE OF OCCUPANCY~~
	~~• Aviation control towers, air traffic control centers, and emergency aircraft hangars.~~ ~~• Buildings and other structures having critical national defense functions.~~ ~~• Water storage facilities and pump structures required to maintain water pressure for fire suppression.~~

~~a For purposes of occupant load calculation, occupancies required by Table 1004.1.2 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.~~

~~b Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic or explosive materials is permitted to be reduced to Risk Category II, provided it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.~~))

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-1613 Section 1613—Earthquake loads.

1613.4 Amendments to ASCE 7. The provisions of Section 1613.4 shall be permitted as an amendment to the relevant provisions of ASCE 7. The text of ASCE 7 shall be amended as indicated in Sections 1613.4.1 through ((~~1613.4.2~~)) 1613.4.6.

1613.4.1 ASCE 7 Section 12.2.5.4. Amend ASCE 7 Section 12.2.5.4 as follows:

12.2.5.4 Increased structural height limit for steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls, and special reinforced concrete shear walls. The limits on height, h_n, in Table 12.2-1 are permitted to be increased from 160 ft (50 m) to 240 ft (75 m) for structures assigned to Seismic Design Categories D or E and from 100 ft (30 m) to 160 ft (50 m) for structures assigned to Seismic Design Category F, provided that the seismic force-resisting systems are limited to steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls, or special reinforced concrete cast-in-place shear walls and all of the following requirements are met:

1. The structure shall not have an extreme torsional irregularity as defined in Table 12.3-1 (horizontal structural irregularity Type 1b).

2. The steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls or special reinforced concrete shear walls in any one plane shall resist no more than 60 percent of the total seismic forces in each direction, neglecting accidental torsional effects.

3. Where floor and roof diaphragms transfer forces from the vertical seismic force-resisting elements above the diaphragm to other

vertical force-resisting elements below the diaphragm, these in-plane transfer forces shall be amplified by the overstrength factor, Ω_o for the design of the diaphragm flexure, shear, and collectors.

4. The earthquake force demands in foundation mat slabs, grade beams, and pile caps supporting braced frames and/or walls arranged to form a shear-resisting core shall be amplified by 2 for shear and 1.5 for flexure. The redundancy factor, ρ, applies and shall be the same as that used for the structure in accordance with Section 12.3.4.

((~~5. The earthquake shear force demands in special reinforced concrete shear walls shall be amplified by the over-strength factor, Ω_o.~~))

1613.4.2 ASCE 7 Section 12.6. Amend ASCE 7 Section 12.6 and Table 12.6-1 to read as follows:

12.6 ANALYSIS PROCEDURE SELECTION

12.6.1 Analysis procedure. The structural analysis required by Chapter 12 shall consist of one of the types permitted in Table 12.6-1, based on the structure's seismic design category, structural system, dynamic properties, and regularity, or with the approval of the authority having jurisdiction, an alternative generally accepted procedure is permitted to be used. The analysis procedure selected shall be completed in accordance with the requirements of the corresponding section referenced in Table 12.6-1.

Table 12.6-1

Permitted Analytical Procedures

Seismic Design Category	Structural Characteristics	Equivalent Lateral Force Procedure, Section 12.8[a]	Modal Response Spectrum Analysis, Section 12.9.1, or Linear Response History Analysis, Section 12.9.2	Nonlinear Response History Procedures, Chapter 16[a]
B, C	All structures	P	P	P
D, E, F	Risk Category I or II buildings not exceeding two stories above the base	P	P	P
	Structures of light frame construction	P	P	P
	Structures with no structural irregularities and not exceeding 160 ft in structural height	P	P	P
	Structures exceeding 160 ft in structural height with no structural irregularities and with $T < 3.5Ts$	P	P	P
	Structures not exceeding 160 ft in structural height and having only horizontal irregularities of Type 2, 3, 4, or 5 in Table 12.3-1 or vertical irregularities of Type 4, 5a, or 5b in Table 12.3-2	P	P	P
	All other structures ≤ 240 ft in height	NP	P	P
	All structures > 240 ft in height	NP	NP	P[c]

[a] P: Permitted; NP: Not Permitted; $Ts = S_{D1}/S_{DS}$.

1613.4.3 ASCE 7 Section 11.2. Amend ASCE 7 Section 11.2 to include the following definition:

USGS SEISMIC DESIGN GEODATABASE: A U.S. Geological Survey (USGS) database of geocoded values of seismic design parameters and geocoded sets of multiperiod 5%-damped risk-targeted maximum considered earthquake (MCER) response spectra. The parameters obtained from this database may only be used where referenced by Section 11.4.8.1.

User Note: The USGS Seismic Design Geodatabase is intended to be accessed through a USGS Seismic Design web service that allows the user to specify the site location, by latitude and longitude, and the site class to obtain the seismic design data. The USGS web service spatially interpolates between the gridded data of the USGS geodatabase. Both the USGS geodatabase and the USGS web service can be accessed at https://doi.org/10.5066/F7NK3C76. The USGS Seismic Design Geodatabase is available at the ASCE 7 Hazard Tool https://asce7hazardtool.online/ or an approved equivalent.

1613.4.4 ASCE 7 Section 11.4.8. Amend ASCE 7 Section 11.4.8 to include the following section:

11.4.8.1 Multiperiod design response spectrum. As an alternative to the ground motion hazard analysis requirements of Section 11.4.8, and suitable for all structures other than those designated Site Class F (unless exempted in accordance with Section 20.3.1), a multiperiod design response spectrum may be developed as follows:

1. For exclusive use with the USGS Seismic Design Geodatabase in accordance with this section, the site class shall be determined per Section 20.6.

2. Where a multiperiod design response spectrum is developed in accordance with this section, the parameters S_M, S_{M1}, S_D, S_{D1}, and T_L as obtained by the USGS Seismic Design Geodatabase shall be used for all applications of these parameters in this standard.

3. The S_S and S_1 parameters obtained by the USGS Seismic Design Geodatabase are only permitted to be used in development of the multiperiod design response spectrum and are not permitted to be used in other applications in this standard. The mapped parameters S_S and S_1 as determined by Section 11.4.2 and peak ground acceleration parameter PGA_M as determined by Section 11.8.3 shall be used for all other applications in this standard.

4. At discrete values of period, T, equal to 0.0s, 0.01s, 0.02s, 0.03s, 0.05s, 0.075s, 0.1s, 0.15s, 0.2s, 0.25s, 0.3s, 0.4s, 0.5s, 0.75s, 1.0s, 1.5s, 2.0s, 3.0s, 4.0s, 5.0s, 7.5s, and 10.0s, the 5%-damped design spectral response acceleration parameter, S_a, shall be taken as 2/3 of the multiperiod 5%-damped MCER response spectrum from the USGS Seismic Design Geodatabase for the applicable site class.

5. At each response period, T, less than 10.0s and not equal to one of the discrete values of period, T, listed in Item 4 above, S_a, shall be determined by linear interpolation between values of S_a, of Item 4 above.

6. At each response period, T, greater than 10.0s, S_a shall be taken as the value of S_a at the period of 10.0s, factored by $10/T$, where the value of T is less than or equal to that of the long-period transition period, T_L, and shall be taken as the value of S_a at the

period of 10.0s factored by $10T_L/T^2$, where the value of T is greater than that of the long-period transition period, T_L.

7. Where an MCER response spectrum is required, it shall be determined by multiplying the multiperiod design response spectrum by 1.5.

8. For use with the equivalent lateral force procedure, the spectral acceleration S_a at T shall be permitted to replace S_{D1}/T in Equation (12.8-3) and S_{D1} T_L/T^2 in Equation (12.8-4).

1613.4.5 ASCE 7 Section 20.6. Amend ASCE 7 Chapter 20 to include the following section:

Section 20.6 Site classification procedure for use with Section 11.4.8.1. For exclusive use in determining the multiperiod design response spectrum and associated spectral parameters in accordance with Section 11.4.8.1, the site class shall be determined in accordance with this section. For all other applications in this standard the site class shall be determined per Section 20.1.

20.6.1 Site classification. The site soil shall be classified in accordance with Table 20.6-1 and Section 20.6.2 based on the average shear wave velocity parameter, $\bar{v}_s$, which is derived from the measured shear wave velocity profile from the ground surface to a depth of 100 ft (30 m). Where shear wave velocity is not measured, appropriate generalized correlations between shear wave velocity and standard penetration test (SPT) blow counts, cone penetration test (CPT) tip resistance, shear strength, or other geotechnical parameters shall be used to obtain an estimated shear wave velocity profile, as described in Section 20.6.3. Where site-specific data (measured shear wave velocities or other geotechnical data that can be used to estimate shear wave velocity) are available only to a maximum depth less than 100 ft (30 m), $\bar{v}_s$ shall be estimated as described in Section 20.6.3.

