

Exceptions:

1. The fire-resistance-rated room separation is not required, provided that the only openings in or penetrations of the shaft enclosure to the interior of the building occur at the bottom. The bottom of the shaft shall be closed off around the penetrating items with materials permitted by Section 718.3.1 for draftstopping, or the room shall be provided with an *approved automatic sprinkler system*.
2. A shaft enclosure containing a waste or linen chute shall not be used for any other purpose and shall discharge in a room protected in accordance with Section 713.13.4.
3. The fire-resistance-rated room separation and the protection at the bottom of the shaft are not required provided that there are no combustibles in the shaft and there are no openings or other penetrations through the shaft enclosure to the interior of the building.

713.12 Enclosure at top. A shaft enclosure that does not extend to the underside of the roof sheathing, deck or slab of the building shall be enclosed at the top with construction of the same *fire-resistance rating* as the topmost floor penetrated by the shaft, but not less than the *fire-resistance rating* required for the shaft enclosure.

713.13 Waste and linen chutes and incinerator rooms. Waste and linen chutes shall comply with the provisions of NFPA 82, Chapter 6 and shall meet the requirements of Sections 712 and 713.13.1 through 713.13.6. Incinerator rooms shall meet the provisions of Sections 713.13.4 through 713.13.5.

Exception: Chutes serving and contained within a single dwelling unit.

713.13.1 Waste and linen. A shaft enclosure containing a recycling, or waste or linen chute shall not be used for any other purpose and shall be enclosed in accordance with Section 713.4. A shaft enclosure shall be permitted to contain recycling and waste chutes. Openings into the shaft, from access rooms and discharge rooms, shall be protected in accordance with this section and Section 716. Openings into chutes shall not be located in *corridors*. Doors into chutes shall be self-closing. Discharge doors shall be self- or automatic-closing upon the actuation of a smoke detector in accordance with Section 716.2.6.6, except that heat-activated closing devices shall be permitted between the shaft and the discharge room.

713.13.2 Materials. A shaft enclosure containing a waste, recycling, or linen chute shall be constructed of materials as permitted by the building type of construction.

713.13.3 Chute access rooms. Access openings for waste or linen chutes shall be located in rooms or compartments enclosed by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. Openings into the access rooms shall be protected by opening protectives having a *fire protection rating* of not less than 3/4 hour. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.2.6.6. The room or compartment shall be configured to allow the access door to the room or compartment to close and latch with the access panel to the refuse or laundry chute in any position.

[W] 713.13.4 Chute discharge room. Waste or linen chutes shall discharge into an enclosed room separated by *fire barriers* with a *fire-resistance rating* not less than the required fire rating of the shaft enclosure and constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. Openings into the discharge room from the remainder of the building shall be protected by opening protectives having a *fire protection rating* equal to the protection required for the shaft enclosure. Through penetrations of piping and conduit not necessary for the purpose of the of the chute discharge room are permitted as long as they are protected per 714 and do not impact the operation of the trash collection system. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 716.2.6.6. Waste chutes shall not terminate in an incinerator room. Waste and linen rooms that are not provided with chutes need only comply with Table 509.

713.13.5 Incinerator room. Incinerator rooms shall comply with Table 509.

713.13.6 Automatic sprinkler system. An *approved automatic sprinkler system* shall be installed in accordance with Section 903.2.11.2.

[S] 713.13.7 Chute venting and roof termination. The full diameter of waste and linen chutes shall extend a minimum of 3 feet (0.92 m) above the building roof and be gravity vented per NFPA 82.

Exceptions:

1. Waste and linen chutes are permitted to be mechanically ventilated by an exhaust fan in lieu of gravity venting. The exhaust fan shall be located outside the building at the top of the chute.
2. Where the trash chute does not extend to the highest floor of the building below the roof the trash chute shall be permitted to vent to a sidewall louver termination by gravity venting or mechanical venting. The horizontal extension of the trash chute shall have the same cross-sectional area as the chute and shall be enclosed in rated construction equal to the rating of the shaft enclosure. No operable openings shall be located within 10 feet of the sidewall louver termination.