Where the soil properties are not known in sufficient detail to determine the site class, the most critical site conditions of Site Class C, Site Class CD and Site Class D, as defined in Section 20.6.2, shall be used unless the authority having jurisdiction or geotechnical data determine that Site Class DE, E or F soils are present at the site. Site Classes A and B shall not be assigned to a site if there is more than 10 ft (3.1 m) of soil between the rock surface and the bottom of the spread footing or mat foundation.

20.6.2 Site class definitions. Site class types shall be assigned in accordance with the definitions provided in Table 20.6.2-1 and this section.

20.6.2.1 Soft clay Site Class E. Where a site does not qualify under the criteria for Site Class F per Section 20.3.1 and there is a total thickness of soft clay greater than 10 ft (3 m), where a soft clay layer is defined by s_u<500psf (s_u<25 kPa), $w \geq 40\%$, and $PI > 20$, it shall be classified as Site Class E. This classification is made regardless of $\bar{v}_s$, as computed in Section 20.4.

20.6.2.2 Site Classes C, CD, D, DE and E. The assignment of Site Class C, CD, D, DE and E soils shall be made based on the average shear wave velocity, which is derived from the site shear wave velocity profile from the ground surface to a depth of 100 ft (30 m), as described in Section 20.4.

20.6.2.3 Site Classes B and BC (medium hard and soft rock). Site Class B can only be assigned to a site on the basis of shear wave velocity measured on site. If shear wave velocity data are not available and the site condition is estimated by a geotechnical engineer, engineering geologist, or seismologist as Site Class B or BC on the basis of site geology, consisting of competent rock with moderate fracturing and weathering, the site shall be classified as Site Class BC. Softer and more highly fractured and weathered rock shall either be measured on site for shear wave velocity or classified as Site Class C.

20.6.2.4 Site Class A (hard rock). The hard rock, Site Class A, category shall be supported by shear wave velocity measurement, either on site or on profiles of the same rock type in the same formation with an equal or greater degree of weathering and fracturing. Where hard rock conditions are known to be continuous to a depth of 100 ft (30 m), surficial shear wave velocity measurements to maximum depths less than 100 ft are permitted to be extrapolated to assess $\bar{v}_s$.

Table 20.6.2-1 Site Classification

Site Class	$\bar{v}_s$ Calculated Using Measured or Estimated Shear Wave Velocity Profile (ft/s)
A. Hard Rock	> 5,000
B. Medium Hard Rock	> 3,000 to 5,000
BC. Soft Rock	> 2,100 to 3,000
C. Very Dense Sand or Hard Clay	> 1,450 to 2,100
CD. Dense Sand or Very Stiff Clay	> 1,000 to 1,450
D. Medium Dense Sand or Stiff Clay	> 700 to 1,000
DE. Loose Sand or Medium Stiff Clay	> 500 to 700
E. Very Loose Sand or Soft Clay	≤ 500

20.6.3 Estimation of shear wave velocity profiles. Where measured shear wave velocity data are not available, shear wave velocity shall be estimated as a function of depth using correlations with suitable geotechnical parameters, including standard penetration test (SPT) blow counts, shear strength, overburden pressure, void ratio, or cone penetration test (CPT) tip resistance, measured at the site.

Site class based on estimated values of $\bar{v}_s$ shall be derived using $\bar{v}_s$, $\bar{v}_s/1.3$, and $1.3\bar{v}_s$ when correlation models are used to derive shear wave velocities. Where correlations derived for specific local regions can be demonstrated to have greater accuracy, factors less than 1.3 can be used if approved by the authority having jurisdiction. If the different average velocities result in different site classes per Table 20.6.2-1, the most critical of the site classes for ground motion analysis at each period shall be used.

Where the available data used to establish the shear wave velocity profile extends to depths less than 100 ft (30 m) but more than 50 ft (15 m), and the site geology is such that soft layers are unlikely to be encountered between 50 and 100 ft, the shear wave velocity of the last layer in the profile shall be extended to 100 ft for the calculation of $\bar{v}_s$ in Equation (20.4-1). Where the data does not extend to depths of 50 ft (15 m), default site classes, as described in Section 20.6.1, shall be used unless another site class can be justified on the basis of the site geology.

1613.4.6 ASCE 7 Section 21.3.1. Amend ASCE 7 Section 21.3 to include the following section:

Section 21.3.1 Alternate minimum design spectral response accelerations. As an alternate approach to Section 21.3, the lower limit of S_a is permitted to be determined according to this section. The design spectral response acceleration at any period shall not be taken less than 80% of the multiperiod design response spectrum as determined by Section 11.4.8.1.

For sites classified as Site Class F requiring site-specific analysis in accordance with Section 11.4.8, the design spectral response acceleration at any period shall not be less than 80% of S_a determined for Site Class E.

EXCEPTION: Where a different site class can be justified using the site-specific classification procedures in accordance with Section 20.6.2.2, a lower limit of 80% of S_a for the justified site class shall be permitted to be used.

AMENDATORY SECTION (Amending WSR 21-12-075, filed 5/28/21, effective 6/28/21)

WAC 51-50-1615 Tsunami loads.

((~~**1615.1 General.** The design and construction of Risk Category III and IV buildings and structures located in the Tsunami Design Zones shall be in accordance with Chapter 6 of ASCE 7, except as modified by this code.~~

~~USER NOTE:~~ ~~The intent of the Washington state amendments to ASCE 7 Chapter 6 (Tsunami Loads and Effects) is to require use of the Washington Tsunami Design maps to determine inundation limits, i.e., when a site is within a tsunami design zone, where those maps are available. If they are not available for a given site, ASCE 7 maps are to be used. For sites where the Washington state department of natural resources has parameters for tsunami inundation depth and flow velocity available, those parameters are required to be used in the energy grade line analysis methodology, and as a basis for comparison in the probabilistic tsunami hazard analysis in this chapter.~~

~~**1615.2 Modifications to ASCE 7.** The text of Chapter 6 of ASCE 7 shall be modified as indicated in this section.~~

~~**1615.2.1 ASCE 7 Section 6.1.1.** Modify the third paragraph and its exception in ASCE 7 Section 6.1.1 to read as follows:~~

~~The Tsunami Design Zone shall be determined using the Washington Tsunami Design Zone maps (WA-TDZ). The WA-TDZ maps are available at https://www.dnr.wa.gov/wa-tdz. For areas not covered by the extent of the WA-TDZ maps, the Tsunami Design Zone shall be determined using the ASCE Tsunami Design Geodatabase of geocoded reference points shown in Fig. 6.1-1. The ASCE Tsunami Design Geodatabase of geocoded reference points of runup and associated inundation Limits of the Tsunami Design Zone is available at http://asce7tsunami.online.~~

~~EXCEPTION:~~ ~~For coastal regions subject to tsunami inundation and not covered by WA-TDZ maps or Fig. 6.1-1, Tsunami Design Zone, inundation limits, and runup elevations shall be determined using the site-specific procedures of Section 6.7, or for Tsunami Risk Category II or III structures, determined in accordance with the procedures of Section 6.5.1.1 using Fig. 6.7-1.~~

~~**1615.2.2 ASCE 7 Section 6.1.1.** Add new fifth paragraph and user note to ASCE 7 Section 6.1.1 to read as follows:~~

~~Whenever a Tsunami Design Zone or Fig. 6.1-1 is referenced in ASCE 7 Chapter 6, it shall include the WA-TDZ maps, within the extent of those maps.~~

~~USER NOTE:~~ ~~Tsunami inundation depths and flow velocities may be obtained from the Washington state department of natural resources. See https://www.dnr.wa.gov/wa-tdz.~~

~~**1615.2.3 ASCE 7 Section 6.2.** Modify ASCE 7 Section 6.2 definitions to read as follows:~~

MAXIMUM CONSIDERED TSUNAMI: A probabilistic tsunami having a 2% probability of being exceeded in a 50-year period or a 2,475-year mean recurrence, or a deterministic assessment considering the maximum tsunami that can reasonably be expected to affect a site.

TSUNAMI DESIGN ZONE MAP: The Washington Tsunami Design Zone maps (WA-TDZ) designating the potential horizontal inundation limit of the Maximum Considered Tsunami, or outside of the extent of WA-TDZ maps, the map given in Fig. 6.1-1.

1615.2.4 ASCE 7 Section 6.2. Add new definitions to ASCE 7 Section 6.2 to read as follows:

SHORELINE AMPLITUDE: The Maximum Considered Tsunami amplitude at the shoreline, where the shoreline is determined by vertical datum in North American Vertical Datum (NAVD 88).

WASHINGTON TSUNAMI DESIGN ZONE MAP (WA-TDZ): The Washington department of natural resources maps of potential tsunami inundation limits for the Maximum Considered Tsunami, designated as follows:

Anacortes Bellingham area	MS 2018-02 Anacortes Bellingham
Elliott Bay Seattle	OFR 2003-14
Everett area	OFR 2014-03
Port Angeles and Port Townsend area	MS 2018-03 Port Angeles and Port Townsend
San Juan Islands	MS 2016-01
Southern Washington Coast	MS 2018-01
Tacoma area	OFR 2009-9

1615.2.5 ASCE 7 Section 6.5.1. Add new second paragraph to ASCE 7 Section 6.5.1 to read as follows:

6.5.1 Tsunami Risk Category II and III buildings and other structures. The Maximum Considered Tsunami inundation depth and tsunami flow velocity characteristics at a Tsunami Risk Category II or III building or other structure shall be determined by using the Energy Grade Line Analysis of Section 6.6 using the inundation limit and runup elevation of the Maximum Considered Tsunami given in Fig. 6.1-1.

Where tsunami inundation depth and flow velocity characteristics are available from the Washington state department of natural resources, those parameters shall be used to determine design forces in the Energy Grade Line Analysis in Section 6.6.

1615.2.6 ASCE 7 Section 6.5.1.1. Modify the first paragraph of ASCE 7 Section 6.5.1.1 to read as follows:

6.5.1.1 Runup evaluation for areas where no map values are given. For Tsunami Risk Category II and III buildings and other structures where no mapped inundation limit is shown in the Tsunami Design Zone map, the ratio of tsunami runup elevation above Mean High Water Level to Offshore Tsunami Amplitude, R/HT, shall be permitted to be determined using the surf similarity parameter ξ100, according to Eqs. (6.5-2a, b, c, d, or e) and Fig. 6.5-1.

1615.2.7 ASCE 7 Section 6.5.2. Add new second paragraph to ASCE 7 Section 6.5.2 to read as follows:

6.5.2 Tsunami Risk Category IV buildings and other structures. The Energy Grade Line Analysis of Section 6.6 shall be performed for Tsunami Risk Category IV buildings and other structures, and the site-specific Probabilistic Tsunami Hazard Analysis (PTHA) of Section 6.7

shall also be performed. Site-specific velocities determined by site-specific PTHA determined to be less than the Energy Grade Line Analysis shall be subject to the limitation in Section 6.7.6.8. Site-specific velocities determined to be greater than the Energy Grade Line Analysis shall be used.

EXCEPTIONS: For structures other than Tsunami Vertical Evacuation Refuge Structures, a site-specific Probabilistic Tsunami Hazard Analysis need not be performed where the inundation depth resulting from the Energy Grade Line Analysis is determined to be less than 12 ft (3.66 m) at any point within the location of the Tsunami Risk Category IV structure.
Where tsunami inundation depths and flow velocities are available for a site from the Washington state department of natural resources, those parameters shall be used as the basis of comparison for the PTHA above and to determine whether the exception applies, in lieu of the Energy Grade Line Analysis.

1615.2.8 ASCE 7 Section 6.6.1. Add new third paragraph to ASCE 7 Section 6.6.1 to read as follows:

6.6.1 Maximum inundation depth and flow velocities based on runup. The maximum inundation depths and flow velocities associated with the stages of tsunami flooding shall be determined in accordance with Section 6.6.2. Calculated flow velocity shall not be taken as less than 10 ft/s (3.0 m/s) and need not be taken as greater than the lesser of $1.5(gh_{max})^{1/2}$ and 50 ft/s (15.2 m/s).

Where the maximum topographic elevation along the topographic transect between the shoreline and the inundation limit is greater than the runup elevation, one of the following methods shall be used:

1. The site-specific procedure of Section 6.7.6 shall be used to determine inundation depth and flow velocities at the site, subject to the above range of calculated velocities.

2. For determination of the inundation depth and flow velocity at the site, the procedure of Section 6.6.2, Energy Grade Line Analysis, shall be used, assuming a runup elevation and horizontal inundation limit that has at least 100% of the maximum topographic elevation along the topographic transect.

Where tsunami inundation depths and flow velocities are available from Washington state department of natural resources, those parameters shall be used to determine design forces in the Energy Grade Line Analysis in Section 6.6.2.

1615.2.9 ASCE 7 Section 6.7. Modify ASCE 7 Section 6.7 and add a user note to read as follows:

When required by Section 6.5, the inundation depths and flow velocities shall be determined by site-specific inundation studies complying with the requirements of this section. Site-specific analyses shall use an integrated generation, propagation, and inundation model that replicates the given offshore tsunami waveform amplitude and period from the seismic sources given in Section 6.7.2.

USER NOTE: Washington Tsunami Design Zone maps and inundation depths and flow velocities from Washington state department of natural resources are based on an integrated generation, propagation, and inundation model replicating waveforms from the seismic sources specific to Washington state. Model data can be obtained by contacting Washington state department of natural resources. See https://www.dnr.wa.gov/wa-tdz.

1615.2.10 ASCE 7 Section 6.7.5.1, Item 4. Modify ASCE 7 Section 6.7.5.1, Item 4 to read as follows:

6.7.5.1 Offshore tsunami amplitude for distant seismic sources. Offshore tsunami amplitude shall be probabilistically determined in accordance with the following:

4. The value of tsunami wave amplitude shall be not less than 80% of the shoreline amplitude value associated with the Washington state inundation models as measured in the direction of the incoming wave propagation.

1615.2.11 ASCE 7 Table 6.7-2. Modify ASCE 7 Table 6.7-2 to read as follows:

~~**Table 6.7-2**~~

~~**Maximum Moment Magnitude**~~

~~Subduction Zone~~	~~Moment Magnitude M_{Wmax}~~
~~Alaskan-Aleutian~~	~~9.2~~
~~Cascadia~~	~~9.0~~
~~Chile-Peru~~	~~9.5~~
~~Izu-Bonin-Mariana~~	~~9.0~~
~~Kamchatka-Kurile and Japan Trench~~	~~9.4~~

~~**1615.2.12 ASCE 7 Section 6.7.5.2.** Modify ASCE 7 Section 6.7.5.2 to read as follows:~~

~~**6.7.5.2 Direct computation of probabilistic inundation and runup.** It shall be permitted to compute probabilistic inundation and runup directly from a probabilistic set of sources, source characterizations, and uncertainties consistent with Section 6.7.2, Section 6.7.4, and the computing conditions set out in Section 6.7.6. The shoreline amplitude values computed shall not be lower than 80% of the shoreline amplitude value associated with the Washington state inundation models as measured in the direction of the incoming wave propagation.~~

~~**1615.2.13 ASCE 7 Section 6.7.6.2.** Modify ASCE 7 Section 6.7.6.2 and add a user note to read as follows:~~

~~**6.7.6.2 Seismic subsidence before tsunami arrival.** Where the seismic source is a local earthquake event, the Maximum Considered Tsunami inundation shall be determined for an overall elevation subsidence value shown in Fig. 6.7-3(a) and 6.7-3(b) or shall be directly computed for the seismic source mechanism. The GIS digital map layers of subsidence are available in the ASCE Tsunami Design Geodatabase at http://asce7tsunami.online.~~

~~USER NOTE: The WA-TDZ maps include computed subsidence in the inundation. Subsidence data may be obtained from the Washington state department of natural resources. See https://www.dnr.wa.gov/wa-tdz.~~

~~**1615.2.14 ASCE 7 Section 6.8.9.** Modify the first sentence of ASCE 7 Section 6.8.9 to read as follows:~~

~~**6.8.9 Seismic effects on the foundations preceding maximum considered tsunami.** Where designated in the Tsunami Design Zone map as a site subject to a tsunami from a local earthquake, the structure shall be designed for the preceding coseismic effects.~~))

1615.1 General. The design and construction of Risk Category III and IV buildings and structures located in the Tsunami Design Zones shall be in accordance with Chapter 6 of ASCE 7-22, except as modified by this code. Wherever ASCE 7 is referenced herein, it shall refer to ASCE 7-22, within the extent of ASCE 7 Chapter 6 and WAC 51-50-1615.

USER NOTE: The intent of the Washington state amendments to ASCE 7 Chapter 6 (Tsunami Loads and Effects) is to require use of the Washington Tsunami Design Zone maps to determine inundation limits, i.e., when a site is within a tsunami design zone. The Washington state department of natural resources has parameters for tsunami inundation depth and flow velocity available for all of Washington's coastal waters and tidally influenced riverine systems (WA-TDZ). These parameters are required to be used in lieu of ASCE Tsunami Design Geodatabase, and as a basis for comparison in the probabilistic tsunami hazard analysis in this chapter.