- 2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m²) determined using allowable stress design, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

SECTION 1613 EARTHQUAKE LOADS

[S] **1613.1 Scope.** Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17 and 18 of ASCE 7 as amended by Section 1613.4, as applicable. The *seismic design category* for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7.

Exceptions:

1. Detached one- and two-family dwellings, assigned to *Seismic Design Category* A, B or C, or located where the mapped short-period spectral response acceleration, S_s , is less than 0.4 g.
2. The seismic force-resisting system of wood-frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.
3. Agricultural storage structures intended only for incidental human occupancy.
4. Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.
5. References within ASCE 7 to Chapter 14 shall not apply, except as specifically required herein.

[S] **1613.1.1 Presubmittal conference.** At least 60 days prior to submittal of a building permit application that contains the construction documents for any structural component of the building, the applicant shall arrange a presubmittal conference with the structural engineer of record and the building official to review the proposed building structural system when an alternate procedure is used under the provisions in Section 104.4 or 104.5. The purpose of the meeting is to obtain conceptual approval from the building official of the proposed structural system.

Note: Projects using non-linear response history analysis methods or using an alternative lateral force resisting system are subject to peer review in accordance with Section 1613.4.2, and ASCE 7 Sections 12.2.1.1 and 16.1.1. Peer reviews require lengthy lead time prior to permit application and issuance. Applicants should contact the building official prior to the start of structural design.

1613.2 Seismic ground motion values. Seismic ground motion values shall be determined in accordance with this section.

1613.2.1 Mapped acceleration parameters. The parameters S_s and S_1 shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.2.1(1) through 1613.2.1(8). Where S_1 is less than or equal to 0.04 and S_s is less than or equal to 0.15, the structure is permitted to be assigned *Seismic Design Category* A.

**[W][S][P] TABLE 2902.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
(See Sections 2902.1.1 and 2902.2)**

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (((URINALS SEE SECTION 424.2 OF THE INTERNATIONAL PLUMBING CODE)))		LAVATORIES		BATHTUBS/ SHOWERS	((DRINKING FOUNTAINS (SEE SECTION 410 OF THE INTERNATIONAL PLUMBING CODE))	OTHER))
				Male	Female	Male	Female			
1	Assembly	A-1 ^d	Theaters and other buildings for the performing arts and motion pictures ^d	1 per 125	1 per 65	1 per 200		—	((1 per 500	1 service sink))
		A-2 ^d	Nightclubs, bars, taverns, dance halls and buildings for similar purposes ^d	1 per 40	1 per 40	1 per 75		—	((1 per 500	1 service sink))
			Restaurants, banquet halls and food courts ^d	1 per 75	1 per 75	1 per 200		—	((1 per 500	1 service sink))
			((Casino gaming areas	1 per 100 for the first 400 and 1 per 250 for the remainder exceeding 400	1 per 50 for the first 400 and 1 per 150 for the remainder exceeding 400	1 per 250 for the first 750 and 1 per 500 for the remainder exceeding 750		—	1 per 1,000	1 service sink))
		A-3 ^d	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums ^d	1 per 125	1 per 65	1 per 200		—	((1 per 500	1 service sink))
			Passenger terminals and transportation facilities ^d	1 per 500	1 per 500	1 per 750		—	((1 per 1,000	1 service sink))
			Places of worship and other religious services ^d	1 per 150	1 per 75	1 per 200		—	((1 per 1,000	1 service sink))
		A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	((1 per 1,000	1 service sink))
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities ^f	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	((1 per 1,000	1 service sink))