1615.2 Modifications to ASCE 7. The text of Chapter 6 of ASCE 7 shall be modified as indicated in this section.

1615.2.1 ASCE 7 Section 6.1.1. Replace the third paragraph of ASCE 7 Section 6.1.1 with the following and remove the associated exception:

The Tsunami Design Zone shall be determined using the Washington Tsunami Design Zone maps (WA-TDZ). The WA-TDZ maps are available at https://www.dnr.wa.gov/wa-tdz.

1615.2.2 ASCE 7 Section 6.1.1. Add new fifth paragraph and user note to ASCE 7 Section 6.1.1 to read as follows:

Whenever a Tsunami Design Zone or Fig. 6.1-1 is referenced in ASCE 7 Chapter 6, the WA-TDZ maps shall be used.

USER NOTE: Tsunami design zone and design parameters may be obtained from the Washington state department of natural resources. See https://www.dnr.wa.gov/wa-tdz.

1615.2.3 ASCE 7 Section 6.2. Modify ASCE 7 Section 6.2 definitions to read as follows:

ASCE TSUNAMI DESIGN GEODATABASE: Not Adopted.

USER NOTE: The ASCE tsunami design geodatabase is not adopted for design purposes in Washington state.

MAXIMUM CONSIDERED TSUNAMI: A probabilistic tsunami having a two percent probability of being exceeded in a 50-year period or a 2,475-year mean recurrence, or a deterministic assessment considering the maximum tsunami that can reasonably be expected to affect a site.

TSUNAMI DESIGN ZONE MAP: The Washington Tsunami Design Zone maps (WA-TDZ) designating the potential horizontal inundation limit of the Maximum Considered Tsunami found at www.dnr.wa.gov/wa-tdz.

1615.2.4 ASCE 7 Section 6.2. Add new definitions to ASCE 7 Section 6.2 to read as follows:

WASHINGTON TSUNAMI DESIGN ZONE MAP (WA-TDZ): The Washington department of natural resources maps of potential tsunami inundation limits for the Maximum Considered Tsunami, designated as follows:

Columbia River	DOGAMI SP-51 (L1 scenario) adopted by WA DNR
Outer Coast and Strait area	MS 2022-01
Port Townsend	MS 2018-03 (partially superseded by MS 2022-01)
Puget Sound	MS 2021-01 (revised 2022)
San Juan Islands	MS 2016-01 (partially superseded on its eastern edge by MS 2021-01)
Southern Washington Coast	MS 2018-01

The Washington state department of natural resources geodatabase of design parameters for tsunami inundation depth, flow velocity, offshore tsunami amplitude, predominant period, and tsunami design zone maps for a maximum considered tsunami is available at the Washington TDZ website (https://www.dnr.wa.gov/wa-tdz).

1615.2.5 ASCE 7 Section 6.5.1. Add new second paragraph to ASCE 7 Section 6.5.1 to read as follows:

6.5.1 Tsunami Risk Category II and III buildings and other structures. The Maximum Considered Tsunami inundation depth and tsunami flow velocity characteristics at a Tsunami Risk Category II or III building or other structure shall be determined by the WA-TDZ maps. Those parameters shall be used as the Maximum Considered Tsunami inundation depth and tsunami flow velocity characteristics in lieu of the Energy Grade Line Analysis in Section 6.6.

1615.2.6 ASCE 7 Section 6.5.1.1. Modify the first paragraph of ASCE 7 Section 6.5.1.1 to read as follows:

6.5.1.1 Runup evaluation for areas where no map values are given. For Tsunami Risk Category II and III buildings and other structures where no mapped inundation limit is shown in the Tsunami Design Zone map, the ratio of tsunami runup elevation above Mean High Water Level to Offshore Tsunami Amplitude, R/HT, shall be permitted to be determined using the surf similarity parameter ξ100, according to Eqs. (6.5-2a, b, c, d, or e) and Fig. 6.5-1.

1615.2.7 ASCE 7 Section 6.5.2. Modify the paragraph and the exception, to read as follows:

6.5.2 Tsunami Risk Category IV buildings and other structures. A site-specific Probabilistic Tsunami Hazard Analysis (PTHA) shall be performed for Tsunami Risk Category IV buildings and other structures. Site-specific velocities determined by site-specific PTHA determined to be less than the design flow velocities determined from the WA-TDZ maps shall be subject to the limitation in Section 6.7.6.8. Site-specific velocities determined to be greater than the WA-TDZ map velocities shall be used.

EXCEPTION: For structures other than Tsunami Vertical Evacuation Refuge Structures, a site-specific Probabilistic Tsunami Hazard Analysis need not be performed where the inundation depth determined from the WA-TDZ maps is determined to be less than 12 ft (3.66 m) at any point within the location of the Tsunami Risk Category IV structure.

1615.2.8 ASCE 7 Section 6.6.1. Replace ASCE 7 Section 6.6.1 to read as follows:

6.6.1 Maximum inundation depth and flow velocities. The maximum inundation depths and flow velocities associated with the stages of tsunami flooding are determined by the WA-TDZ maps. Flow velocity for design purposes shall not be taken as less than 10 ft/s (3.0 m/s) and need not be taken as greater than the lesser of $1.5(gh_{max})^{1/2}$ and 50 ft/s (15.2 m/s).

1615.2.9 ASCE 7 Section 6.7. Replace ASCE 7 Section 6.7 with the following and add a user note:

When required by Section 6.5, the inundation depths and flow velocities shall be determined by site-specific inundation studies complying with the requirements of this section. Site-specific analyses shall use an integrated generation, propagation, and inundation model that replicates the given offshore tsunami waveform amplitude and period from the seismic sources given in Section 6.7.2.

USER NOTE: WA-TDZ maps are based on an integrated generation, propagation, and inundation model replicating waveforms from the seismic sources specific to Washington state. See https://www.dnr.wa.gov/wa-tdz.

1615.2.10 ASCE 7 Table 6.7-2. Modify ASCE 7 Table 6.7-2 to read as follows:

Table 6.7-2 Maximum Moment Magnitude

Subduction Zone	Moment Magnitude M_{Wmax}
Alaskan-Aleutian	9.2
Cascadia	9.0
Chile-Peru	9.5
Izu-Bonin-Mariana	9.0
Kamchatka-Kurile and Japan Trench	9.4

1615.2.11 ASCE 7 Section 6.7.5.1. Modify ASCE 7 Section 6.7.5.1 Item 4, Item 5, and Item 6 to read as follows:

6.7.5.1 Offshore tsunami amplitude for distant seismic sources. Offshore tsunami amplitude shall be probabilistically determined in accordance with the following:

4. The extent of offshore tsunami amplitude points considered for the site shall include the following:

(a) For outer coast sites, the extent shall include points within at least 40 mi (64.4 km) but not exceeding 50 mi (80.5 km) of projected length along the coastline, centered on the site within a tolerance of plus or minus 6 mi (9.7 km);

(b) Reserved;

(c) For sites within bays or inland waterways (such as the Strait of Juan de Fuca), the designated center of the computed offshore tsunami amplitude points shall be taken offshore of the mouth of the bay or waterway centered in accordance with criteria (a) above;

(d) For island locations where the projected width of the island is less than 40 mi (64.4 km), it shall be permitted to consider the extent of offshore tsunami amplitude points corresponding to the projected width of the island. Shorter extents of offshore tsunami amplitude points shall be permitted for island locations, but shall not be less than 10 mi (16.1 km);

(e) In addition to the above, the tsunami source development and inundation modeling are subject to an independent peer review by a tsunami modeler approved by the Authority Having Jurisdiction, who shall present a written report to the Authority Having Jurisdiction as to the hazard consistency of the modeling with the requirements of Section 6.7.

5. The mean value of the computed offshore tsunami wave amplitudes shall be not less than 100 percent of the mean value for the coinciding offshore tsunami amplitude data given by the WA-TDZ maps.

6. The individual values of the computed offshore tsunami wave amplitude shall be not less than 80 percent of the coinciding offshore tsunami amplitude values given by the WA-TDZ maps.

1615.2.12 ASCE 7 Section 6.7.5.3. Modify ASCE 7 Section 6.7.5.3.1(b) and (c) to read as follows:

(b) The mean value of the computed offshore tsunami amplitudes is at least 85 percent of the mean value for the coinciding offshore tsunami amplitude data of the WA-TDZ maps.

(c) The values of the computed offshore tsunami wave amplitude are not less than 75 percent of the coinciding offshore tsunami amplitude values of the WA-TDZ maps.

1615.2.13 ASCE 7 Section 6.7.6.2. Modify ASCE 7 Section 6.7.6.2 and add a user note to read as follows:

6.7.6.2 Seismic subsidence before tsunami arrival. Where the seismic source is a local earthquake event, the Maximum Considered Tsunami inundation shall be determined for an overall elevation subsidence value directly computed for the seismic source mechanism.

USER NOTE: WA-TDZ maps include computed subsidence and uplift (where applicable) in the inundation results. See https://www.dnr.wa.gov/wa-tdz.

1615.2.14 ASCE 7 Figure 6.7-3. Remove Figure 6.7-3 and the associated note.

1615.2.15 ASCE 7 Section 6.8.9. Modify the first sentence of ASCE 7 Section 6.8.9 to read as follows:

6.8.9 Seismic effects on the foundations preceding maximum considered tsunami. Where designated in the Tsunami Design Zone map as a site subject to a tsunami from a local earthquake, the structure shall be designed for the preceding coseismic effects.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1702 ((~~Section 1702—Definitions.~~)) Reserved.

((~~**1702.1 Definitions.** The following terms are defined in Chapter 2:~~

~~Approved agency~~
~~Approved fabricator~~
~~Certificate of compliance~~
~~Designated seismic system~~
~~Fabricated item~~
~~Intumescent fire-resistant coatings~~
~~Main wind-force resisting system~~
~~Mastic fire-resistant coatings~~
~~**SMALL BUSINESS.**~~
~~Special inspection~~
~~Continuous special inspection~~
~~Periodic special inspection~~
~~Special inspector~~
~~Sprayed fire-resistant materials~~
~~Structural observation~~))

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-1705 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.~~

~~Table 1705.5.3~~
~~Required Special Inspections of Mass Timber Construction~~

~~Type~~	~~Continuous Special Inspection~~	~~Periodic Special Inspection~~
~~1. Inspection of anchorage and connections of mass timber construction to timber deep foundation systems.~~		~~X~~
~~2. Inspect erection and sequence of mass timber construction.~~		~~X~~

Type	Continuous Special Inspection	Periodic Special Inspection
3. Inspection of connections where installation methods are required to meet design loads.		
3.1. Threaded fasteners.		
3.1.1. Verify use of proper installation equipment.		X
3.1.2. Verify use of predrilled holes where required.		X
3.1.3. Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.		X
3.2. Adhesive anchors installed in horizontal or upwardly inclined orientation to resist sustained tension loads.	X	
3.3. Adhesive anchors not defined in 3.2		X
3.4. Bolted connections.		X
3.5. Concealed connections.		X

1705.11.1 Structural wood. *Continuous special inspection* is required during field gluing operations of elements of the main windforce-resisting system. *Periodic special inspection* is required for nailing, bolting, anchoring and other fastening of elements of the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces and hold-downs.

EXCEPTION: *Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the main windforce-resisting system, where the lateral resistance is provided by sheathing of wood structural panels, and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

1705.12.2 Structural wood. For the seismic force-resisting systems of structures assigned to *Seismic Design Category* C, D, E, or F:

1. *Continuous special inspection* shall be required during field gluing operations of elements of the seismic force-resisting system.

2. *Periodic special inspection* shall be required for nailing, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs.

EXCEPTION: *Special inspections* are not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other elements of the seismic force-resisting system, where the lateral resistance is provided by sheathing of wood structural panels, and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

1705.12.6)) 1705.13.6 Plumbing, mechanical and electrical components. Periodic special inspection of plumbing, mechanical and electrical components shall be required for the following:

1. Anchorage of electrical equipment for emergency and standby power systems in structures assigned to Seismic Design Category C, D, E or F.

2. Anchorage of other electrical equipment in structures assigned to Seismic Design Category E or F.

3. Installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units in structures assigned to Seismic Design Category C, D, E or F.

4. Installation and anchorage of ductwork designed to carry hazardous materials in structures assigned to Seismic Design Category C, D, E or F.

5. Installation and anchorage of vibration isolation systems in structures assigned to Seismic Design Category C, D, E or F where the approved construction documents require a nominal clearance of .25 inch (6.4 mm) or less between the equipment support frame and restraint.

6. Installation of mechanical and electrical equipment, including ductwork, piping systems and their structural supports, where automatic fire sprinkler systems are installed in Risk Category IV structures assigned to Seismic Design Category C, D, E or F to verify one of the following:

6.1. Minimum clearances have been provided as required by Section 13.2.3 ASCE/SEI 7.

6.2. A nominal clearance of not less than 3 inches (76 mm) has been provided between ((~~fire protection~~)) automatic sprinkler system drops and sprigs and: Structural members not used collectively or independently to support the sprinklers; equipment attached to the building structure; and other systems' piping.

Where flexible sprinkler hose fittings are used, special inspection of minimum clearances is not required.

((**~~1705.19 Sealing of mass timber.~~** ~~Periodic special inspections of sealants or adhesives shall be conducted where sealant or adhesive required by Section 703.9 is applied to mass timber building elements as designated in the approved construction documents.~~))

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-17090 Preconstruction load tests.

1709.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1709.5.1 or 1709.5.2. For ((~~the purposes of this section, the required design pressure shall be determined using the allowable stress design load combinations of Section 1605.3~~)) exterior windows and doors tested in accordance with Section 1709.5.1 or 1709.5.2, required design wind pressures determined from ASCE 7 shall be permitted to be converted to allowable stress design by multiplying by 0.6.

EXCEPTIONS:

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

2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section 1709 of the *International Building Code* provided they meet the applicable provisions of Chapter 24 of the *International Building Code*.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1710 ((~~Section 1710—~~))Reserved.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1715 ((~~Section 1715—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1901 ((~~Section 1901—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1903 ((~~Section 1903—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1904 ((~~Section 1904—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1905 ((~~Section 1905—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1908 ((~~Section 1908—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-1909 ((~~Section 1909—~~))Reserved.

NEW SECTION

WAC 51-50-2103 Section 2103—Mortar.

2103.2.4 Mortar for adhered masonry veneer. Mortar for use with adhered masonry veneer shall conform to ASTM C270 for Type N or S, or shall comply with ANSI A118.4 or A118.15 for modified dry-set cement mortar. The cementitious bond coat shall comply with ANSI A118.4 or A118.15.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-2104 ((~~Section 2104—~~))Reserved.

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-21070 ((~~Section 2107—Allowable stress design.~~)) Reserved.

((~~**2107.1 General.** The design of masonry structures using *allowable stress design* shall comply with Sections 2106 and the requirements of Chapters 1 through 8 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107.2 through 2107.3.~~

~~**2107.2 TMS 402/ACI 530/ASCE 5, Section 2.1.8.7.1.1, lap splices.** In lieu of Section 2.1.8.7.1.1, it shall be permitted to design lap splices in accordance with Section 2107.2.1.~~))

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-2111 Section 2111—Masonry fireplaces.

2111.8 Fireplaces. Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.

EXCEPTION: Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).

2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.

EXCEPTION: Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in accordance with IBC Section ((~~2114 (WAC 51-50-2114)~~)) 2115 (WAC 51-50-2115).

3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the installed appliance.

2111.8.1 Lintel and throat. Masonry over a fireplace opening shall be supported by a lintel of noncombustible material. The minimum required bearing length on each end of the fireplace opening shall be 4 inches (102 mm). The fireplace throat or damper shall be located a minimum of 8 inches (203 mm) above the top of the fireplace opening.

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-2303 Section 2303—Minimum standards and quality.

((~~**2303.1.4 Structural glued cross-laminated timber.** Cross-laminated timbers shall be manufactured and identified in accordance with ANSI/APA PRG 320. Cross-laminated timbers in Construction Types IV-A, IV-B, and IV-C shall be manufactured and identified in accordance with ANSI/APA PRG 320 - 18.~~)) **2303.1.1.3 Used solid-sawn lumber.** Used solid-sawn dimensional lumber in good condition and devoid of areas of decay, not meeting the requirements of Section 2303.1.1, 2303.1.1.1, or 2303.1.1.2, that has a nominal thickness of 2 inches with a nominal width of 6 inches or less, shall be assumed to be spruce-pine-fir stud grade and shall have structural properties assigned in accordance with current adopted standards. All other dimensional lumber shall be assumed to be hem-fir No. 2 grade and shall have structural properties assigned in accordance with current adopted standards.