[W][S][P] TABLE 2902.1—continued
 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
 (See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (((URINALS SEE SECTION 424.2 OF THE INTERNATIONAL PLUMBING CODE)))		LAVATORIES		BATHTUBS/ SHOWERS	((DRINKING FOUNTAINS (SEE SECTION 410 OF THE INTERNATIONAL PLUMBING CODE))	OTHER))
				Male	Female	Male	Female			
2	Business	<u>B</u>	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial, ((ambulatory care)) and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	((1 per 100	1 service sink ^e))
3	Educational	<u>E</u> ^e	Educational facilities	1 per ((50)) <u>35</u>	<u>1 per 25</u>	<u>1 per 85</u>	1 per 50	—	((1 per 100	1 service sink))
4	Factory and industrial	<u>F-1 and F-2</u>	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		((—)) See footnote g	((1 per 400	1 service sink))
5	Institutional	<u>I-1</u>	((Custodial)) Residential care facilities	1 per 10		1 per 10		1 per 8	((1 per 100	1 service sink))
		<u>I-2</u>	((Medical care recipients in hospitals and nursing homes)) Hospitals, ambulatory nursing home care recipient ^b	1 per room ^c		1 per room ^c		1 per 15	((1 per 100	1 service sink))
			Employees ((in hospitals and nursing homes)) other than residential care ^b	1 per 25		1 per 35		—	((1 per 100	—))
			Visitors ((in hospitals and nursing homes)) other than residential care	1 per 75		1 per 100		—	((1 per 500	—))
		<u>I-3</u>	Prisons ^b	1 per cell		1 per cell		1 per 15	((1 per 100	1 service sink))
			Reformatories, detention centers and correctional centers ^b	1 per 15		1 per 15		1 per 15	((1 per 100	1 service sink))
Employees in ((reformatories)) reformatories, detention centers and correctional centers ^b	1 per 25		1 per 35		—	((1 per 100	—))			
<u>I-4</u>	Adult day care and child day care	1 per 15		1 per 15		1	((1 per 100	1 service sink))		

This page has been revised to include errata corrections effective July 6, 2021.

**[W][S][P] TABLE 2902.1—continued
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
(See Sections 2902.1.1 and 2902.2)**

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (((URINALS SEE SECTION 424.2 OF THE INTERNATIONAL PLUMBING CODE)))		LAVATORIES		BATHTUBS/ SHOWERS	((DRINKING FOUNTAINS (SEE SECTION 410 OF THE INTERNATIONAL PLUMBING CODE))	OTHER))
				Male	Female	Male	Female			
6	Mercantile	<u>M</u>	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	((1 per 1,000	1 service sink ^e))
7	Residential	<u>R-1</u>	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	((—	1 service sink))
		<u>R-2</u>	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	((1 per 100	1 service sink))
			Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	((—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units))
			One- and two-family dwellings and lodging houses with five or fewer guestrooms	1 per dwelling unit		1 per 10		1 per dwelling unit	((—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit))
		<u>R-3</u>	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	((1 per 100	1 service sink))
8	Storage	<u>S-1</u> <u>S-2</u>	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		((—) See footnote g	((1 per 1,000	1 service sink))

- a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code, except with respect to Group E occupancies the provisions of note “e” shall apply.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted, provided that each patient sleeping unit has direct access to the toilet room and provisions for privacy for the toilet room user are provided.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. ((For business and mercantile classifications with an occupant load of 15 or fewer, a service sink shall not be required.)) For Group E occupancies the number of occupants shall be determined by using a calculation of 100 square feet gross building area per student for the minimum number of plumbing fixtures.
- f. The required number and type of plumbing fixtures for outdoor swimming pools shall be in accordance with Section 609 of the *International Swimming Pool and Spa Code*.
- g. See *Uniform Plumbing Code* Section 416.0 for installation requirements for emergency shower and eyewash equipment.

[P] 2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table

CHAPTER 5 [RE]

EXISTING BUILDINGS

User note:

About this chapter: Many buildings are renovated or altered in numerous ways that could affect the energy use of the building as a whole. Chapter 5 requires the application of certain parts of Chapter 4 in order to maintain, if not improve, the conservation of energy by the renovated or altered building.