2303.6 Nails and staples. Nails and staples shall conform to requirements of ASTM F1667, including Supplement 1. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as follows: 80 kips per square inch (ksi) (551 MPa) for shank diameters larger than 0.177 inch (4.50 mm) but not larger than 0.254 inch (6.45 mm), 90 ksi (620 MPa) for shank diameters larger than 0.142 inch (3.61 mm) but not larger than 0.177 inch (4.50 mm) and 100 ksi (689 MPa) for shank diameters of not less than 0.099 inch (2.51 mm) but not larger than 0.142 inch (3.61 mm). Staples used for framing and sheathing connections shall have minimum average bending moments as follows: 3.6 in.-lbs (0.41 N-m) for No. 16 gage staples, 4.0 in.-lbs (0.45 N-m) for No. 15 gage staples, and 4.3 in.-lbs (0.49 N-m) for No. 14 gage staples. Staples allowable bending moments shall be listed on the construction documents.

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-2304 Section 2304—General construction requirements.

((**2304.10 Connectors and fasteners.** Connectors and fasteners shall comply with the applicable provisions of Sections 2304.10.1 through 2304.10.8.

2304.10.8 Connection fire-resistance rating. Fire-resistance ratings for connections in Type IV-A, IV-B, or IV-C construction shall be determined by one of the following:

1. Testing in accordance with Section 703.2 where the connection is part of the fire-resistance test.

2. Engineering analysis that demonstrates that the temperature rise at any portion of the connection is limited to an average temperature rise of 250°F (139°C), and a maximum temperature rise of 325°F (181°C), for a time corresponding to the required fire-resistance rating of the structural element being connected. For the purposes of this analysis, the connection includes connectors, fasteners, and portions of wood members included in the structural design of the connection.))

2304.11.2.1 Exterior walls. *Exterior walls* shall be permitted to be *cross-laminated timber* not less than 3.5 inches (88 mm) in actual thickness meeting the requirements of Section 2303.1.4.

2304.11.2.2 Interior walls and partitions. Interior walls and partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction 3.5 inches (88 mm) in actual thickness, or of 1-hour fire-resistance-rated construction.

2304.11.3.1 Cross-laminated timber floors. *Cross-laminated timber* shall be not less than 3.5 inches (88 mm) in actual thickness. *Cross-laminated timber* shall be continuous from support to support and mechanically fastened to one another. *Cross-laminated timber* shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

2304.11.4.1 Cross-laminated timber roofs. *Cross-laminated timber* roofs shall be not less than 2.5 inches (63 mm) in actual thickness and shall be continuous from support to support and mechanically fastened to one another.

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-2400 ((Chapter 24—Glass and glazing.)) Reserved.

((**Section 2405—Sloped glazing and skylights.**

2405.3 Screening. Where used in monolithic glazing systems, heat-strengthened glass and fully tempered glass shall have screens instal-

~~led below the glazing material. The screens and their fastenings shall:~~

~~(1) Be capable of supporting twice the weight of the glazing;~~

~~(2) Be firmly and substantially fastened to the framing members; and~~

~~(3) Be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Heat strengthened glass, fully tempered glass and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.~~

~~EXCEPTIONS:~~ ~~In monolithic and multiple-layer sloped glazing systems, the following applies:~~
~~1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.~~
~~2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.~~
~~3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.~~
~~4. Screens shall not be required within individual dwelling units in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:~~
~~4.1. Each pane of the glass is 16 square feet (1.5 m^2) or less in area.~~
~~4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.~~
~~4.3. The glass thickness is 3/16 inch (4.8 mm) or less.~~
~~5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer within the following limits:~~
~~5.1. Each pane of glass is 16 square feet (1.5 m^2) or less in area.~~
~~5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.~~))

NEW SECTION

WAC 51-50-2405 Section 2405—Sloped glazing and skylights.

2405.3 Screening. Where used in monolithic glazing systems, annealed, heat strengthened, fully tempered and wired glass shall have broken glass retention screens installed below the glazing material. The screens and their fastenings shall be:

1. Capable of supporting twice the weight of the glazing;
2. Firmly and substantially fastened to the framing members; and
3. Installed within 4 inches (102 mm) of the glass.

The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Annealed, heat strengthened, fully tempered and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.

EXCEPTION: In monolithic and multiple-layer sloped glazing systems, the following applies:
1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.
2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.
4. Screens shall not be required within individual dwelling units in Groups R-2, R-3, and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:
4.1. Each pane of the glass is 16 square feet (1.5 m^2) or less in area.
4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.

4.3. The glass thickness is 3/16 inch (4.8 mm) or less.
5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer within the following limits:
5.1. Each pane of glass is 16 square feet (1.5 m^2) or less in area.
5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

AMENDATORY SECTION (Amending WSR 22-13-094, filed 6/14/22, effective 7/1/23)

WAC 51-50-3500 Chapter 35—Referenced standards. Add the reference standards as follows:

Standard reference number	Title	Referenced in code section number
ACI 561-21	Assessment, Repair, and Rehabilitation of Existing Concrete Structures	405.1.1
ASCE/SEI 7-16	Minimum Design Loads and Associated Criteria for Buildings and Other Structures with Supplement No.1, Supplement No. 2, and Supplement No. 3.	
ASCE/SEI 7-22	Minimum Design Loads and Associated Criteria for Buildings and Other Structures	1615.1
NFPA 130-20	Standard for Fixed Guideway Transit and Passenger Rail Systems	3101.1, 3116
NFPA 13-16	Standard for the Installation of Sprinkler Systems (except 8.15.5.3(5))	403.3.3, 712.1.3.1, 903.3.1.1, 903.2, 903.3.8.2, 903.8.5, 904.13, 905.3.4, 907.6.4, 1019.3

INTERNATIONAL EXISTING BUILDING CODE ((~~2018~~)) 2021 EDITION

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-480102 ((~~Section 102—~~))Reserved.

AMENDATORY SECTION (Amending WSR 21-12-103, filed 6/2/21, effective 7/3/21)

WAC 51-50-480200 Section 201.3—Definitions.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the other International Codes and the Uniform Plumbing Code, such terms shall have the meanings ascribed to them in those codes.

202 General definitions.

ADULT FAMILY HOME. A dwelling, licensed by the state of Washington department of social and health services, in which a person or persons provide personal care, special care, room and board to more than one but not more than six adults who are not related by blood or marriage to the person or persons providing the services. An existing adult family home may provide services to up to eight adults upon approval from the department of social and health services in accordance with RCW 70.128.066.

SUBSTANTIAL DAMAGE. For the purpose of determining compliance with the flood provisions of this code, damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the value determined by one of the following methods:

1. Values developed for property tax assessment, adjusted to the approximate market value where the land is appraised separately from the structure.

2. Through a professional appraiser using estimates of a structure's actual cash value, including depreciation and improvements.

3. The latest building valuation data published by the International Code Council.

4. Qualified estimates based on the professional judgment of the building official. However, when the ratio falls between 40 and 60 percent, the building official may require the applicant to provide a detailed list of costs.

SUBSTANTIAL IMPROVEMENT. For the purpose of determining compliance with the flood provisions of this code, any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the value determined by one of the following methods:

1. Values developed for property tax assessment, adjusted to the approximate market value where the land is appraised separately from the structure.

2. Through a professional appraiser using estimates of a structure's actual cash value, including depreciation and improvements.

3. The latest building valuation data published by the International Code Council.

4. Qualified estimates based on the professional judgment of the building official. However, when the ratio falls between 40 and 60 percent, the building official may require the applicant to provide a detailed list of costs.

If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either of the following:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the code official and that is the minimum necessary to ensure safe living conditions.

2. Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure.

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-480302 Section 302—General provisions.

((~~302.3~~)) 302.2 Additional codes. Alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy or relocation, respectively, in this code and the Washington State Energy Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, Uniform Plumbing Code, and International Residential Code. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

NEW SECTION

WAC 51-50-480306 Section 306—Structural.

306.6 Additions. Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements in Section 306.7.1. Limited-use/limited-application elevators installed in accordance with ASME A17.1 shall be permitted as a component of an accessible route connecting the existing construction to the addition.

306.7.1 Alterations affecting an area containing a primary function. Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. Toilet facilities and drinking fountains serving the area of primary function, including the route from the area of primary function to these facilities, shall be accessible. Priority shall be given to the improvements affecting the accessible route to the primary function area.

EXCEPTIONS:
1. The cumulative costs of providing the accessible route of travel, toilet facilities, and drinking fountains are not required to exceed 20 percent of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets, and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of a facility.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

306.7.8 Platform lifts and limited-use/limited-application elevators. Vertical and inclined platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

Limited-use/Limited-application elevators installed in accordance with ASME A17.1 shall be permitted as a component of an accessible route.

NEW SECTION

WAC 51-50-480401 Section 401—General.

401.2 Compliance. The work shall not make the building less complying than it was before the repair was undertaken. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to requirements for alterations.

401.4 Demolition and replacement. Where a building or structure is effectively demolished by damage or where the intended method of repair is demolition and replacement, the replaced building, including its replaced foundation, shall comply with requirements for new construction in the *International Building Code*.

EXCEPTION: Existing foundations are permitted to remain and be reused where approved by the code official.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480405 Section 405—((~~Reserved~~)) Structural.

405.1 General. Structural repairs shall be in compliance with this section and Section 401.2.

405.1.1 Structural concrete repairs. Repair of structural concrete is permitted to comply with ACI 562 Section 1.7, except where Section 405.2.2, 405.2.3, or 405.2.4.1 requires compliance with Section 304.3.

NEW SECTION

WAC 51-50-480503 Section 503—Alterations.

503.13 Voluntary lateral force-resisting system alterations. Structural alterations that are intended exclusively to improve the lateral force resisting system and are not required by other sections of this code, shall not be required to meet the requirements of Section 1609 or 1613 of the *International Building Code*, provided that all of the following apply:

1. The capacity of existing structural systems to resist forces is not reduced.

2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

2.1 Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate"

where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

2.1.1 The selected design criteria is the International Building Code.

2.1.2 The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.

4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

503.19 Seismic requirements for alterations with increased occupant load of unreinforced masonry or hollow clay tile buildings. In addition to the requirements in Sections 503.4 through 503.11, alterations meeting all of the following conditions shall comply with the applicable requirements in Sections 503.19.1 through 503.19.4.

1. The occupant load of a building increases by more than 20 percent for occupancy groups A, I, E, R, M, B, H, or S used for storage of hazardous materials.

2. Buildings assigned to Seismic Design Category C, D, E, or F.

3. The building's structural system includes unreinforced masonry and hollow clay tile bearing walls.

Where there is a change of occupancy with the alteration, the most restrictive seismic requirements in accordance with Section 506 and this section shall apply. The cumulative effect of alterations compared with the original occupant load that have an increase in occupant load over time exceeding 20 percent shall comply with these provisions.

EXCEPTIONS:
1. A cumulative increase in the occupant load of less than 50 for occupancy categories A or I.
2. A cumulative increase in the occupant load of less than 25 for E occupancies.
3. R-3 occupancies, and all other R occupancies with an increase of 5 dwelling or sleeping units or less.
4. A cumulative increase in occupant load of less than 100 for occupancy categories M or B.
5. A cumulative increase in the occupant load of less than 10 for H occupancies or S occupancies using hazardous materials.

503.19.1 Large buildings. Buildings four or more stories or buildings more than 12,000 square feet shall be required to perform seismic evaluation in accordance with IEBC 304.3. Any lateral resisting elements shall be required to comply with design requirements for reduced seismic forces in accordance with Section 304.3.2 where found to be deficient.

503.19.2 Parapet bracing. Buildings with parapets constructed of unreinforced masonry where the parapet height to thickness ratio exceeds 1.5:1 shall be required to have parapets anchored, removed, or altered to resist out-of-plane seismic forces unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

503.19.3 Floor and roof wall anchors. The alteration work shall include the installation of wall anchors at the floor and roof lines unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

503.19.4 Bracing of partitions and nonstructural walls. Unreinforced masonry partitions and nonstructural walls within the alteration area and adjacent to egress paths from the alteration area shall be anchored, removed, or altered to resist out-of-plane seismic forces unless

an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

NEW SECTION

WAC 51-50-480603 Section 603—Alteration-Level 2.

603.1 Scope. Level 2 alterations include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, and shall apply where the work is below the threshold of a Level 3 alteration.

EXCEPTION: The movement or addition of nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height shall not be considered a Level 2 alteration.

NEW SECTION

WAC 51-50-480604 Section 604—Alteration-Level 3.

604.1 Scope. Level 3 alterations apply where one of the criteria is exceeded:

1. The work meets or exceeds the threshold of either substantial improvement or substantial damage; or
2. The alteration area exceeds 50 percent of the building area.

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-480702 Section 702—Building elements and materials.

((~~702.6~~)) 702.7 Materials and methods. New work shall comply with the materials and methods requirements in the *International Building Code*, Washington State Energy Code, *International Mechanical Code*, and Uniform Plumbing Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480704 ((~~Section 704—~~))Reserved.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480711 ((~~Section 711—~~))Reserved.

NEW SECTION

WAC 51-50-480805 Section 805—Structural.

805.4 Voluntary lateral force-resisting system alterations. Structural alterations that are intended exclusively to improve the lateral force resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or Section 1613 of the *International Building Code*, provided that the following conditions are met:

1. The capacity of existing structural systems to resist forces is not reduced.

2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria.

2.1 Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

2.1.1 The selected design criteria is the *International Building Code*.

2.1.2 The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.

4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

805.5 Seismic requirements for Level 2 alterations with increased occupant load of unreinforced masonry or hollow clay tile buildings. In addition to the requirements in IEBC 805.3, Level 2 alterations meeting all of the following conditions shall comply with the applicable requirements in Sections 805.5.1 through 805.5.4.

1. The occupant load of a building increases by more than 20 percent for occupancy groups A, I, E, R, M, B, H, or S used for storage of hazardous materials.

2. Buildings assigned to Seismic Design Category C, D, E or F.

3. The building's structural system includes unreinforced masonry and hollow clay tile bearing walls.

Where there is a change of occupancy with the alteration, the most restrictive seismic requirements in accordance with IEBC 1006 and this section shall apply. The cumulative effect of alterations compared with the original occupant load that have an increase in occupant load over time exceeding 20 percent shall comply with these provisions.

EXCEPTIONS: 1. An increase in the occupant load of less than 50 for occupancy categories A or I.
2. An increase in the occupant load of less than 25 for E occupancies.

3. R-3 occupancies, and all other R occupancies with an increase of 5 dwelling or sleeping units or less.
4. An increase in occupant load of less than 100 for occupancy categories M or B.
5. A cumulative increase in the occupant load of less than 10 for H occupancies or S occupancies using hazardous materials.

805.5.1 Large buildings. Buildings four or more stories or buildings more than 12,000 square feet shall be required to perform seismic evaluation in accordance with IEBC 304.3. Any lateral resisting elements shall be required to comply with design requirements for reduced seismic forces in accordance with Section 304.3.2 where found to be deficient.

805.5.2 Parapet bracing. Buildings with parapets constructed of unreinforced masonry where the parapet height to thickness ratio exceeds 1.5:1 shall be required to have parapets anchored, removed or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

805.5.3 Floor and roof wall anchors. The alteration shall include the installation of wall anchors at the floor and roof lines, unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces in accordance with IEBC 304.3.2 shall be permitted.

805.5.4 Bracing of partitions and nonstructural walls. Unreinforced masonry partitions and nonstructural walls within the work area and adjacent to egress paths from the alteration area shall be anchored, removed or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces in accordance with Section 304.3.2 shall be permitted.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480807 ((~~Section 807—~~))Reserved.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480808 ((~~Section 808—~~))Reserved.

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-480809 Section 809—((~~Plumbing~~)) Energy conservation.

809.1 Minimum ((~~fixtures.~~ ~~Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the International Building Code based on the increased occupant load.~~)) requirements. Level 2 altera-

tions to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11C WAC).

AMENDATORY SECTION (Amending WSR 21-06-035, filed 2/23/21, effective 3/26/21)

WAC 51-50-480810 ((~~Energy conservation.~~)) Reserved.

((~~**810.1 Minimum requirements.** Level 2 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11C WAC).~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480912 ((~~Section 912—~~))Reserved.

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-481002 Section 1002—Special use and occupancy.

((~~**1002.1 Compliance with the building code.** Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*:~~

~~1. Covered and open mall buildings;~~
~~2. Atriums;~~
~~3. Motor vehicle-related occupancies;~~
~~4. Aircraft-related occupancies;~~
~~5. Motion picture projection rooms;~~
~~6. Stages and platforms;~~
~~7. Special amusement buildings;~~
~~8. Incidental use areas;~~
~~9. Hazardous materials;~~
~~10. Ambulatory care facilities;~~
~~11. Group I-2 occupancies;~~
~~12. Group I-1, Condition 2, for licensure as an assisted living facility under chapter 388-78A WAC or residential treatment facility under chapter 246-337 WAC.~~))

1002.3 Change of occupancy in health care. Where a change of occupancy occurs to a Group I-2 or I-1 facility, the work area with the change of occupancy shall comply with the *International Building Code*.

The *International Building Code* shall apply to Group I-1, Condition 2, for licensure as an assisted living facility under chapter 388-78A WAC or residential treatment facility under chapter 246-337 WAC.