SECTION R501 GENERAL

R501.1 Scope. The provisions of this chapter shall control the *alteration, repair, addition* and change of occupancy of existing buildings and structures.

R501.1.1 Additions, alterations, or repairs. Additions, alterations, or repairs to an existing building, building system or portion thereof shall comply with Sections R502, R503 or R504. Unaltered portions of the existing building or building supply system shall not be required to comply with this code.

R501.1.2 Thermostats for accessory dwelling units. Where a separate dwelling unit, that provides independent facilities for living, sleeping, cooking, bathing and sanitation, is established within or attached to an existing dwelling unit, the heating and cooling for the newly-created dwelling unit shall be controllable with a separate programmable thermostat in accordance with Section R403.1.1.

R501.2 Existing buildings. Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing *building* or *building* system lawfully in existence at the time of adoption of this code.

R501.3 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices and systems that are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's authorized agent shall be responsible for the maintenance of buildings and structures. The requirements of this chapter shall not provide the basis for removal or abrogation of energy conservation, fire protection and safety systems and devices in existing structures.

[S] R501.4 Compliance. *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 *International Residential Code, International Building Code, International Existing Building Code, International Fire Code, International Fuel Gas Code, International Mechanical Code, Uniform Plumbing Code, International Property Maintenance Code*, and (~~NFPA 70~~) *Seattle Electrical Code*.

R501.5 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs, provided hazards to life, health or property are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

R501.6 Historic buildings. The building official may modify the specific requirements of this code for historic buildings and require alternate provisions which will result in a reasonable degree of energy efficiency. This modification may be allowed for those buildings or structures that are listed in the state or national register of historic places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a national register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the national or state registers of historic places either individually or as a contributing building to a historic district by the state historic preservation officer or the keeper of the national register of historic places.

SECTION R502 ADDITIONS

R502.1 General. Additions to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code where the addition alone complies, where the existing building and

CHAPTER 16

REFERENCED STANDARDS

User note:

About this chapter: This code contains numerous references to standards that are used to regulate materials and methods of construction. Chapter 16 contains a comprehensive list of all standards that are referenced in the code, including the appendices. The standards are part of the code to the extent of the reference to the standard. Compliance with the referenced standard is necessary for compliance with this code. By providing specifically adopted standards, the construction and installation requirements necessary for compliance with the code can be readily determined. The basis for code compliance is, therefore, established and available on an equal basis to the building code official, contractor, designer and owner.

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.4.

ASCE/SEI

American Society of Civil Engineers
Structural Engineering Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

7—16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures

303.2, ~~303.1.7~~, 303.3.1, 503.4, 503.12, 800.3 (~~(,806.4)~~)

~~**(31-03: Seismic Evaluation of Existing Buildings**~~

~~303.1.4, 303.1.5, 305.4, 305.4.2, Table 305.4.2, 907.2)~~

41—17: Seismic Evaluation and Retrofit of Existing Buildings

303.3.1, Table 303.3.1, 303.3.2, Table 303.3.2

ASHRAE

ASHRAE
1791 Tullie Circle, NE
Atlanta, GA 30329

62.1—2016: Ventilation for Acceptable Indoor Air Quality

808.2

ASME

American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016

~~**(ASME A17.1—2016/CSA B44—16)**~~ **A17.1/CSA B44-2019: Safety Code for Elevators and Escalators**

305.8.2 (~~(,902.1.2)~~)

~~**(A17.3—2015: Safety Code for Existing Elevators and Escalators**~~

~~902.1.2)~~

A18.1—(~~2014~~) 2017: Safety Standard for Platform Lifts and Stairway Chair Lifts

305.8.3

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

C94/C94M—15A: Specification for Ready-mixed Concrete

109.3.1

E84—2016: Standard Test Method for Surface Burning Characteristics of Building Materials

1204.9

E108—16: Standard Test Methods for Fire Tests of Roof Coverings

1204.5

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