EXCEPTION: A change in use or occupancy in the following cases shall not be required to meet the *International Building Code*:
1. Group I-2, Condition 2 to Group I-2, Condition 1.
2. Group I-2 to ambulatory health care.
3. Group I-2 to Group I-1.
4. Group I-1, Condition 2 to Group I-1, Condition 1.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-481103 ((~~Section 1103—~~))Reserved.

((~~**1103.9 Reserved.**~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-481105 ((~~Section 1105—~~))Reserved.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-481201 Section 1201—Historic buildings—General.

1201.1 Scope. ((~~It is the intent of~~)) This chapter is intended to provide means for the preservation of historic buildings. It is the purpose of this chapter to encourage cost-effective preservation of original or restored architectural elements and features and to provide a historic building that will result in a reasonable degree of safety, based on accepted life and fire safety practices, compared to the existing building. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

SECTION 1202—Reserved.

AMENDATORY SECTION (Amending WSR 20-01-090, filed 12/12/19, effective 7/1/20)

WAC 51-50-481205 Reserved.

((~~**1205.1 General.**~~))

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-481301 ((~~Relocated or moved buildings—General.~~)) Reserved.

((~~**1301.1 Scope.** This chapter provides requirements for relocated or moved structures, including relocatable buildings as defined in Chapter 2.~~

~~**1301.2 Conformance.** Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the *International Residential Code* (chapter 51-51 WAC), the *International Mechanical Code* (chapter 51-52 WAC), the *International Fire Code* (chapter 51-54 WAC), the *Uniform Plumbing Code and Standards* (chapters 51-56 and 51-57 WAC), the Washington State Energy Code (chapter 51-11 WAC) and the Washington State Ventilation and Indoor Air Quality Code (chapter 51-13 WAC) for new buildings or structures.~~

~~EXCEPTION: Group R-3 buildings or structures are not required to comply if:~~
~~1. The original occupancy classification is not changed; and~~
~~2. The original building is not substantially remodeled or rehabilitated.~~

~~For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-481302 ((~~Requirements.~~)) Reserved.

((~~This section is not adopted.~~))

NEW SECTION

WAC 51-50-481401 Relocated or moved buildings—General.

1401.2 Conformance. Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the *International Residential Code* (chapter 51-51 WAC), the *International Mechanical Code* (chapter 51-52 WAC), the *International Fire Code* (chapter 51-54A WAC), the *Uniform Plumbing Code* (chapter 51-56 WAC), the Washington State Energy Code - Commercial (chapter 51-11C WAC), and the Washington State Energy Code - Residential (chapter 51-11R WAC) for new buildings or structures.

EXCEPTION: Group R-3 buildings or structures are not required to comply if:
1. The original occupancy classification is not changed; and
2. The original building is not substantially remodeled or rehabilitated.

For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60

percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

NEW SECTION

WAC 51-50-481402 Section 1402—Requirements. This section is not adopted.

AMENDATORY SECTION (Amending WSR 20-21-021, filed 10/9/20, effective 11/9/20)

WAC 51-50-481500 Section 1501—General.

((~~1501.1~~)) 1501.7 Facilities required. Sanitary facilities shall be provided during construction or demolition activities in accordance with the Uniform Plumbing Code.

AMENDATORY SECTION (Amending WSR 16-03-064, filed 1/19/16, effective 7/1/16)

WAC 51-50-490000 ((~~Appendix N—Solar readiness.~~)) Reserved.

((~~The provisions contained in this appendix are not mandatory unless specifically referenced in the local adopting ordinance.~~

~~490101.1 General.~~ ~~A *solar zone* shall be provided on nonresidential buildings of any size that are 5 stories or less in height above grade plane, and shall be located on the roof of the building or on another structure elsewhere on the site. The *solar zone* shall be in accordance with Sections 490101.3 through 490101.9 and the *International Fire Code*.~~

~~EXCEPTION: A *solar zone* is not required where the solar exposure of the building's roof area is less than 75 percent of that of an unshaded area, as measured by one of the following:~~
~~a. Incident solar radiation expressed in kWh/ft^2 per year using typical meteorological year (TMY) data;~~
~~b. Annual sunlight exposure expressed in cumulative hours per year using TMY data;~~
~~c. Shadow studies indicating that the roof area is more than 25 percent in shadow, on September 21 at 10:00 a.m., 11:00 a.m., 12:00 p.m., 1:00 p.m., and 2:00 p.m. solar time.~~

~~490101.2 Definitions.~~ ~~The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *International Building Code* for general definitions.~~

~~SOLAR ZONE. A clear area or areas reserved solely for current and future installation of photovoltaic or solarwater heating systems.~~

~~490101.3 Minimum area.~~ ~~The minimum area of the *solar zone* shall be determined by one of the following methods, whichever results in the smaller area:~~

~~1. 40 percent of roof area. The roof area shall be calculated as the horizontally-projected gross roof area, less the area covered by skylights, occupied roof decks and planted areas.~~

~~2. 20 percent of electrical service size. The electrical service size shall be the rated capacity of the total of all electrical serv-~~

ices to the building. The required *solar zone* size shall be based upon 10 peak watts of PV per square foot.

EXCEPTION: Subject to the approval of the *building official*, buildings with extensive rooftop equipment that would make full compliance with this section impractical shall be permitted to reduce the size of the *solar zone* required by Section N101.3 to the maximum practicable area.

490101.4 Contiguous area. The *solar zone* is permitted to be comprised of smaller separated subzones. Each subzone shall be at least 5 feet wide in the narrowest dimension.

490101.5 Obstructions. The *solar zone* shall be free of pipes, vents, ducts, HVAC equipment, skylights and other obstructions, except those serving photovoltaics or solar water heating systems within the *solar zone*. Photovoltaics or solar water heating systems are permitted to be installed within the *solar zone*. The *solar zone* is permitted to be located above any such obstructions, provided that the racking for support of the future system is installed at the time of construction, the elevated *solar zone* does not shade other portions of the *solar zone*, and its height is permitted by the *International Building Code* and other applicable codes.

490101.6 Shading. The *solar zone* shall be set back from any existing or new object on the building or site that is located south, east, or west of the *solar zone* a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings. No portion of the *solar zone* shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

490101.7 Access. Areas contiguous to the *solar zone* shall provide access pathways and provisions for emergency smoke ventilation as required by the *International Fire Code*.

490101.8 Structural integrity. The as-designed dead load and live load for the *solar zone* shall be clearly marked on the record drawings, and shall accommodate future photovoltaic or solar water heating arrays at an assumed dead load of 4 pounds per square foot in addition to other required live and dead loads. For photovoltaic systems, a location for future inverters shall be designated either within or adjacent to the *solar zone*, with a minimum area of 2 square feet for each 1,000 square feet of *solar zone* area, and shall accommodate an assumed dead load of 175 pounds per square foot. Where photovoltaic or solar water heating systems are installed in the *solar zone*, structural analysis shall be based upon calculated loads, not upon these assumed loads.

490101.9 Photovoltaic or solar water heating interconnection provisions. Buildings shall provide for the future interconnection of either a photovoltaic system in accordance with Section 490101.9.1 or a solar water heating system in accordance with Section 490101.9.2.

490101.9.1 Photovoltaic interconnection. A capped roof penetration sleeve shall be provided in the vicinity of the future inverter, sized to accommodate the future photovoltaic system conduit. Interconnection of the future photovoltaic system shall be provided for at the main service panel, either ahead of the service disconnecting means or at the end of the bus opposite the service disconnecting means, in one of the following forms:

a. A space for the mounting of a future overcurrent device, sized to accommodate the largest standard rated overcurrent device that is less than 20 percent of the bus rating;

b. Lugs sized to accommodate conductors with an ampacity of at least 20 percent of the bus rating, to enable the mounting of an external overcurrent device for interconnection.

The electrical construction documents shall indicate the following:

a. *Solar zone* boundaries and access pathways;

b. Location for future inverters and metering equipment; and

c. Route for future wiring between the photovoltaic panels and the inverter, and between the inverter and the main service panel.

N101.9.2 Solar water heating interconnection. Two capped pipe tees shall be provided upstream of the domestic water heating equipment to provide plumbing interconnections between a future solar water heating system and the domestic water heating system. Two roof penetration sleeves shall be provided in the vicinity of the *solar zone*, capable of accommodating supply and return piping for a future solar water heating system. The plumbing construction documents shall indicate the following:

a. *Solar zone* boundaries and access pathways;

b. Location for future hot water storage tanks; and

c. Route for future piping between the *solar zone* and the plumbing interconnection point, following the shortest feasible pathway.))